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The Knapped Stone Assemblage from the Late Neolithic Site of Jhandi Babar-I, Dera Ismail Khan (Pakistan): A Typological Analysis

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Abstract

This study aimed to examine the typology of the knapped stone assemblage found at Jhandi Babar-I, a well-known site situated in the Gomal Valley, in the district of Dera Ismail Khan. The Department of Archaeology, University of Peshawar conducted excavations at the site in 1998. In addition to other artefacts, an abundance of stone tools was unearthed, both from the excavation and surface collection. These stone tools exhibit a diverse range of forms and shapes. The assemblage contains 134 lithic artefacts, which can be attributed to two distinct time periods: the Late Neolithic and the early Bronze Age.

Keywords: Knapped Stone Tools, Lithic Artefacts, Jhandi Babar-I, Microliths, Gomal Valley, Neolithic, Chalcolithic, Bronze Age.

1. Introduction

Knapped stone assemblages are collections of lithic artefacts that provide valuable insights into prehistoric human behaviour and technology. These assemblages typically consist of various stone tools, cores, and debitage produced through the knapping process, in which a hard hammer or soft hammer is used to strike flakes from the core. The composition of knapped stone assemblages can vary greatly, depending on factors such as raw material availability, cultural traditions, and intended tool functions. Archaeologists analyse these assemblages to understand tool production techniques, resource exploitation strategies, and patterns of human mobility and settlement. The Late Neolithic Era was characterized by the widespread use of microlithic tools manufacturing, which was prevalent at various sites in the Gomal Valley, Khyber Pakhtunkhwa, Province.

Microlithic tools were typically made from small blades or bladelets and were often retouched to enhance their functionality. These small pieces were frequently assembled and incorporated into a range of composite tools (e.g., Edmonds 2005: 224). The term “lithic” is derived from the Greek word “lithos”, which means rock or stone. It is commonly used in

archaeology to refer to prehistoric periods such as the Palaeolithic, Mesolithic, and Neolithic (Rapp 2014: 345–346). Stone is an incredibly durable material, making it the preferred choice for prehistoric tool and weapon creation. As a result, stone implements from various cultures are frequently discovered and studied (Leakey 1953: 29).

1.1. Objective

The objective of this study is to investigate the stone tools found at the Late Neolithic site of Jhandi Babar-I in the Gomal Valley. These tools were found during an excavation in 1998 and were later collected from the surface. The study will sort the tools by their shape and use, such as cores, blades, bladelets, points and scrapers. It will also examine the materials used and how the tools were made. The goal is to understand the cultural and historical context of these 134 stone tools, which show two periods of use: the Late Neolithic and the Early Bronze Age.

1.2. Overview of Lithic Industries in Neighbouring Regions

Previous research in neighbouring regions has documented a wide range of lithic industries relevant to the present study (for a much-detailed overview see Khan et al. 2010: 8-28). Early evidence comes from Baluchistan, where M. A. Stein recovered stone tools at the Periano Ghundai mound, including a large double-edged blade along with scrapers, knife blades, and an arrowhead, which he interpreted as Neolithic and comparable to the Sistan assemblages (Stein 1929: 38, 40). Excavations at Kot Diji revealed abundant lithic artefacts across all stratigraphic layers, dominated by elongated sharp blades and cores, scrapers, and micro-blades; notched and serrated blades suggest sickle/saw use, while lustrous edges indicate prolonged use, likely linked to harvesting, and leaf-shaped arrowheads were also noted (Khan 1965: 18, 31, 82-83). At Allahdino, Shaffer identified a distinct flint industry characterised by small geometric microlithic tools in the lowest occupation level (Fairservis 1973: 98). Kili Ghul Mohammad produced large thin blades made from chert, jasper, or chalcedony, generally curved and trapezoidal (with some triangular examples), often bearing fine serrations and occasional blunting on one edge (Fairservis 1956: 234-35). Excavations at Sarai Khola yielded microlithic tools including parallel-sided blades, scrapers, asymmetrical flakes, and arrowheads, with suggested hafting in bone handles (Halim, 1970-71: 23-

24; Halim 1972: 4-7). Jalilpur, an Early Harappan site, produced chert cores and blades with secondary retouching and glossy working edges (Mughal 1972: 117-118; Mughal 1972: 117-18, 22-24). At Mehrgarh, detailed technological analysis showed blades as the dominant tool type (over 80%), with Levels 5–8 characterised by truncated blades, drills, and trapezes, followed by a later decline in lunates and trapezes from Level 4 onwards (Jarrige et al. 2013: 125-127). Finally, analyses from Harappa demonstrated that ground and chipped stone artefacts were produced using raw materials obtained from geographically distant sources, including Potwar, Baluchistan, Rohri, Sindh Kohistan, and Jaisalmer, Rajasthan (Dales and Kenoyer 1991: 238).

2. Lithic Industries in the Gomal Plain and Bannu Basin

Microlithic industries of the Gomal Plain and Bannu Basin have been recognised since early reports, including the discovery of Palaeolithic–Mesolithic flakes and cores from older alluvium near the Marwat Kundi hills in the Bannu Plain (Khan 1979: 377). Subsequent excavations at Gumla and Hathala confirmed the presence of microlithic tools, particularly in Period-I levels, where only microliths were recorded. The Gumla assemblage is especially significant because it provides an evolutionary sequence of microlithic forms, including parallel-sided blades, awls, scrapers, a burin and a tranchet, reflecting toolkits mainly related to hunting activities rather than food production (Dani 1970-71: 41-42, 92). Both Gumla and Hathala produced substantial quantities of microliths, made predominantly of chert and flint, with limited use of red jasper and rare chalcedony examples (Dani 1970-71: 97).

Farid Khan's pioneering research at Rahman Dheri documented one of the richest microlithic assemblages in the region, classified into diverse tool types such as lunates, trapezes, triangles, points, arrowheads, scrapers, burins, drills and knives, suggesting composite hafted weapons and tools (Khan 1979: 375-403). Excavations at Rahman Dheri (1976-81) yielded stone tools consistently, though later publications reported smaller documented samples, including flakes, blades, scrapers and microlithic elements (Durrani *et al.* 1991: 106-7; Durrani and Ali 1998). Similar microlithic abundance was recorded at Lewan (Bannu), where tools recovered from surface and excavations were largely made of crypto-crystalline silica, especially chert and jasper (Allchin *et. al.* 1986: 65-67). Further evidence of regional lithic production comes from proto-historic

Gandi Umar Khan in DI Khan district, where excavation produced blades, bladelets, points, burins, scrapers and heavy debitage, indicating on-site manufacture using locally procured raw materials such as chert, agate, chalcedony and jasper (Ali and Jan 2009: 26). Recent excavations at Rahman Dheri and Sikandar Janubi have added further stone tool data, with Rahman Dheri yielding a wide variety of lithics, while Sikandar Janubi produced a small assemblage mainly of blades/flakes, bladelets and a core (Samad and Jan 2016: 1, Samad *et al.* 2019: 47, Samad *et al.* 2019: 65, 74, 75, Samad and Jan 2016: 70-76).

3. Jhandi Babar-I (JB-I)

Jhandi Babar village in the Gomal Plain contains two distinct archaeological mounds, identified as JB-I and JB-II (Fig. 2), with Jhandi Babar-I representing the larger of the two (Khan *et al.* 2000: 51). The origin of the site name "Jhandi" has been interpreted in different ways: one explanation describes it as a thorny tree with small leaves, regarded as sacred by some Hindu communities, while "Babar" is identified as the name of an Afghan tribe (Rahman 1997: 40). A second interpretation, derived from a dictionary of the "Western Panjabi Language", also defines Jhandi as a tree and records its association with ritual practices, including a pre-marriage ceremony and offerings linked to smallpox-related beliefs (Jukes 1900: 108).

The site lies in an extremely arid, hot plain approximately 60 km southwest of DI Khan city, near the Valheri nallah (a tributary of the Kausa Khad), and is accessed via a turnoff from the Paroa-Chaudwan road near Kauri Hout village. The modern environment lacks permanent water sources, and agriculture depends largely on rainfall, contributing to limited vegetation and low population density; overgrazing and climatic severity are also cited as major ecological constraints. JB-I and JB-II are separated by around one kilometre of wasteland, and the nearest recorded elevation is 629 feet above sea level (Ali and Khan 2001: 174, Rahman 1997: 38, Khan *et al.* 2000: 25). Morphologically, Jhandi Babar-I is a large, roughly square mound measuring about 666 m east–west and 585 m north–south, with an average height of roughly 4 m; its uneven surface includes several small peaks. The mound is sparsely vegetated and densely scattered with potsherds, stone tools, and other artefacts, and it has been described as the largest Neolithic settlement in Pakistan. A modern cemetery occupies the southwestern part of the mound (Ali and Khan 2001: 174, Khan *et al.* 2002: 105).

3.1 Discovery

The site was first discovered by Taj Ali (former Chairman of the Department of Archaeology at the University of Peshawar) and F.A. Durrani (former Chairman and Vice Chancellor, University of Peshawar) during a brief archaeological survey between Paroa and Chaudhwan in the DI Khan district in 1997 (Swati and Ali 1998: 2, 5). Later, the research team from the Directorate of Archaeology and Museums, led by Abdur Rahman (former Chairman of the Department of Archaeology at the University of Peshawar), reported the site in 1997 during their survey of the DI Khan Division (Rahman 1997: 37).

3.2 Excavation

After its discovery, Ihsan Ali and Gul Rahim Khan from the Department of Archaeology, University of Peshawar conducted a small-scale excavation of the site in 1998 (Fig. 6). The campaign lasted for eight weeks, from May to June, and a trench measuring 10 x 4 m was dug and documented through the Harris Matrix method. The excavation reached a depth of 5 m of occupation deposits and uncovered 56 layers. Additionally, 6 ovens, 6 pits, 4 hearths, 4 platforms, 16 walls, 9 floor-levels, 7 post-holes, 49 cuts and a kiln were discovered (Khan et al. 2010). The excavation revealed four main habitational and structural phases with two distinct periods. The lower three periods contain handmade and painted pottery, while the latter period produced finer, wheel-made and painted pottery (Ali and Khan 2001: 174; Khan *et al.* 2010: 383).

3.3 Stratigraphy

The Department of Archaeology, University of Peshawar, conducted a systematic excavation of the site in 1998 to uncover its cultural profile and establish a chronological sequence. The site was dated to the late Neolithic and early Bronze Age periods (5th-3rd millennium BC) based on the recovered pottery. The excavation revealed a 5 m deep stratigraphy with two distinct cultural phases, with Period-I (lower) belonging to the late Neolithic period and Period-II (upper) belonging to the early Bronze Age (Fig. 7). However, the excavators incorrectly identified Period-II, the upper phase, as Kot Dijian, which is actually the Tochi-Gomal Phase.

Additionally, JB-I is associated with and serves as a type site for the Sheri Khan Tarakai in the Bannu district (Khan *et al.* 2002: 105).

3.4 Absolute Dating

The Bannu Archaeological Project's members collected five charcoal samples at a later time to determine the absolute date of the site. These samples were collected from the exposed portion of the 1998 excavation. The calibrated results and probability ranges for the determinations were recorded between 3500 and 3000 BC. (Ali and Khan 2001: 175; Khan *et al.* 2010: 396-97) (Fig. 1).

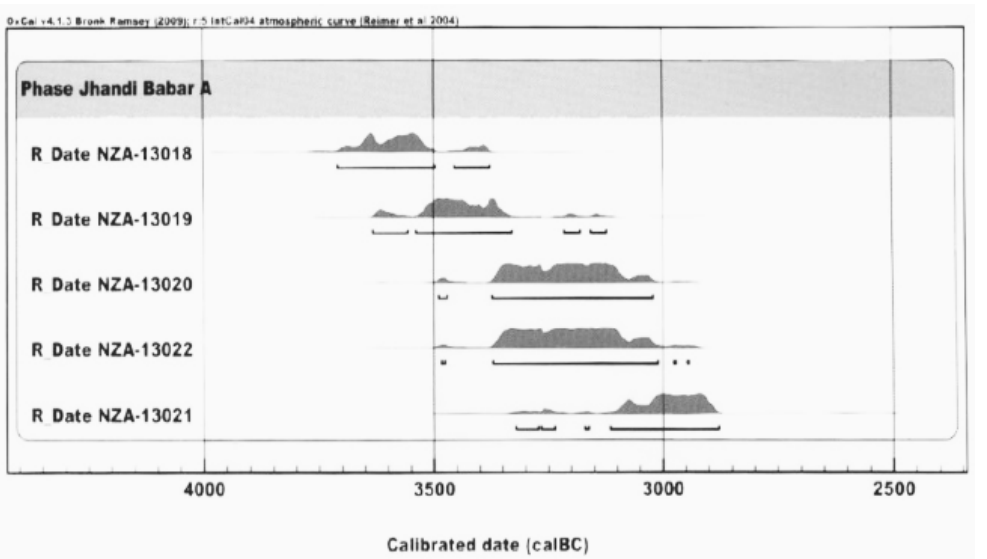


Fig. 1 - Radiocarbon probability ranges for all samples from Jhandi Babar-I (Courtesy: Khan et al. 2010: 397).

3.5. Raw Material

The primary material utilized for producing knapped stone tools in Jhandi Babar-I is chert, as per the Bannu Archaeological Project's analysis of the area's raw materials. While chert is predominant, a limited amount of other stone materials, such as green Jasper, are also present. Chert is believed to have been eroded from the limestone bedrock in the nearby hills and mountains to the west of the Gomal Plain. Even now, people in Jhandi Babar village gather river stones from a stream about 20 km away to cover graves,

just like their ancestors did to get stone materials. As evidenced in Khan et al. (2010: 385-392) the raw materials consisted in small, river-worn pebbles of microcrystalline and cryptocrystalline quartz with a small amount of chemical impurities that produced a wide range of colours, including black chert, cream chert, brown chert, green jasper, grey chert, brecciated chalcedony and purple chert (see Khan *et al.* 2010: table 11.1). The length of the pebbles varied between 5 and 10 cm (Khan et al. 2010).

The raw materials of the tools utilized in the experimental study published in the book of Sheri Khan Tarakai and early village life in the borderlands of north-west Pakistan (Petrie *et al.* 2010), were all microcrystalline or cryptocrystalline quartzes, with a minimal quantity of impurities, which produced the various colours observed. Based on their sub-translucency, they have been classified as chert. The raw materials were obtained from the bed of the Tochi River, in the Bannu District. Two primary types of samples were selected: one a low-quality chert with numerous inclusions and fractures, and the other a high-quality chert that exhibited a significantly more homogeneous structure. Additionally, a sample was collected from Namal Gorge, north of Mianwali, Punjab, where a superior quality dark grey chert erodes from the limestone bedrock, closely resembling material observed in archaeological assemblages from Rehman Dheri and Harappa (Law 2008: 260-263, 712-714, Khan *et al.* 2010: 197).

3.6 Source of the Raw Material

The exact source of the raw materials used at the Jhandi Babar-I site is not clear, but it may have been transported to the site from a nearby stream or torrent in the hills (Khan *et al.* 2010: 385, Ali and Khan 2001: 177). Recent studies of lithic source areas suggest that many of the raw materials used at sites such as Harappa and others to the south may have originated from the Salt Range, the Suleiman Range, and the Hazara regions, which are all relatively close to the Gomal Valley (Kenoyer 2015: 32-33).

In 2000, Randall Law and Syed Rafiqul Hassan Baqri conducted some collaborative fieldwork to identify rock and mineral resources from the Salt Range in Punjab, Pakistan, that may have been used at the prehistoric site of Harappa (ca. 3300 to 1700 BC). Their research primarily focused on describing a source of black chert suitable for tool production that has been found in an Eocene limestone locally known as Sakesar Limestone exposed at Nammal Gorge in the Western Salt Range. They

believe that this material is the same chert that is characteristic of the Kot Diji Period (2800-2600 BC) levels at Harappa (Fig. 2).

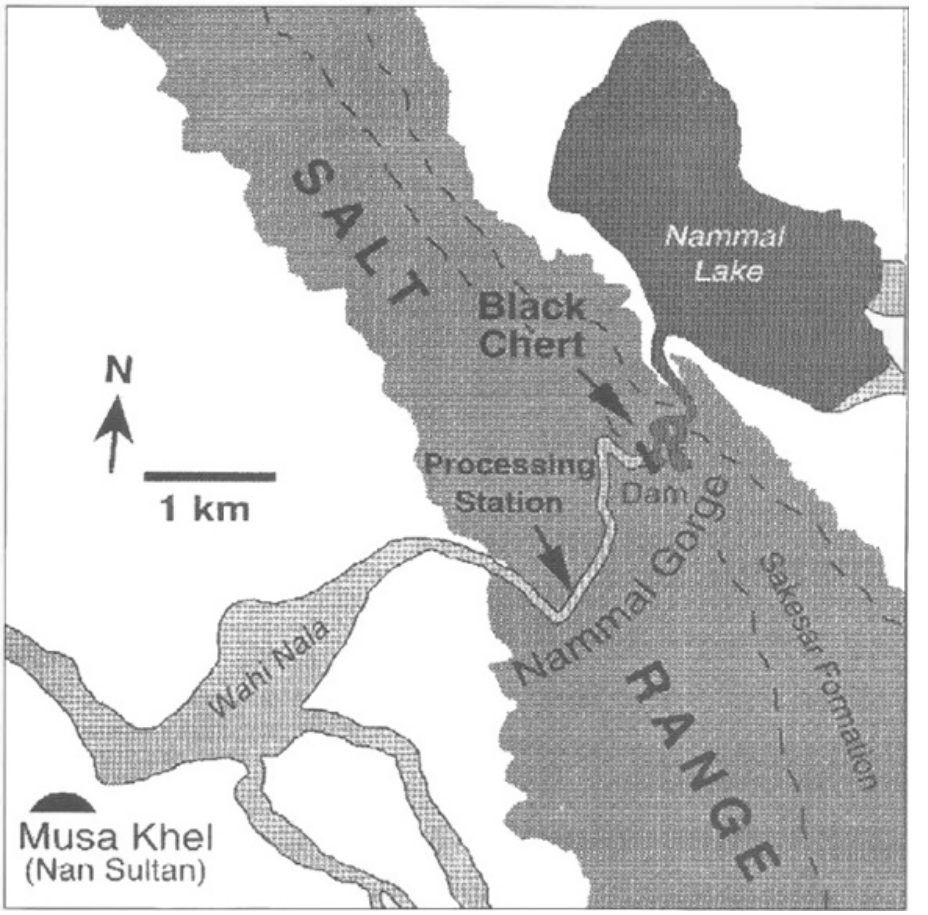


Fig. 2 - Musa Khel and Namal Gorge Area.

For further research on the topic, the researchers visited the SSAQ Museum of Archaeology and Ethnology, University of Peshawar to study their collection of artifacts from the Gomal Plain. Their findings revealed that black chert artifacts identical to the Sakesar variety are abundant in the surface collections from sites in the Gomal Plain. At Rehman Dheri, numerous examples of trimming flakes with cortex suggest that Sakesar chert nodules were transported to the site in their whole form and then processed there. Black chert resembling the Sakesar variety has also been

identified at Hissam Dheri and the late Neolithic/early Chalcolithic site of Jhandi Babar-I. Based on this evidence, it appears that the inhabitants of these and earlier sites in the region may have obtained black chert from the Western Salt Range (Law and Baqri 2001: 34, 36).

The raw materials were most likely sourced from quarries and transported in bulk to the production sites. These materials are subject to a standardized production method. Although the artefact designs and sizes may differ, their form and function are strongly related. The production workshops are typically located at or near habitation sites, providing context for their creation.

4. Preliminary study of the lithic collection from Jhandi Babar-I

The lithic collection analysed in the current study consists of lithics discovered both during the excavations carried out at Jhandi Babar-I in 1998-99 by Khan *et al.* (2010) and during the survey carried out in 2015-2017 within the framework of a collaborative archaeological project between the Department of Archaeology of the University of Peshawar and the Directorate General of Archaeology and Museums KP, Peshawar. The collection is presently housed in the Sir Sahibzada Abdul Qayyum Museum of Archaeology and Ethnology, University of Peshawar.

The knapped stone tools were carefully selected following a thorough examination that distinguishes between diagnostic and non-diagnostic artefacts. The selected cores consist of trimmed specimens exhibiting at least one distinct flake scar. They were further grouped according to shape, including rectangular, triangular, trapeze-rectangle, pointed, lunates, as well as regular and irregular forms. Flakes were selected based on the character of their working edges and classified into types such as blades, bladelets, points, flakelet fragments, and scrapers. Accordingly, in the following section we propose tentative functional interpretations based primarily on macroscopic attributes and morphological criteria, as neither detailed technological assessment nor traceological (use-wear) analysis was undertaken at this stage. While recognising that robust functional determinations ideally require technological and traceological investigation, the present study should therefore be considered preliminary. Consequently, the functional assignments offered here remain temporary and should be treated as working hypotheses rather than definitive conclusions. Future research integrating technological analysis with

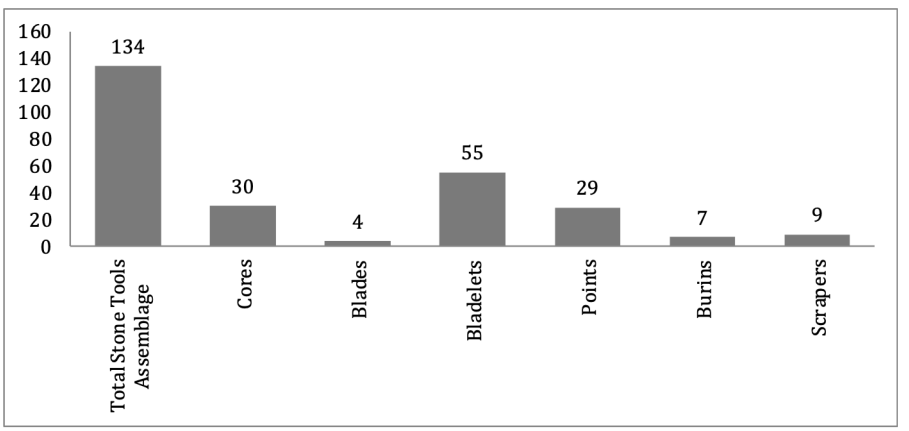
microscopic use-wear and residue studies will be essential to refine these interpretations and strengthen understanding of the assemblage.

4.1. Knapped Stone Assemblage

The stone tools of the collection are made of chert flakes with variations such as flakes, blades, bladelets, borers, flakelets, end-scrappers of side scrapers, points, lunettes, trapezes, triangles and cores. The material belonged to a variety of cryptocrystalline silica, such as mainly jasper, plain and banded chalcedony and brown and black chert (Khan *et al.* 2010: 385; Ali and Khan 2001: 177).

Out of the original collection, 134 diagnostic knapped stone artefacts were selected according to the process described above. Among them, 106 come from the exploration and excavation of the DI Khan project in 2015 to 2017 and 28 lithic tools are from the 1998 excavation of the Jhandi Babar-I site. The selected lithic collection is classified according to the geometrical shape of tools.

First, they were sorted into the following main types: cores, blades, bladelets, points, flakelets, end-scrapers of side-scrapers, and débitage. Each type is further divided into its particular shapes or forms. For proper documentation, these lithics are recorded according to their serial number, type, context, weight, length, width, and description. This lithic collection is classified into the following categories:

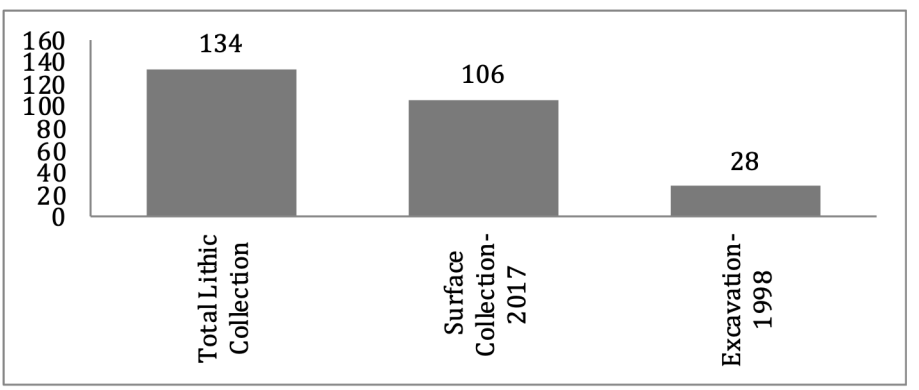


Tab. 1 - Total knapped lithic assemblage and classification.

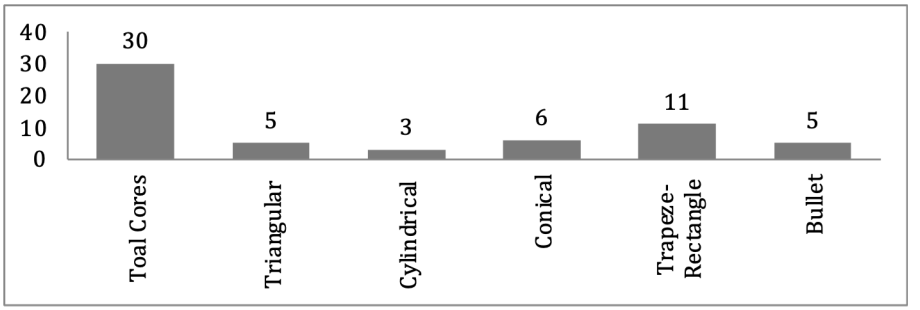
4.1.1. Cores

To discuss stone tool industries, it would be better to start from cores, as it is the primary medium from which blanks for knapping tools are detached. A core is a part of raw material from which flakes have been struck off. It yielded a variety of forms, from well-prepared and specialized examples (such as blade cores) through to "bashed lumps", which have been worked in a more-or-less specific purpose and unmethodical way. Other artefacts such as axes or chisels which are not made on flakes are occasionally referred to as "core tools" (Edmonds 2005: 223). A "chunk or nodule of stone from which flakes have been detached carefully for further use or modification" (Delson et al. 2017: 194). According to Debénath, "cores" are among the most difficult artefacts to classify in the Palaeolithic industry. It is because there are around 50 different types of cores, distinguished by the variety of their attributes. From a typological perspective, the principal problem with cores stems from their variability. The only consistent feature of cores is that they show one or more platform surfaces and one or more faces from which flakes are detached (Debénath and Dibble 1991: 12).

The present lithic collection consists of 30 cores of different type and shape. These are of several types and shapes. Their dimensions range is as follows weight 1.5 to 18.6 g; length 12.30 to 37.95 cm; width 6.62 to 16.14 cm.



Tab. 2 - Distribution of total knapped stone artefacts.



Tab. 3 - Cores and their classification.

Five main shapes are identified, i.e., triangular, cylindrical, conical, trapeze-rectangle, and bullet. Each shape is briefly discussed below:

Triangular
The first category of triangular shaped cores consisted of JB-72, JB-75, JB-80, JB-82, and JB-110. All these cores show a slightly narrow tapered end on one side and a broad oblique end on the other.

Cylindrical
This category of cores consists of three examples with the numbers JB-81, JB-86 and JB-111. These cores are thick with a round shape and oblique ends. They represent regular truncations on their surface.

Conical
This category represents the following cores, i.e., JB-83, JB-85, JB-87, JB-89, JB-95 and JB-99. These cores are slightly different from triangular cores. They have a pointed top and a broad platform.

Trapeze-Rectangle
This category represents the following cores, i.e., JB-76, JB-88, JB-90, JB-91, JB-92, JB-94, JB-97, JB-105, JB-106, JB-108 and JB-109. Trapeze-rectangle is the most common shape found in the present collection of stone tools.

Bullet
This category consists of the following cores, i.e., JB-93, JB-98, JB-103, JB-104 and JB-107. Morphologically, these cores are fairly wide with one end being slightly thinner or narrower.

These cores are further subdivided according to their ends. These are briefly discussed below:

Pointed-Ended
The first category contains 9 cores, i.e., JB-72, JB-75, JB-80, JB-82, JB-85, JB-87, JB-89, JB-99, and JB-103. This category included distal edges that were slightly tapered and broad proximal edges.

Oblique-Ended
The second category consists of the following lithic cores: JB-81, JB-83, JB-86, JB-90, JB-91, JB-93, JB-94, JB-95 and JB-104. This category's lithic cores come in a variety of shapes, but their proximal ends are generally oblique in shape.

Flat-Based
The final category consists of the following lithic cores, i.e., JB-88, JB-92, JB-97, JB-98, JB-105 and JB-106. Mostly, lithic cores in this category have flat-based proximal-edges. Furthermore, these main types are sub-classified on the basis of their shapes.

4.1.2. Blades

A more commonly used but often confusing term, blades are more or less parallel-sided flakes with a length to width ratio of more than 2:1. Although blades may be produced incidentally in the working of a variety of tools and cores, systematic blade production can often be differentiated by the existence of a number of attributes. These include parallel scars or ridges on the dorsal surfaces of flakes and blades or on the faces of blade cores. Other common features include small "retouch" scars created during the careful trimming and maintenance of core platforms (Edmonds 2005: 222). A blade is defined as a flake which is more than double as long as it is wide, with equivalent or considerably touching ends and one or more edges similar to its long axis, giving it a triangular or trapezoidal cross-section. This explanation suggests one basic technological limitation—that all blades are removed from cores with longitudinal ridges on their surfaces (Cochrane 2008: 430).

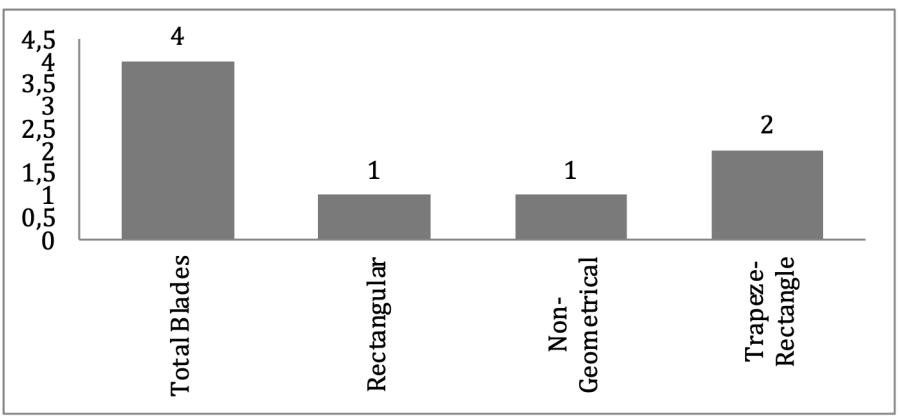
The present collection of lithic tools comprises 4 blades, i.e., JB-20, JB-73, JB-74, and JB-113. Their sizes range from (weight 3.6 to 40.0 g; length 77.20 to 49.0 cm; width 4.90 to 13.30 cm). These blades are often

retouched either on one side or on both sides. Generally, these blades are obtained through pressure-flaking. They are rectangular and trapezoidal in shape, while their distal ends can be round, piercing, and slanted. In particular, these blades have unevenly parallel lateral edges, dorsal flake scar edges aligned with the blade's technological long axis, and approximately triangular or trapezoidal cross sections. These blades can be classified into different types depending on their shape and size. They are discussed below:

Rectangular
JB-20 is a long, thin, parallel-sided prismatic blade. Typologically, it is a true blade and commonly found in the Neolithic and Chalcolithic periods.

Non-Geometric
JB-73 is an irregular notch-edged retouched flake.

Trapeze-Rectangle
This category consists of the following numbers, i.e., JB-74 and JB-113. JB-74, which is the large and thick patina blade tool, has a narrow, pointed tip. JB-113 has a slightly wavy body and narrows to the top.



Tab. 4 - Total blades and their classification.

4.1.3. Bladelets

The term "bladelet" is employed for a small, generally narrow and thin flake detached from a nucleus. The distinction between a blade and a bladelet is

one of size, and any length limit is arbitrary, but in general, the bulk of bladelets fall into the "microlithic" category. This distinguishes between blades and bladelets by arbitrarily limiting bladelet length at 1.0 to 5.0 cm. and blade from 5.0 to 30.0 cm. or more in length (Heizer and Kelley 1962: 94). Bladelet is the developed form of blade with a smaller size. In a broad sense, any piece of material struck conchoidally from a block of material is rightly called a flake. Some distinctions are made, however, based on the form of the piece and its completeness. The distinction between a flake and a blade and between a blade and a bladelet has been a source of confusion for certain periods. For blades, which are flakes whose length is at least two times greater than their width, the distinction between blades and bladelets is based on absolute size: bladelets are smaller than 50 mm in length or 12 mm in width (Debénath and Dibble 1991: 11-12). The present collection of bladelet tools represents the largest percentage, with 56 in numbers. Their dimensions range from (weight 0.1 to 3.1 g; length 1.6 to 37.62 mm; width 1.60 to 5.50 cm). Classification of these bladelets on their shape and form is discussed below:

Trapeze-Rectangle

This is the most common shape found in the present lithic artefacts. This category represented a large quantity of bladelet tools totalling 38 in number, i.e., JB-1, JB-2, JB-3, JB-4, JB-5, JB-6, JB-9, JB-10, JB-11, JB-12, JB-13, JB-17, JB-18, JB-21, JB-26, JB-28, JB-30, JB-31, JB-32, JB-33, JB-34, JB-35, JB-36, JB-37, JB-38, JB-39, JB-41, JB-59, JB-100, JB-101, JB-114, JB-115, JB-117, JB-119, JB -120, JB-122, JB-125 and JB-133. Mostly, this form of tool represented similar features such as cross section, retouched working edges and trapezoidal dorsal surfaces, etc.

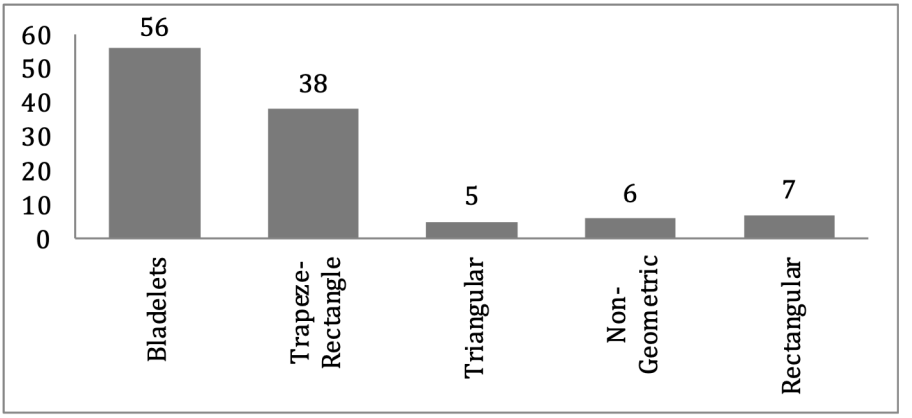
Triangular

The second group consists of 5 bladelet tools, i.e., JB-16, JB-25, JB-29, JB-46 and JB-58. These tools have slightly different features, having narrow distal and proximal ends, or in some cases, only one end is narrow and pointed with a triangular dorsal surface. These tools have also been retouched edges.

Non-Geometric

The third group belonged to the non-geometric or irregular bladelets. Overall, 6 in numbers, i.e., JB-8, JB-24, JB-27, JB-40, JB-53 and JB-123.

Rectangular
The fourth group consisted of 7 rectangular bladelet tools, i.e., JB-7, JB-14, JB-15, JB-22, JB-116, JB-118 and JB-121. It has one long retouched side and two short ones, but their shapes are not always even. Its dorsal surface contains both triangular and trapezoidal sections.



Tab. 5 - Total bladelets tools and their classification.

4.1.4. Points

"Flake fragment on which two retouched edges converge to form a sharp triangular projection" (Shea 2017: 202). Several kinds of knives and points have long been recognized in Palaeolithic contexts, and the term "point" has been in the literature since the eighteenth century. However, they have also been poorly defined, with nothing approaching a clear definition. Later, it was defined as "a point was any blade or flake for which an extremity was made pointed by bilateral retouching" (Debénath and Dibble 1991: 58). The present collection of lithics contains 29 points. Their dimensions range are as follows weight 0.1 to 5.1 g; length 13.70 to 42.30 cm; width 1.55 to 9.28 cm.

Triangular
This form comprises 6 tools, i.e., JB-19, JB-23, JB-42, JB-50, JB-43, JB-78, JB-124, JB-126 and JB-131. Most of the pointed tools are triangular in shape. They have a long, tapered, pointed distal edge. Such types of tools are also called asymmetrical points.

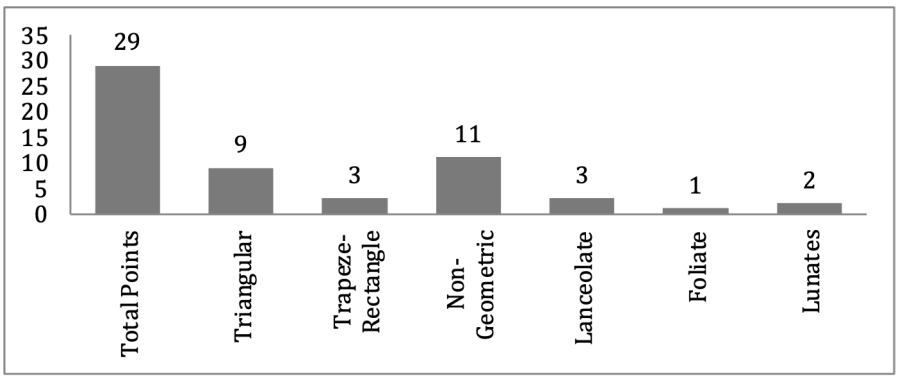
Trapeze-Rectangle
This form comprises of 3 tools, i.e., JB-49, JB-51 and JB-56.

Non-Geometric
This non-geometric form represented 6 tools, i.e., JB-44, JB-45, JB-52, JB-55, JB-47, JB-70, JB-71, JB-112, JB-129, JB-130 and JB-132. These are irregular and notched, with narrow distal edges. These are possibly used as drills, awls, or borers, etc.

Lanceolate
This category consists of the following tools: JB-48, JB-127, and JB-128. The distal edge is narrow and pointed. Due to its shape, it was probably used as an arrowhead.

Foliate
It is only one in number (JB-102) but is an interesting tool, showing a long-narrow and slightly curved pointed-tip. Most probably, it was used as a borer-cum-bladelet tool.

Lunates
Only two examples are found in the present lithic collection, i.e., JB-66 and JB-96. It is also termed as crescent shaped. It is a single-sided tool. It is obtained from a massive blade through hard or semi-hard-hammer percussion, which is later perpendicular retouched. Such types of tools are used for hafting etc.



Tab. 6 - Total points and their classification.

4.1.5. Flakelets

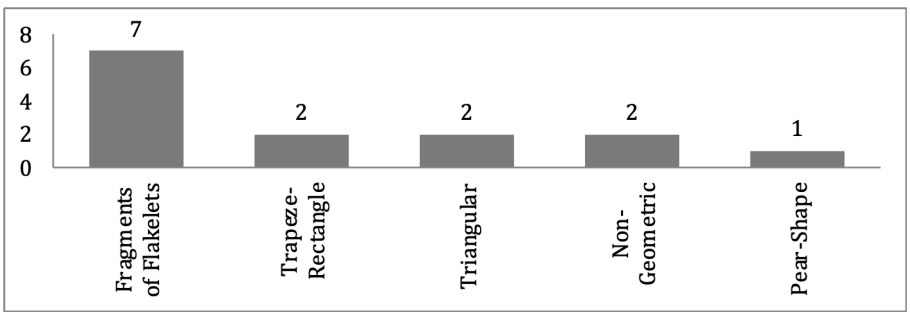
A flakelet is a tiny flake. These flakelet fragments are obtained through conchoidal fracture (Shea 2013: 28). We have various flakelet fragment types in this group. Most of these fragments have been modified with both symmetrical and asymmetrical shapes. Their retouched traces may take a variety of forms, ranging from small, regular scars.
The present lot of lithic tools consists of 7 fragments of flakelets . Their measurements range are as follows weight 0.2 to 4.2 g; length 13.20 to 21.50 cm; width 2.45 to 10.60 cm.

Trapeze-Rectangle
It includes JB-54 and JB-60. It is tinny and trapezoidal in shape.

Triangular
These types of tools include JB-77 and JB-84. Both of these tools show an oblique notched pointed tip.

Non-Geometric
This category includes the JB-8 and JB-57. These are irregularly notched, single-sided pointed tools.

Pear-Shape
This category includes only one example, i.e., JB-134.



Tab. 7 - Total flakelets and their classification.

4.1.6. Scrapers

The term “scraper” is used in prehistoric archaeology to define fragments of stone, usually flakes or blades, with retouched one or more edges or ends.

Mostly, this retouch process is semi-abrupt in nature, steepening the tool edge or making it less acute than a natural flake edge, thus making it more suitable for scraping rather than cutting activities (Delson et al. 2017: 627). As the name indicates, these are ordinarily meant for scraping such things as barks of trees, dressing of thin wooden or bamboo shafts, and skins of animals, as well as for various cutlery purposes. The tool is named according to the shape of a particular piece and the position and nature of the edge for scraping (Sankalia 1964: 61).

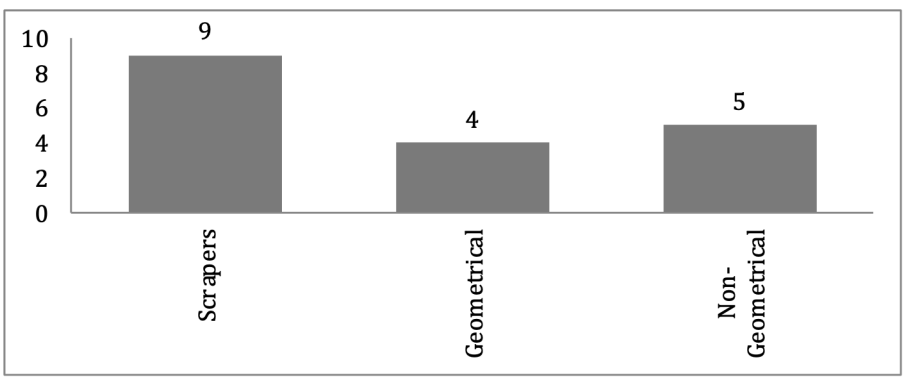
The present collection of lithic tools comprises nine scrapers. Among them JB-65 and Jb-67 are best specimen of end-scraper. Their measurements range are as follows weight 1.6 to 14.9 g; length 6.0 to 37.80 cm; width 2.90 to 17.96 cm. These scrapers can be divided into two main groups on the basis of their shapes.

Geometrical

It includes JB-64, JB-65, JB-67 and JB-68. These tools are also called end-scrapers. They are either broad-waist or wide, which distinguishes them as compared with other tools. Most likely, such types of tools are used for scraping.

Non-Geometrical

It includes JB-61, JB-62, JB-63, JB-69 and JB-79. Most of these are irregular in shape with concave or hallow notched edges.



Tab. 8 - Total scrapers and their classification.

5. A Comparison

As highlighted in Khan *et al.* 2010 (381), the stone tools found at Jhandi Babar-I are similar to those from the Late Neolithic period in the Bannu Basin, especially at the Sheri Khan Tarakai (SKT) site. The study further highlights that Jhandi Babar-I and SKT share many features, suggesting they are part of the same cultural area that includes Bannu, the Gomal Plain and northern Baluchistan. Jhandi Babar-I is near the Danasar Pass, which was likely used as a route. Both sites have tools made from blades and small, shaped stones used in composite tools, which are common in the SKT. They also used similar materials, such as chert and jasper, indicating that they obtained their raw materials from the same places and used similar techniques. The main difference between Jhandi Babar-I and SKT is the number of artifacts found at each site. Jhandi Babar-I has less artefacts because of limited excavation, while SKT has more due to extensive field work. Jhandi Babar-I also shares features with other sites like Gumla, Hathala and Rahman Dheri, where small blades and tools are common. Compared to other Neolithic sites further south and west, which have larger tools, Jhandi Babar-I and SKT focus on small, easily attached tools, showing that they belong to a unique northern borderland's tradition.

6. Conclusions

The knapped tool assemblage from Jhandi Babar-I holds significant potential for explaining the cultural evolution of the Gomal Plain. Based on the current analyses of this assemblage, it is evident that Neolithic and Chalcolithic cultural activities were present in the Gomal Valley during the 5th millennium BCE. The chert knapped tool industry at Jhandi Babar-I includes a variety of forms, such as cores with multiple platforms (both fluted and irregular), parallel-sided blades and diverse scraper types (hollow, steep and round). Retouched tools are classified into two primary categories based on their characteristics: geometric and non-geometric. The selected lithic assemblage displays a range of physical appearances. These tools are predominantly characterized by short lengths and low-thickened bodies, with parallel flake scars on their upper surfaces. Furthermore, their edges are blunt, indicating that they were crafted for specific purposes.

In comparison to contemporary lithic industries in the Gomal Plain and Bannu Basin, the knapped tool industry from Jhandi Babar-I exhibits superior craftsmanship despite the relatively limited typological diversity.

The prominent features of lithic manufacturing are evident, as documented at other similar sites in the region. The environment of the site is characterized by abundant access to high-quality lithic raw materials, which the inhabitants effectively utilized. As observed in the current study, a diverse range of raw materials was employed, all of which were obtained from the immediate vicinity of the site.

This assemblage is characterized by small, thin stone blades, called bladelets. Most of these bladelets were not modified or sharpened after being made. These tools have distinct features in terms of their making and appearance. They often have a particular type of sharpening called a semi-abrupt retouch. There are specific shapes of triangular tools that differ from those found in later periods. This assemblage is very different from the Mesolithic tool sets, despite some similarities. An important observation is that most of the tools found were broken or fragmented. These characteristics help us identify and classify this particular group of stone tools, distinguishing them from other tool traditions.

This study is the first to systematically study the stone tools from Jhandi Babar-I in the Gomal Plain, Dera Ismail Khan. It shows that this site was a key Late Neolithic settlement that continued into the Early Bronze Age. The study examines 34 stone tools found both in excavation and on the surface. Most tools were made from chert and similar stones, with some made from jasper, chalcedony and others. The tools were sorted into main types: cores (30), blades (4), bladelets (56), points (29), burins (7) and scrapers (9). This shows that toolmaking at the site was not random but followed specific methods typical of Neolithic and Chalcolithic periods in north-west Pakistan. The many bladelets and points, along with other shapes like lunates and trapezes, suggest the tools were used for hunting, processing and crafts. Different core shapes (triangular, conical, cylindrical, trapeze-rectangular and bullet) indicate the use of small river stones and careful planning to make the most tools possible, suitable with microlithic techniques. The findings also support the idea that the Gomal Plain was a cultural link between the Bannu Basin, Gomal phases and northern Baluchistan, showing Jhandi Babar-I as a key site in Late Neolithic/Early Bronze Age settlement patterns. The study concludes that the tools from Jhandi Babar-I show (i) a structured way of making tools, (ii) a focus on small blade/bladelet tools, (iii) a variety of tool uses and (iv) similarities with nearby Neolithic and Chalcolithic industries. While the findings are informative, they are limited by the focus on tool types and the small number of tools from excavations. Future research should look at how the

tools were made used and sourced to better understand the economy, movement and cultural connections.

7. Future Scope

Future research on Jhandi Babar-I's lithic industry should integrate technological, functional, and contextual approaches to understand the site economy and cultural behaviour. A techno-typological study is needed to reconstruct the reduction sequences and production systems for bladelet and point manufacture. Use-wear and residue analyses of tools should determine their function and test for composite hafting systems. Raw material characterization studies should identify procurement zones and evaluate lithic supply routes across the Gomal Plain to determine the source of the raw materials. Future excavations should ensure proper stratigraphic recovery to separate Late Neolithic and Bronze Age assemblages and evaluate changes in lithic tradition.

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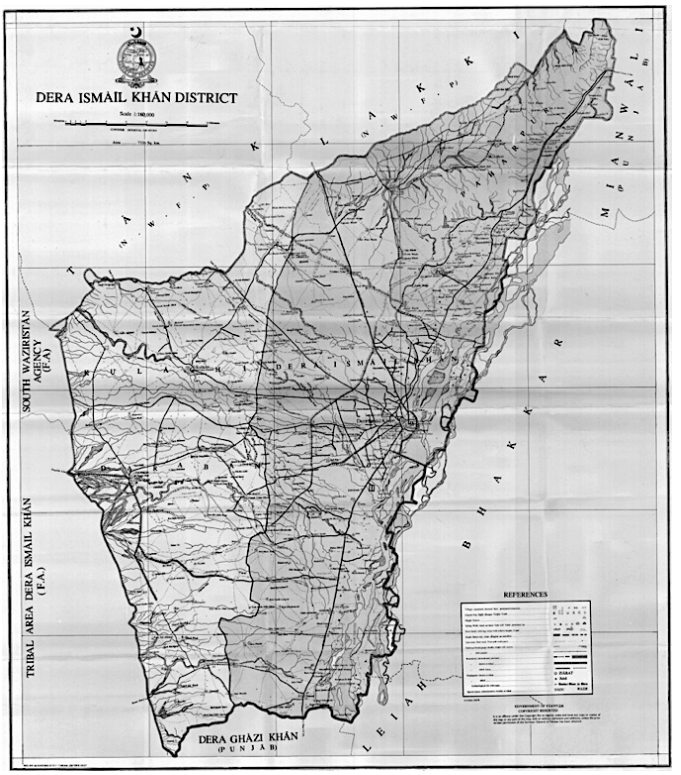


Fig. 1- Map of Dera Ismail Khan District (Courtesy: Published, Surveyor General of Pakistan, 2004).

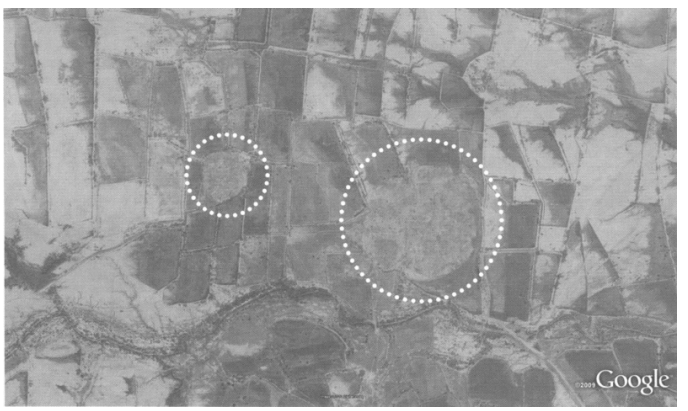


Fig. 2 - Google Earth ™ image showing Jhandi Babar A (circled right) and B (circled left) 2009, Courtesy: 'Sheri Khan Tarakai and early village life in the borderlands of north-west Pakistan 2010.

Fig. 3 - General view of the site of Jhandi Babar-I from south (Photo by the Authors).

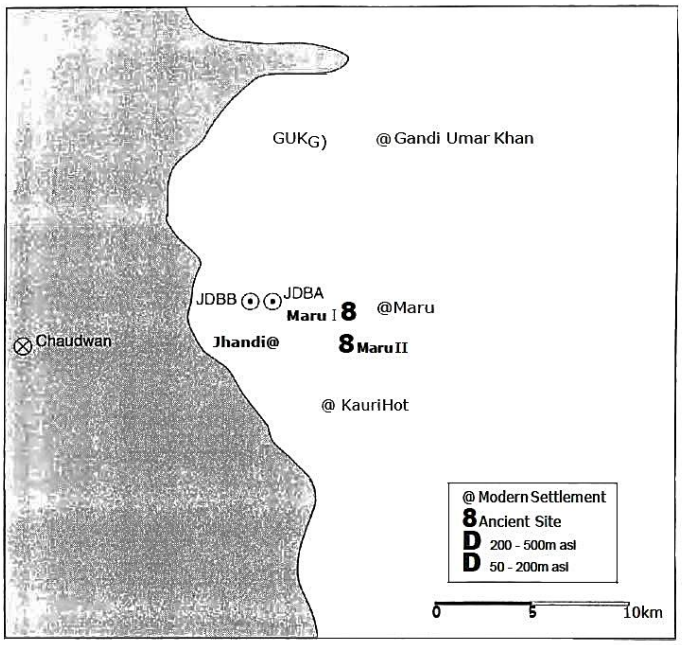


Fig. 4 - Jhandi Babar A & B, Maru, Gandi Umar Khan sites. Courtesy: After (Khan, Knox and Thomas 2002: 108).

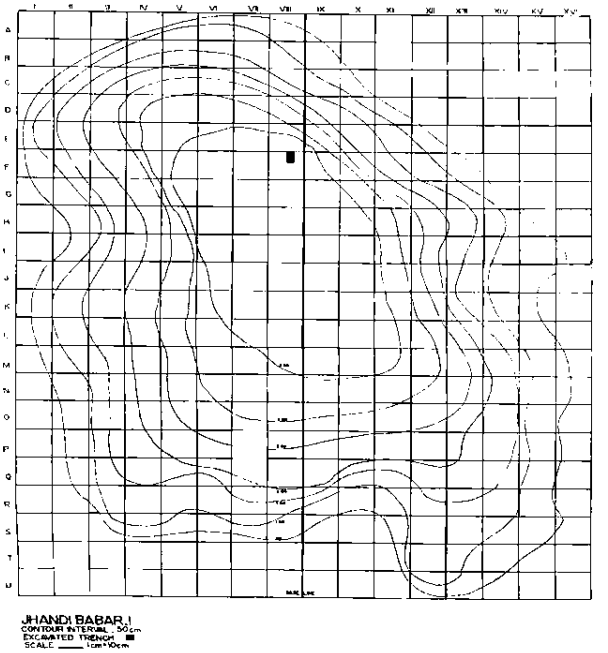


Fig. 5 - Contour Plan of the site of Jhandi Babar-I
(Courtesy: After the Excavation 1998: 193).

Fig. 6 - Left: Section in the trench; right: detail of the virgin soil
(Courtesy: Jhandi Babar-I Excavation 1998).

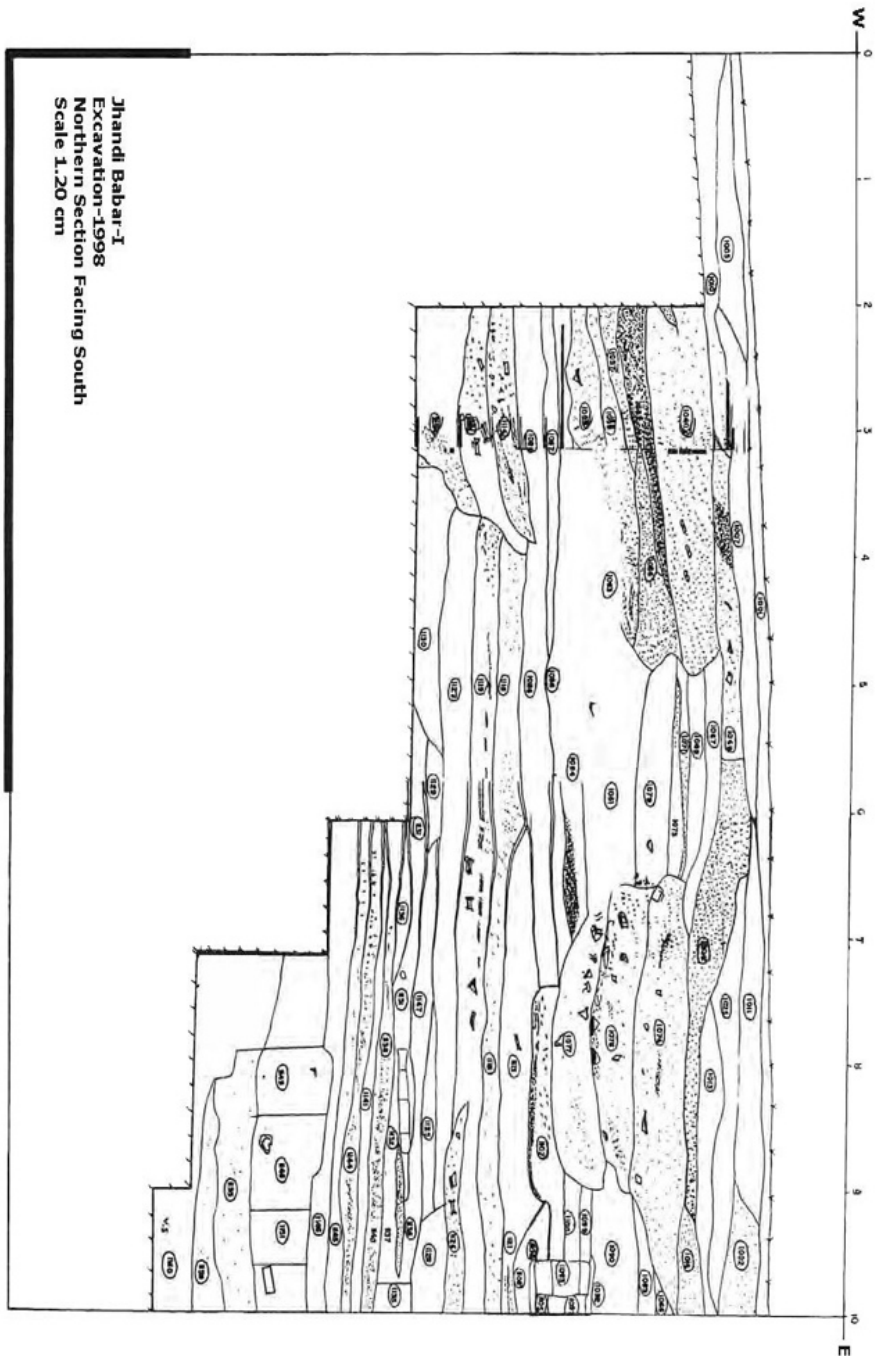
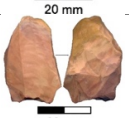
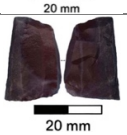


Fig. 7 - Trench, Northern section facing south
(Courtesy: Jhandi Babar-I Excavation 1998).

CATALOGUE

CORES							
S. No	**Reg. No.**	**Material**	**Shape**	**Weight (gm)**	**Dimensions (mm)**	**Context**	**Plate**
1	JB-72	Calcareous Siltstone (760 Quartz), Dark-Greyish color layers	Triangular	12.4	L: 36.30 Wd: 12.50	+/2017	
2	JB-75	Chert, Dark-Greyish	Triangular	5.2	L: 33.45 Wd: 9.14	+/2017	
3	JB-76	Flint, Blackish	Triangular	2.9	L: 26.28 Wd: 7.08	+/2017	
4	JB-80	Chert, Pale and Greyish bands	Lanceolate	6.0	L: 36.80 Wd: 9.60	+/2017	
5	JB-81	Chert, Cream	Cylindrical	11.6	L: 28.80 Wd: 14.60	+/2017	
6	JB-82	Chert, Brownish	Triangular	9.0	L: 33.08 Wd: 11.30	+/2017	
7	JB-83	Chert, Brownish	Geometric	8.1	L: 23.30 Wd: 14.00	+/2017	
8	JB-85	Chert, Dark-Pinkish	Geometric	2.8	L: 24.25 Wd: 8.95	+/2017	

9	JB-86	Chert, Dark-Pinkish	Cylindrical	12.8	L: 26.00 Wd: 15.60	+/2017	
10	JB-87	Jasper, Banded	Geometric	8.7	L: 31.50 Wd: 10.00	+/2017	
11	JB-88	Jasper, Maroon	Trapeze-Rectangle	18.6	L: 37.50 Wd: 12.62	+/2017	
12	JB-89	Jasper, Maroon	Conical	4.1	L: 26.15 Wd: 8.88	+/2017	
13	JB-90	Jasper, Ferruginous Chert banded	Trapeze-Rectangle	17.7	L: 37.95 Wd: 15.86	+/2017	
14	JB-91	Jasper, White and Greyish colour bands	Trapeze-Rectangle	5.1	L: 24.70 Wd: 8.45	+/2017	
15	JB-92	Chert, Cream	Non-Geometrical	9.7	L: 31.35 Wd: 13.72	+/2017	
16	JB-93	Chert, Brownish	Bullet	11.4	L: 28.60 Wd: 12.85	+/2017	
17	JB-94	Chert, Cream	Rectangular	3.2	L: 21.10 Wd: 9.78	+/2017	
18	JB-95	Chert, Greyish in colour with small pores left after some black minerals got dissolved out, Calcite coating on a surface.	Non-Geometric	12.4	L: 36.05 Wd: 12.70	+/2017	

19	JB-97	Flint, Dark-Greyish with White bands	Trapeze-Rectangle	1.5	L: 12.30 Wd: 6.90	+/2017	
20	JB-98	Flint, Blackish	Bullet	2.4	L: 18.00 Wd: 6.62	+/2017	
21	JB-99	Chert, Greyish	Conical	4.3	L: 23.65 Wd: 8.18	+/2017	
22	JB-103	Flint, white band, Calcite layer is also occurring on a surface	Bullet	3.0	L: 18.15 Wd: 10.22	+/2017	
23	JB-104	Jasper, Banded	Bullet	12.2	L: 24.20 Wd: 16.14	+/2017	
24	JB-105	Flint (Chert), Maroon	Flat	12.0	L: 31.60 Wd: 15.10	+/2017	
25	JB-106	Jasper, Reddish	Flat	17.6	L: 30.44 Wd: 14.74	+/2017	
26	JB-107	Jasper, Reddish	Bullet	16.8	L: 30.10 Wd: 12.15	JB-1-1998 564	
27	JB-108	Chert, White-Greyish bands	Rectangular	3.1	L: 21.60 Wd: 12.40	JB-1-1998 220	

28	JB-109	Chert, White-Greyish bands	Trapeze-Rectangle	7.2	L: 28.05 Wd: 14.15	JB-1-1998 133	
29	JB-110	Jasper, Reddish-Greyish composition	Conical	5.1	L: 24.80 Wd: 15.20	JB-1-1998 412	
30	JB-111	Chert, White-Greyish bands	Rectangular	1.5	L: 20.15 Wd: 10.15	JB-1-1998 304	

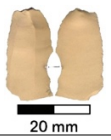
BLADES

S. No.	Reg. No.	Material	Shape	Weight (gm)	Dimensions (mm)	Context	Plate
31	JB-20	Quartzite, Grey (90% Quartz)	Rectangular	4.9	L: 71.80 Wd: 4.90	+/2017	
32	JB-73	Chert, Brownish with Greyish bands	Non-Geometric (Retouched-Flake)	6.0	L: 50.00 Wd: 6.18	+/2017	
33	JB-74	Limestone (Calcite, Hardness =3 $CaCo_3$)	Trapeze-Rectangle	40.0	L: 77.20 Wd: 13.30	+/2017	

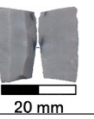
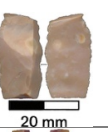
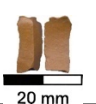
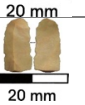
34	JB-113	Chert, Reddish	Trapeze-Rectangle	3.6	L: 57.45 Wd: 4.90	JB-1-1998 57	

BLADELETS

S. No.	Reg. No.	Material/ Composition	Shape	Weight (gm)	Dimensions (mm)	Context	Plate
35	JB-01	Flint, Blackish	Trapeze-Rectangle (Bladelet-cum-Scraper)	0.5	L: 16.60 Wd: 2.60	+/2017	
36	JB-02	Chert (Jasper)	Trapeze	0.4	L: 12.50 Wd: 2.70	+/2017	
37	JB-03	Chert, Dark-Greyish	Trapeze-Rectangle	0.3	L: 12. 92 Wd: 2.20	+/2017	
38	JB-04	Chert, Brownish	Trapeze-Rectangle	0.3	L: 11.90 Wd: 2.30	+/2017	
39	JB-05	Chert, Pale	Trapeze-Rectangle	0.6	L: 16. 30 Wd: 3.00	+/2017	
40	JB-06	Chert, Greyish	Trapeze-Rectangle	0.5	L: 22.40 Wd: 1.90	+/2017	
41	JB-07	Chert, Light-Brown	Rectangular	0.5	L: 25.75 Wd: 2.90	+/2017	
42	JB-08	Chert, Light-Brown	Non-Geometric	0.8	L: 22.90 Wd: 2.60	+/2017	

43	JB-09	Chert, Cream	Trapeze-Rectangle	0.9	L: 25. 44 Wd: 2.15	+/2017	
44	JB-10	Chert, Brownish	Trapeze-Rectangle	0.8	L: 26.96 Wd: 2.17	+/2017	
45	JB-11	Chert, Yellowish	Trapeze-Rectangle	0.7	L: 30. 80 Wd: 1.60	+/2017	
46	JB-12	Chert, Light-Brown	Trapeze-Rectangle	1.0	L: 23.65 Wd: 3.05	+/2017	
47	JB-13	Chert, Greyish	Rectangular	0.6	L: 26.30 Wd: 1.80	+/2017	
48	JB-14	Quartzite (90% Quartz), Greyish	Geometric	1.2	L: 35.70 Wd: 2.45	+/2017	
49	JB-15	Chert, Yellowish	Geometric	1.6	L: 31. 95 Wd: 3.15	+/2017	
50	JB-16	Chert, Greyish	Geometric	0.9	L: 26.00 Wd: 2.38	+/2017	
51	JB-17	Chert, Yellowish and Reddish patches	Trapeze-Rectangle	1.7	L: 23.75 Wd: 4.45	+/2017	
52	JB-18	Chert, Brownish	Non-Geometric	1.5	L: 36.65 Wd: 3.45	+/2017	

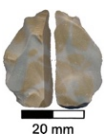
53	JB-21	Jasper, Maroon with White band	Trapeze-Rectangle	1.9	L: 35.25 Wd: 3.90	+/2017	
54	JB-22	Jasper	Rectangular	3.1	L: 37.25 Wd: 5.50	+/2017	
55	JB-24	Chert, Greyish	Non-Geometric (Flake-Bladelet)	1.4	L: 37.62 Wd: 2.60	+/2017	
56	JB-25	Jasper, Maroon	Triangular	0.9	L: 25. 32 Wd: 3.40	+/2017	
57	JB-26	Jasper, Maroon	Trapeze-Rectangle	1.7	L: 31.20 Wd: 2.90	+/2017	
58	JB-27	Jasper, Maroon	Non-Geometric	0.9	L: 26. 82 Wd: 2. 65	+/2017	
59	JB-28	Flint	Trapeze-Rectangle (Bladelet - cum-Point)	1.0	L: 33.46 Wd: 1.78	+/2017	
60	JB-29	Chert, Yellowish	Geometric (Bladelet - cum-Point)	0.3	L: 18.54 Wd: 2.40	+/2017	
61	JB-30	Chert, Brownish	Trapeze-Rectangle	0.7	L: 22.00 Wd: 2.54	+/2017	
62	JB-31	Chert, Greyish to Pinkish	Trapeze-Rectangle	1.0	L: 21.33 Wd: 3.72	+/2017	

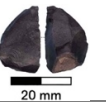
63	JB-32	Chert, Greyish to Pinkish	Trapeze-Rectangle	1.1	L: 25. 58 Wd: 2.82	+/2017	
64	JB-33	Chert, Dark-Greyish	Trapeze-Rectangle	1.3	L: 24.25 Wd: 3.25	+/2017	
65	JB-34	Chert, Dark-Greyish	Trapeze-Rectangle	1.3	L: 20.42 Wd: 4.03	+/2017	
66	JB-35	Chert, Greyish	Trapeze-Rectangle	0.4	L: 19.16 Wd: 2.05	+/2017	
67	JB-36	Quartzite (90% Quartz)	Trapeze-Rectangle (Notched-Bladelet)	0.5	L: 21.30 Wd: 2.82	+/2017	
68	JB-37	Chert, Greyish and Cream color bands	Trapeze-Rectangle (Notched-Bladelet)	0.8	L: 21.25 Wd: 2.65	+/2017	
69	JB-38	Chert, Greyish	Trapeze-Rectangle	0.4	L: 17.35 Wd: 2.30	+/2017	
70	JB-39	Chert, Light-Brown to Pinkish	Trapeze-Rectangle	1.7	L: 24.53 Wd: 4.70	+/2017	
71	JB-40	Chert, Brownish	Geometric	0.6	L: 19.54 Wd: 2.60	+/2017	
72	JB-41	Chert, Brownish	Trapeze-Rectangle	0.5	L: 14.75 Wd: 3.05	+/2017	
73	JB-46	Chert, Yellowish	Geometric (Bladelet or Burin?)	0.3	L: 14.80 Wd: 2.24	+/2017	

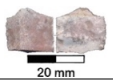
74	JB-53	Flint, Blackish	Geometric (Bladelet/ Scraper)	0.6	L: 19.05 Wd: 2.90	+/2017	
75	JB-58	Chert, Milky-White or Pale	Geometric	0.3	L: 15.45 Wd: 2.04	+/2017	
76	JB-59	Quartzite (90% Quartz)	Trapeze-Rectangle	1.1	L: 16.98 Wd: 3.50	+/2017	
77	JB-100	Jasper	Trapeze-Rectangle	0.6	L: 19.60 Wd: 2.20	+/2017	
78	JB-101	Jasper	Trapeze-Rectangle	1.3	L: 27.60 Wd: 3.01	+/2017	
79	JB-114	Chert, Light-Brown	Trapeze-Rectangle	0.8	L: 33.60 Wd: 2.90	JB-1-1998 54	
80	JB-115	Chert, Brown-Greyish bands	Trapeze-Rectangle	1.3	L: 28.15 Wd: 3.50	JB-1-1998 48	
81	JB-116	Chert, Greyish	Rectangular	0.8	L: 33.75 Wd: 2.85	JB-1-1998 47	
82	JB-117	Chert, Cream-Yellowish	Trapeze-Rectangle	0.7	L: 26.66 Wd: 3.30	JB-1-1998 49	

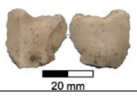
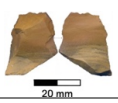
83	JB-118	Chert, Brown-Greyish	Rectangular	0.5	L: 28.75 Wd: 2.70	JB-1-1998 310	
84	JB-119	Jasper, Reddish with White dots	Trapeze-Rectangle	0.6	L: 28.25 Wd: 3.35	JB-1-1998 75	
85	JB-120	Jasper, Light-Brown	Trapeze-Rectangle	0.7	L: 23.80 Wd: 3.20	JB-1-1998 52	
86	JB-121	Chert, Greyish	Rectangular	0.6	L: 26.22 Wd: 2.50	JB-1-1998 43	
87	JB-122	Chert, Greyish	Trapeze-Rectangle	0.10	L: 18.90 Wd: 3.10	JB-1-1998 44	
88	JB-123	Chert, Greyish	Non-Geometric	0.3	L: 22.10 Wd: 2.80	JB-1-1998 340	
89	JB-125	Chert, Light-Greyish	Trapeze-Rectangle	0.4	L: 18.20 Wd: 3.10	JB-1-1998 341	
90	JB-133	Jasper, Reddish with White bands	Trapeze-Rectangle	0.1	L: 12.35 Wd: 3.80	JB-1-1998 392	

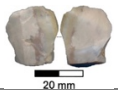
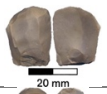
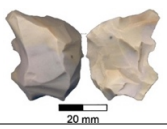
POINTS							
S. No.	**Reg. No.**	**Material/ Composition**	**Shape**	**Weight (gm)**	**Dimensions (mm)**	**Context**	**Plate**
91	JB-19	Chert, Greyish	Triangular (Point or Drill)	1.4	L: 38.30 Wd: 2.90	+/2017	
92	JB-23	Jasper	Triangular (Point-cum-Bladelet)	0.4	L: 24.85 Wd: 1.90	+/2017	
93	JB-42	Chert (Agate), banded	Geometric (Point-cum-Bladelet)	2.8	L: 33.80 Wd: 7.30	+/2017	
94	JB-43	Siltstone (Quartz 70%), Greyish sedimentary rock	Triangular (Point-cum-Bladelet)	5.1	L: 40.06 Wd: 7.35	+/2017	
95	JB-44	Limestone (90% $CaCo_3$, Calcite, Hardness = 3)	Non-Geometric (Point-cum-Bladelet)	4.7	L: 42.30 Wd: 6.85	+/2017	
96	JB-45	Chert, Greyish with Pinkish hue	Non-Geometric (Point-cum-Bladelet/ Borer)	1.4	L: 34.75 Wd: 2.80	+/2017	
97	JB-47	Chert, Greyish with Pinkish hue	Non-Geometric (Point-cum-Awl or Drill)	0.5	L: 21.38 Wd: 2.28	+/2017	
98	JB-48	Chert, Brownish	Lanceolate (Point-cum-Arrowhead / Awl or Drill?)	0.8	L: 22.72 Wd: 4.45	+/2017	

99	JB-49	Chert, Reddish-Brownish	Trapeze-Rectangle (Point-cum-Bladelet)	0.6	L: 23.05 Wd: 2.30	+/2017	
100	JB-50	Chert, Greyish	Geometric (Awl or Drill)	0.4	L: 16.75 Wd: 2.80	+/2017	
101	JB-51	Chert, Greyish	Geometric (Point-cum-Bladelet or burin)	1.4	L: 27.35 Wd: 3.40	+/2017	
102	JB-52	Chert, Greyish (banded)	Non-Geometric (Point-cum-Bladelet)	2.5	L: 35.20 Wd: 4.80	+/2017	
103	JB-55	Flint, Dark-Greyish	Non-Geometric (Point-cum-Bladelet)	1.0	L: 24.24 Wd: 3.54	+/2017	
104	JB-56	Jasper, Maroon with Greyish band	Trapeze-Rectangle (Point-cum-Bladelet)	0.7	L: 24.95 Wd: 2.54	+/2017	
105	JB-66	Agate	Lunate or Crescent (Point-cum-Bladelet)	3.6	L: 30.60 Wd: 5.70	+/2017	
106	JB-70	Jasper	Non-Geometric (Borer or Drill)	2.5	L: 28.15 Wd: 5.80	+/2017	
107	JB-71	Chert, Greenish	Non-Geometric (Borer or Drill-cum-Bladelet)	9.5	L: 50.90 Wd: 9.10	+/2017	

108	JB-78	Chert, Greyish	Triangular	3.6	L: 31.10 Wd: 6.75	+/2017	
109	JB-96	Flint	Lunate	3.8	L: 24.29 Wd: 9.28	+/2017	
110	JB-102	Jasper	Foliate (Point-cum-Blade)	1.1	L: 35.04 Wd: 1.55	+/2017	
111	JB-112	Chert, Greyish	Hexagonal	0.4	L: 16.60 Wd: 4.10	JB-1-1998 20	
112	JB-124	Jasper	Triangular	0.2	L: 21.10 Wd: 4.60	JB-1-1998 504	
113	JB-126	Chert, Brownish	Triangular	0.1	L: 15.10 Wd: 5.00	JB-1-1998 503	
114	JB-127	Chert, Brownish	Non-Geometric	0.2	L: 17.85 Wd: 4.30	JB-1-1998 382	
115	JB-128	Chert, Greyish	Triangular	0.3	L: 23.34 Wd: 5.10	JB-1-1998 296	
116	JB-129	Chert, Brownish/ Reddish	Hexagonal	0.1	L: 16.85 Wd: 3.50	JB-1-1998 401	
117	JB-130	Chert, Greyish	Non-Geometric	0.2	L: 18.87 Wd: 4.10	JB-1-1998 12	
118	JB-131	Chert, Light-Greyish	Triangular	0.2	L: 16.40 Wd: 4.30	JB-1-1998 366	
119	JB-132	Chert, Light-Greyish	Non-Geometric	0.2	L: 13.70 Wd: 4.80	JB-1-1998 364	

FLAKELETS							
S. No.	**Reg. No.**	**Material/ Composition**	**Shape**	**Weight (gm)**	**Dimensions (mm)**	**Context**	**Plate**
120	JB-54	Flint, Blackish	Trapeze-Rectangle	0.4	L: 16.00 Wd: 2.45	+/2017	
121	JB-57	Chert, Milky-White or Pale	Non-Geometric	0.8	L: 15.40 Wd: 3.80	+/2017	
122	JB-60	Chert, Pinkish	Geometric	1.7	L: 15.70 Wd: 4.90	+/2017	
123	JB-77	Chert, Greyish and White color bands	Triangular (Flakelet-cum-Core)	4.2	L: 21.50 Wd: 10.60	+/2017	
124	JB-84	Chert, Reddish and Pinkish hue	Triangular	3.7	L: 18.00 Wd: 9.50	+/2017	
125	JB-134	Chert, Light-Greyish	Pear	0.2	L: 13.20 Wd: 3.50	JB-1-1998 507	

SCRAPERS							
S. No.	**Reg. No.**	**Material/ Composition**	**Shape**	**Weight (gm)**	**Dimensions (mm)**	**Context**	**Plate**
126	JB-61	Chert	Non-Geometric	3.5	L: 23.05 Wd: 5.65	+/2017	
127	JB-62	Chert, Pinkish	Non-Geometric	6.3	L: 30.60 Wd: 7.45	+/2017	
128	JB-63	Chert, Brownish	Non-Geometric	4.5	L: 27.14 Wd: 7.15	+/2017	
129	JB-64	Chert	Geometric	1.6	L: 19.40 Wd: 4.40	+/2017	

130	JB-65	Agate	Geometric (End-Scraper)	4.7	L: 23.26 Wd: 6.20	+/2017	
131	JB-67	Flint	Geometric (End-Scraper)	4.0	L: 24.60 Wd: 6.14	+/2017	
132	JB-68	Chert, Light-Brownish	Geometric	3.0	L: 24.80 Wd: 7.20	+/2017	
133	JB-69	Flint	Non-Geometric	2.6	L: 37.80 Wd: 2.90	+/2017	
134	JB-79	Chert, Greyish and Cream color bands	Non-Geometric	14.9	L: 34.20 Wd: 17.96	+/2017	

Archaeology at the Western Margins of Thar Desert: Recent Explorations in Khairpur's Tehsil Faiz Ganj, Sindh

Waqar Ali Chang / Mueezuddin Hakal*

Abstract

This work attempts to identify and locate forty sites of different periods, explored as a result of recent field activities in the Tehsil Faiz Ganj, Khairpur District, Sindh. Further, an analysis of this data mainly contributes to understand the eastern limits of inhabitation towards the western margins of Thar desert in Sindh. In this connection, the study demonstrates a cultural chain of events dating back from the middle palaeolithic to the late historic periods, marking the highest concentration of Harappan site. There are thirteen sites of significant Harappan occupation, with diagnostic groups of the Hakra and Kot Diji periods, five large Mature Harappan settlements, and traces of their survival into the localisation (Jhukar) phase. More importantly, the discovery of Hakra-phase material at Taloor ji Bhit and other sites, such as Ronri with its kiln characteristics, indicates an uncharted early occupation and cultural direction between the regionalisation and cultural integration periods. One of them is the discovery of Painted Grey Ware at six sites, which provide a critical chronological interval between the decline of Indus urbanism and the emergence of the second urbanization in South Asia. Further, a spatial analysis reveals that the ancient population strategically exploited the ecotone between the Indus alluvial plains and the Thar Desert to utilize seasonal water sources and facilitate long-distance trade, as attested by the coastal materials. This paper finally conclusively confirms that the Thar Desert fringe was not a periphery but a vibrant cultural flow that reflects Faiz Ganj's contribution to the continuing habitation, cultural exchange, and adaptation in Prehistoric and Protohistoric Sindh.

Keywords: Harappa, Indus Valley Civilization, Sindh, Khairpur, Bronze Age.

1. Introduction

Scientific studies on the history and archaeology of Sindh formally begin during British rule in India. However, the medieval accounts of the

* This paper is based on recent explorations in Sindh, conducted for the requirement of MPhil Degree of the first Author (Ali 2022), under the supervision of the second, and further studies are in progress. The presence of the second Author here intends only to express his supervisory role in the explorations in Sindh province of Pakistan.

geography, history and culture include the sources of Arab, Persian and Chinese geographers and travellers. These are after the classical and vernacular Vedic and other sources of religious thought and culture. In this connection, the etymology of word 'Sindh' is appearing to be rooted in Proto-Indo-European stems of 'sent-' and 'déh₂nu'. Stem 'sent-', expressing a meaning of 'path', whereas 'déh₂nu' is relating 'water'. Probably their composition is giving a noun for any 'river' in Indo-Aryan languages. Ultimately, helping in developing as a proper noun 'Sindhu', visible in Vedic Sanskrit, more specific to the river mentioned in the Rig Veda (RV 10.75). The travellers, historians, and geographers have long recognized its geographical importance, and particularly the Arabs have specified it only for the region at bottom of this River.

The excavation of Buddhist Stupa at Jhruk (Thatta) in 1852 by W. Cole, and the excavation at Brahminabad or Al-Mansurah (Bellasis 1855) are the initial attempts to understand the forgotten history of this region. The work of Alexander Cunningham on the geography of India (Cunningham 1963), the geological survey of India (Blanford 1880), before the discovery of Indus Valley Civilization in Sindh are the baseline studies for the development of this subject. These investigations gave a strong plateform for furthering the archaeological excavations (Ali 2022) in the present Sindh Province of Pakistan.

Following the discovery of the great Indus Valley Civilization, Majumdar (1934) conducted explorations in Sindh, and uncovered several sites of archaeological importance. Furthermore, he conducted excavations at many sites and opened new insights into the Indus Valley Civilization. On the basis of excavations, Mujumdar was able to understand the continuity of cultural sequence from Mature to Jhukar, Jhangar on the cultural material and the design of painted pottery, moving forward another late culture assemblage, Trihni, which was also related on the designs of painted pottery with Jhukar and Jhangar, which hardly dated back to 7th century BC, as later also observed by Mackay (1943) at Chanhu-Daro and on several sites of desert by Shar (1995). Ghurye's discoveries of Naru Waro Dhoro and Kot Diji (Ghurye 1936), De Terra and Patterson's investigations in Rohri hills—who described two groups of the sites, one on the limestone hill west-northeast of Sukkur and the other on the opposite Indus bank, one and a half miles southeast of Rohri —pushed back the history of the region and fostered many further studies in Rohri hills for the Stone Age (De Terra and Patterson 1939). The excavations at Naru Waro Dhoro (Khan 1964) and Kot Diji (Khan 1965) by the Department of

Archaeology and Museums revealed a new and early phase of the Indus Valley civilisation at Kot Diji. After the announcements and excavation results, a new topic was opened for the researchers on the Indus Valley civilization and its distribution.

Faiz Ganj, an administrative unit of District Khairpur Mirs, is the second largest tehsil located on the south and the western most limits of the district. On the geographical front, the region is a patchwork of the Thar desert, which occupies some 70 percent of the tehsil on the one hand, and the fertile Indus alluvial plains on the other hand, on the western side (Pithawala 1935). This terrain, with lakes (Dhunds), rain-fed valleys, and alluvial plains in the desert, offered diverse subsistence resources, including chert sources in the local Rohri Hills, good grazing areas, and possible agriculture, which attracted human activity over millennia (Biagi 2008; Veesar 2009). There had been prior archaeological studies in the area by Shar (1995) and Mallah (2000) that distinguished isolated Harappan sites, but due to their limited area of research they could not provide a clear picture of the settlement pattern in Faiz Ganj. The documentation by Hami (1994) was valuable but did not include sufficient identification of the culture or exact coordinates thus making relocating and reassessing the sites difficult. The present study addresses these gaps by undertaking a systematic study, drawing on the frameworks put forward by these previous scholars, while employing more rigorous methodological means (Ali 2022).

The recent exploration in the proposed area was conducted in the months of October, November, and December 2022. The purpose of this exploration was to attract further attention by surveying previously and newly discovered archaeological settlements for detailed study. The previous explorations in Faiz Ganj lacked site coordinates and identified only a few archaeological sites in the vast area of its portion of the Thar desert; even earlier documented sites with short descriptions were never observed in later explorations. The selected area is of fundamental importance for its geography; however, it is necessary to examine the settlement patterns and cultural continuity in ancient times. The varied nature of the area, along with several microecological units, provided favourable conditions for living beings and attracted ancient people to settle and exploit resources, such as water and grazing, for the domestication of animals.

The recent exploration work was conducted with the help of local people; they provided every facility to reach the sites and sometimes arranged transport and tents for camping overnight in the Thar desert region

of Faiz Ganj. In the results of the recent exploration, a total of forty sites were surveyed in the plains and in the desert, where different researchers earlier documented only 12 sites, including the work of Kazi (1982), Atta Muhammad Hami (1994), and Ghulam Mustafa Shar (Shar 1995). The remaining sites are recently explored during current exploration. Therefore, recently explored sites pushed back the history of Tehsil Faiz Ganj from the Kot Diji Phase to the Middle Palaeolithic; however, the chronological sequence, based on the relative dates of cultural material, continued till the late Historic period of Sindh (Ali 2022).

2. Geographical Settings

The Tehsil Faiz Ganj covers approximately 992 square kilometers in Khairpur District and is characterized by two dominant ecological regions. Its eastern region is covered by the Thar Desert, which occupies about 70 percent of the territory, whereas the western part is the Indus alluvial plain (Ali 2022). This intermediate status creates a microenvironment especially appealing to the Harappan settlers. The archaeological value of the area is based on its hydrology, especially its location along the old Khairpur course as Flam (1981) discovered. This paleochannel, along with several perennial, seasonable lakes (synonymously called dhunds) and rain-fed valleys, provided a network of available habitats and communication pathways (Mallah, 2000). Derah Wari Dhund, Bibi Maryam Wari Dhund, Taari Wari Dhund, and other water bodies provided vital resources in a dry environment (Ali 2022).

The area is situated in the Thar Desert, which comprises a few alluvial plains along old and active watercourses, valleys, and lakes (Ali 2022). These are two types of desert alluvial plains, which are cultivated and rain-fed. The alluvial plains have been cultivated using canal systems, mainly during the winter months, as there is no adequate water supply over long distances. These plains and valleys have mostly silty/wariasi soil, which is made up of loose grey sand or other light soil that disintegrates into powder when dry (Ali 2022). Examples of crops growing in these desert alluvial plains include cotton, mung, sorghum, millet, mustard, and wheat, whereas rain-fed valleys transform into green grasses during rainy seasons, and local trees such as kandi, babur, khabar, krir, and jujube grow (Ali 2022). The vegetation of the region comprises unique desert species that have been used since prehistoric times, as witnessed by Veesar (2009). These were among *aerva javanica* (Booh), *calligonum polygonoides*

(Phog), *capparis decidua* (Kirar), *prosopis cineraria* (Kandi), and *salvadora oleoides* (Khabar), and they were all sources of the essentials for people and their cattle (Ali 2022).

Also, the area's proximity to chert in Rohri Hills and Veesar Valley, about 26 kilometers northeast of prominent locations, such as Bibi Maryam Waro Thikratho, ensured the availability of the raw materials required for toolmaking (Biagi 2008; Ali 2022). The Rohri Hills are especially endowed with natural resources, such as lime and chert embedded in the limestone layers, which contain amazing tertiary fossils, mainly nummulites of the same group as those of the Khirthar range (Pithawala 1935). Early humans inhabited these hills since the Lower Palaeolithic, and some of the materials included fuller earth, gypsum, and different stones, which are still used locally (Ali 2022). This, coupled with water bodies, the presence of raw materials, a variety of flora, and a strategic location between the active Indus flow and the Hakra/Nara system, made this a very attractive landscape for long-term human habitation despite its hostile environment. The diverse ecological basins facilitated several subsistence strategies, such as agriculture, pastoralism, and hunting and gathering, as part of the long-term settlement of the area.

3. An Archaeological Sequence from the Settlements

The current paper reports the findings of a detailed survey that reveal a hitherto unanticipated density and temporal scope of habitation in this so-called marginal habitat. Out of the 40 explored sites, 29 are newly discovered. The results deepen the chronological context of human presence in Faiz Ganj and the evidence of this can be traced back to the Middle Palaeolithic, such as a flint hand-pick discovered by Bibi Maryam Waro Thikratho (Ali 2022), the Mesolithic, and Neolithic period, as the presence of chaff-tempered pottery at such sites as Bibi Maryam Waro Thikratho and Qasim Wari Bhit confirms (Chandio *et al.* 2012).

The survey led to the discovery of the Hakra cultural phase, which in this region is present in only seven locations. The diagnostic material consists of thick-body, handmade and wheel-turned sherds of pottery with a thick mud-applied surface, frequently incised with bits of pottery and cloth impressions on the interior surfaces. These discoveries were recorded at locations including Qasim Wari Bhit, Ali Ashabi, Changan Waro Wero-1, and Ronri, being highly similar to the Hakra ware recorded at Mangrian-Jo-Pat in the Thar desert, and in the Cholistan region (Mughal, 1997, Shaikh *et*

al., 2002-03, Mallah *et al*., 2002). This proves that the initial Indus people were taking advantage of the desert fringes of the margins of the Hakra-Nara system.

The survey is important in that it greatly increases the known range of Kot Diji culture, giving twelve sites on top of the previously known ones, such as Taloor-Ji-Bhit. These settlements comprised the mounded sites of Ronri, Changan Waro Wero-2 and Bhiro Akro Pul, which produced a classic Kot Dijian ceramic assemblage. The material is defined by short-necked, lightweight rims with low body texture and frequently embellished with red slip and cut lines. Pottery with incised triangular dots and floral designs was discovered at the Soomar Tali site, exceptionally similar to Kot Dijian pottery at the excavated Lewan site, indicates a level of cultural similarity across different regions (Khan 1965, Mughal 1997). Finds of such mounded settlements suggest a pattern of permanent settlement and refute the idea that the Thar desert was just a marginal area in the early Indus period (Mallah *et al.* 2014).

The presence of the Mature Harappan era was proved at the major sites that had been recognized by other scholars, such as Shar (1995) and Kazi (1992). Taloor-Ji-Bhit, at the specific site, was found to be a rich source of classic Mature Harappan pottery, including jar rims with flaring profiles and pottery painted with a black geometric and floral design, including fish-scale and pipal leaf designs, on a red slip (Kenoyer 1998). The agate and marine shell were used as raw materials for producing bangles, meaning that the settlement was connected with the overall Indus trade and craft networks.

The shift from the Mature to the Late Indus period (Localisation Era) is attested in a number of sites. According to Shar (1995), Taloor-Ji-Bhit and Abu Bakar Mullo have produced pottery dated to the Jhukar culture, with deterioration in the style of painting, using thick, poorly applied black paint over a dull red slip (Mughal 1997). Moreover, the present survey identified Trihni ware at four locations, including Lakeryo-1 and Bhiro Akro Pul. This ware, initially proposed by Majumdar (1934), is characterized by pinkish fabric with black decoration on a cream slip, representing a definite post-urban ceramic tradition dating back to approximately the 7th century BCE (Mackay 1943).

Moreover, the study bridges a significant chronological era by documenting the Painted Grey Ware (PGW) at 6 sites, such as Sonai, Sanhri Bhit, as well as Tarai Waro Thikratho, giving a crucial chronological gap between the fall of the first urbanization (Localisation Era) and the rise of

the second urbanization (Lal 1992). The occupation's persistence is once again demonstrated by early Historic period artefacts and late Historic period artefacts, and the sequence of culture is closely related to previously known stratigraphic studies such as that at Sehwan Sharif (Kervran 2001) and Kaath Banbhan (Shaikh 2018).

These discoveries challenge traditional views of settlement patterns and demonstrate that desert fringe regions should be reassessed within the broader economic and cultural contexts of the Indus Valley and the cultures that succeeded it. They unveil a landscape, not fringe, but a continually inhabited and exploited area, whose prosperity depended on the shifting paths of the Indus and its overflow routes, which provided the alluvial plains in the desert and supported life from the Stone Age to the present day.

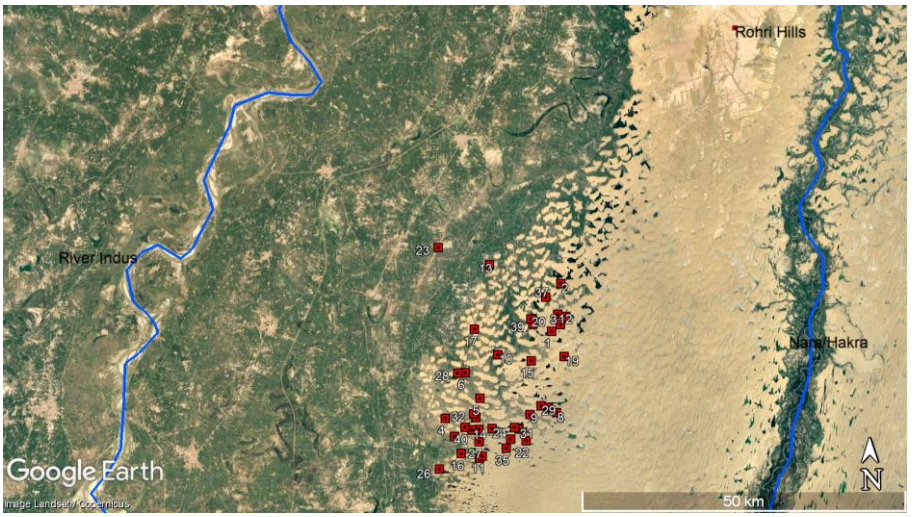


Fig. 1 - Distribution of sites in the studied area (Elaborated by the Authors).

4. The Settlements and Economy

In total, 40 archaeological settlements have been explored in Faiz Ganj, distributed across the two geographical zones mentioned above: the Thar Desert and the Indus alluvial plain. There is only a single site reported from the Indus alluvial plain, and the remaining all are in the desert, beside the lakes, and in the Indus alluvial plains, which are present in the desert. The chronological sequence of sites date from the middle Palaeolithic to the late historic period (Ali 2022; see also Tab. 1).

As already discussed, the selected area lies between the two major river courses. The presently flowing course of the Indus River which is approximately 36 kilometres in the west of the selected area, and the Nara canal (Ancient Hakra) is also flowing at the same distance in the east. The settlements of Faiz Ganj are suggesting their main source of water from Khairpur course in ancient times and rain, which mostly falls during the monsoon season. The people of the desert use small-scale agriculture and pastoralism. Mostly, nomadic populations benefited from the rainwater, especially during the monsoon, as they travelled towards the Thar desert with their cattle (Ali 2022).

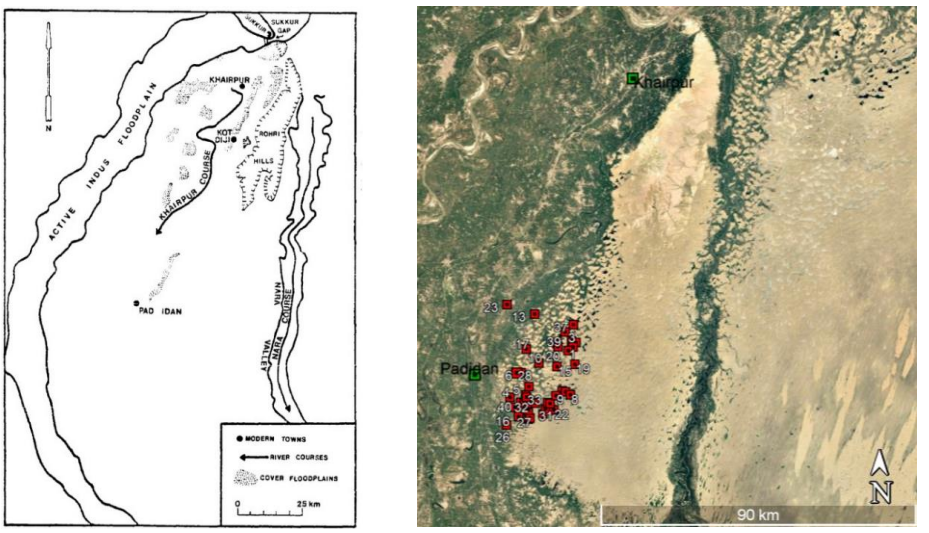


Fig. 2 - Map showing Khairpur course (left, source: Louis Flam).
Distribution of settlements (right, source Google Earth modified by Authors).

The settlements in Faiz Ganj are economically dependent on the Indus alluvial plains to its west and valleys in the deep desert. In total, just a single site is located in the plain, and the remaining 39 sites are in desert. Here a question may arise in the mind of the reader: why is the number of settlements in the plain lower than the number of settlements within the sand dunes of the Thar desert? The answer could be that in the plains, settlements are not preserved due to cultivation, population growth, and the continued expansion of villages and towns. However, the desert portion is an arid zone where growth and new settlements are much lower as compared to plains (Ali 2022).

The ancient course as described by Flam as the Khairpur course, passed near the western margin of the Thar Desert (Flam 1981). The traces of this post-Pleistocene course are visible and lead to the sand dunes. According to Panhwar, this same course is described as the prehistoric course of the river Indus (Panhwar 1969). This course furnished the desert margin, and that's why the settlements of Taloor ji Bhit and Garho Bhiro flourished on this major course of the Indus. However, settlements within sand dunes are present on the lake shores and on the plain areas, which are connected. Water access through spill channels reaches these lakes and the plain area. The Indus River plains stretch in a chain from the western side and continue into the dunes, forming a fringe. The Indus River's spill channels might have formed these fringes during the middle Holocene (Flam 1981).

Fig. 4 - Locals in the desert with their herds (Photo: Chang).

The chronological sequence of the sites and the associated cultural material suggests that these settlements were reoccupied and revised by the occupants over time. During the Harapan period or later, when catastrophic conditions and severe flooding occurred in the plains, people moved to the uplands of the Thar Desert and exploited subsistence resources (Mallah, 2008). Furthermore, the availability of the settlements suggests that the

course 5 of the river Indus continued its flow till the installation of the Sukkur Barrage. The Stone Age communities must have exploited the subsistence resources of the research area; the Fauna and Flora were used extensively. The wild plants provide fruit sources and different herbs. The region's lakes are rich in fish and waterfowl, as well as wild animals such as foxes, rabbits, jackals, pigs, lizards, and others common in the desert environment (Ali 2022).

Fig. 5 - A view of the cultivated Indus alluvial plain in the desert (Photo: Chang).

The Neolithic economy was based on domestication and early farming, which later developed in the Indus Valley civilization. The evidence of the Neolithic chaff-tempered pottery suggests that during the Neolithic phase, early farming communities also exploited this region, and it was the time of the first Urbanisation of South Asia. When farming communities produced surplus food, a sedentary form of life appeared. In the Harappan times, people established their cities on the banks of rivers; the Indus River was a major source of agriculture and a major trade route out of the territory. Furthermore, the Harappan economy was based on the distribution of raw materials; for instance, the Khairpur region is rich in chert sources that were exploited during the Harappan period. The shell, carnelian, agate and lapis lazuli were the fundamental trade goods of the Harappan economy. However, the Thar desert becomes very green after annual rainfall, which provides additional subsistence resources, such as mushrooms for human

consumption and grazing for herds. After the Harappan period, there is cultural continuity, suggesting the region has been repeatedly used for its resources. An ecosystem itself is a subsistence source of survival that connects the consumers to its resource niches (Mallah 2000a, Veesar 2009).

5. A Discussion

The importance of the Khairpur region in Indus archaeology is undeniable. Earlier explorers, such as Alexander Cunningham, Blandford, and Lambrick, mention Khairpur and its archaeological remains. Ghurye (1936) visited the sites of Kot Diji and Naru Waro Dhoro, and he first recognized the Kot Diji site as a prehistoric site. Moreover, after the partition, extensive archaeological exploration has been conducted, and many studies have focused on the Rohri Hills area, where Italian archaeologists and the Department of Archaeology, Shah Abdul Latif University, Khairpur, have discovered hundreds of stone-age-period settlements. Specifically, in the Faiz Ganj region, only sixteen sites were known; the present author added twenty nine, many of which are structural sites (Ali 2022).

The identification of cultural material on the newly discovered sites in the research area indicates that the region was rich in subsistence resources and was extensively exploited from the Mesolithic to the historic periods. The availability of stone tools from a Mesolithic workshop and from the same sites, the continuity of Neolithic chaff-tempered pottery, and the presence of early Indus cultural material (Hakra and Kot Diji) show that this region played a key role in the development of the Indus Valley Civilization. Furthermore, the Kot Diji sites in the Cholistan desert, recognised by the Mughal (43 sites) along the dried Hakra river, were viewed as indicating that the Cholistan desert was the centre of Kot Diji culture and its southwestern accumulation was the Kot Diji site located in the plains of Sindh in Khairpur district (Flam 1981). However, the sites of Dubbi, Ganero (Mallah 2008) in Thari Mirwah, Taloor ji Bhit, and Garho Bhiro yield Kot Diji culture, further to the south, indicating the extension of Kot culture in the region. During the survey we have discovered 12 additional sites, of which five are mounded settlements that clearly indicate the extension of Kot Diji culture throughout the Thar Desert of Sindh and the number of Kot Diji settlements is expected to increase in this region in the future (Ali 2022).

Site No	Name of Site	Location	Site Period								
			P	**M**	**N**	**R**	**I**	**L**	**EH**	**MH**	**LH**
1	Bibi Maryam Waro Thikratho	26°50'06"N 68°33'26"E	×	×	×	×				×	×
2	Qasim Wari Bhit	26°54'30"N 68°34'20"E		×	×	×			×	×	×
3	Ali Ashabi	26°51'19"N 68°34'46"E		×		×			×		×
4	Taloor ji Bhit	26°42'58"N 68°23'30"E				×	×	×			
5	Ronri Waro Daro	26°44'36"N 68°26'44"E				×					
6	Lakeryo-1	26°46'44"N 68°25'23"E				×	×	×	×		
7	Changan Waro Wero-1	26°43'48"N 68°33'00"E				×				×	
8	Changan Waro Wero-2	26°43'21"N 68°33'49"E				×				×	×
9	Bhiro Akro Pul/Changan Waro Thikratho	26°43'13"N 68°31'21"E				×	×	×	×		
10	Garho Bhiro	26°48'12"N 68°28'26"E				×	×	×			
1 1	Soomar Tali	26°39'48"N 68°26'54"E				×					
12	Sunhanr-1	26°51'30"N 68°34'01"E				×			×	×	
13	Pir Chattan	26°55'40"N 68°27'43"E					×			×	×
14	Abu Bakar Mullo	26°41'59"N 68°25'58"E						×	×		
15	Sonai	26°47'40"N 68°31'31"E						×	×		
16	Sanhri Bhit	26°40'02"N 68°24'57"E						×	×		
17	Tarai Waro Thikratho	26°50'20"N 68°26'16"E						×	×		
18	Odan jo Muqam	26°42'01"N 68°26'36"E						×	×		
19	Santhah Waro Thikratho	26°48'00"N 68°34'35"E						×	×		
20	Taari waro thikratho-1	26°51'08"N 68°31'31"E							×		
21	Mundh waro	26°41'56"N 68°26'32"E							×		

22	Aabin	26°41'03"N 68°30'59"E	×	×	
23	Lailan ja Aatunr	26°57'07"N 68°22'59"E	×	×	
24	Daranr	26°42'05"N 68°27'50"E	×	×	
25	Sunhanr-2	26°50'39"N 68°34'16"E	×	×	
26	Derah wari Bhit	26°38'45"N 68°22'55"E	×	×	×
27	Koonjhat	26°41'00"N 68°26'37"E	×	×	
28	Lakeryo-2	26°46'42"N 68°24'41"E		×	×
29	Kalro	26°43'56"N 68°32'24"E		×	×
30	Anheri-1	26°42'09"N 68°29'55"E		×	×
31	Anheri-2	26°42'01"N 68°30'20"E		×	×
32	Barkat Shar	26°43'19"N 68°26'09"E		×	×
33	Bari	26°43'00"N 68°26'20"E		×	×
34	Gullar waro	26°41'11"N 68°29'33"E		×	×
35	Kuti waro	26°40'26"N 68°29'08"E		×	×
36	Sakhi Salim Shah waro thikratho	26°41'27"N 68°24'20"E		×	×
37	Sanghar waro	26°52'56"N 68°32'55"E		×	×
38	Shaheedan waro thikratho	26°39'38"N 68°26'39"E		×	×
39	Taari waro thikratho-2	26°50'42"N 68°31'42"E		×	×
40	Buo	26°42'12''N 68°25'19''E		×	×

Tab. 1 - List of sites. Key: **P**- Palaeolithic, **M**- Mesolithic, **N**- Neolithic, **R**- Regionalisation, **I**- Integration, **L**- Localisation, **EH**- Early Historic, **MH**- Middle Historic, **LH**- Late Historic.

The development of these cultures from the regionalization to the integration era should be observed very well here: the pot sherds of Hakra phase in different manufacturing technologies (handmade and wheel-turn), as well as the cloth mark impression which is very fine mark of cloth from the interior of body sherds showing the ability of local people to make cloth and use it since the Hakra phase.

The Kot Dijian pottery, which needs no introduction as a masterpiece of art, is also observed at many sites, even with mounds that show a permanent settlement. The availability of raw seashell pieces and delicate bangles among the Kot Dijian pot sherds, indicates craft activity and a long trade route to the coastal sites. Furthermore, the same pottery design from the site of Soomar Tali, which has already been reported from the excavated site of Lewan in the Kot Dijian occupational layers, provides evidence of cultural exchange at that time (Ali, 2022).

Moreover, the Jhukar phase pottery, which has already been noted by Shar (1995) at the sites of Taloor ji Bhit and Abu Bakar Mullo, also provides evidence of cultural continuity after the decline of the Indus Valley Civilisation. This sequence of cultures, later overlapped by the Trihni ware, was first identified by Majumdar at the sites of Lakhiyo and Trihni in lower Sindh. The Trihni ware has also been discovered by one of the author at four sites in the desert region of Faiz Ganj, which also provides an idea of the cultural continuity in the area. While earlier scholars thought that the Thar desert (including research) was exploited during the early and late Indus periods, the identification of Painted Grey Ware pottery at six sites is very important and indicates that there was cultural continuity after the Indus Valley Civilization, And this PGW was contemporary to the Jhukar phase of the Indus Valley. Finally, the several sites of later periods, such as the early historic and historic periods, provide strong evidence that the river channels were still furnishing this region and that people exploited it extensively (Ali 2022).

The excavations at Sehwan Sharif by Kervran (2001) provide a complete cultural sequence spanning from the 4th century BCE to 18th century CE. Besides this, the excavation at the site of Kaath Banbhan also provides a further sequence extending to the 18th century CE. The associated cultural material from both settlements has been well observed in the research area, suggesting that the area was permanently inhabited during contentious periods. The foregoing discussion of archaeology and history provides a comprehensive profile of cultural development and a continuity in the exploitation of resources (Ali 2022).

6. Conclusions

The current study was conducted in the area comprising two major zones—the Thar Desert and the Indus Alluvial Plains. The systematic exploration was launched from village to village and examined each site regarding its locational context and connectivity with the surrounding area. This systematic examination of the sites enable us to notice that the settlements in this region occurred near the lakes and the perennial water sources of the Indus River, known as the Khairpur course. The cultural accumulation shows that ancient settlers repeatedly occupied the region, beginning with hunter-gatherer societies. Further, the region must have played a role in connecting the populations of the Hakra-Nara plains and the Indus alluvial plains; in this regard, a few ancient routes are still visible, such as Pad Idan to Imam Garh and the Nara Valley.

In the results of the current exploration, cultural continuity was determined, and there were also some missing links between the Harappan periods and the Iron Age, such as PGW, which was not known before from the study area and is now observed at six sites. Further, the plain fine grey ware, which is very similar in body wall texture to the painted grey ware already identified from Sehwan Sharif, is also reported among the sherds of PGW, suggesting the continuity of the painted grey ware tradition. After that, a complete profile of the chronological sequence in the light of different settlements of Sindh, such as Sehwan (phases 1-6), Banbhore, AL-Mansura, and Kaath Banbhan, has been confirmed and correlated with the settlements of the current area.

In the recent exploration in Tehsil Faiz Ganj, the total number of documented sites is 40, of which only 11 have been reported in previous studies. Of the total number of previously documented sites, four were poorly described and lacked cultural identification. Moreover, sites such as Taloorji Bhit and Lakeryo were known only for their Kot Dijian and Harappan occupations; yet, during the current investigation, Hakra-phase pottery has also been observed at both settlements. Furthermore, the new discoveries include a single site with identification of a Middle Palaeolithic hand pick, three sites with Mesolithic cultural material, two sites containing Neolithic chaff-tempered pottery, and six sites with Hakra occupation, which are an addition to the prehistoric records of this region.

The remaining gap between the late Indus tradition and the early Historic periods was not addressed extensively before. But during the current investigation, PGW has been reported at six sites, providing a clue

to the missing link between the decline of the first urbanization and the onset of the second (Ali 2022). The number of permanent settlements in the area of study may not have been totally dependent on the Khairpur course and rainwater; however, in previous studies, it was in doubt whether the area was furnished by the Hakra or the river Indus. However, the distribution of the settlement suggests that annual rainfall filled the low-lying areas of the region, which must provide water for daily life in the desert environment, and the high floods in the Khairpur course must have reached the toes of the sand dunes. Further, the traces of Khairpur course of the Indus River are still visible near the western margin of the Thar Desert, entering the alluvial plains present in the desert.

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Buddhist Period Sites Reported from Malakpur Area, Tehsil Gadaizi, District Buner (Pakistan)

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Abstract

The area around Malakpur Village of district Buner represents one of the richest archaeological landscapes of Buner and ancient Uddiyana, containing a diverse assemblage of Buddhist-period heritage. Recent investigations have identified a series of Buddhist stupas, rock carvings, monastic remains, and associated settlement traces spread across the hilly terrain of Ilam, Beshunai, Malakpur, Pir Baba, and adjacent localities. This article synthesizes all available archaeological data from the documented survey, focusing specifically on Buddhist-period sites — Kafero Dherai Stupa, Ramanrai, Gogai Stupa, the three Bangosar Carvings, Ilam Kalai, Alaksar, and Gogai Stupa. The study highlights their geographical settings, structural characteristics, architectural typologies, state of preservation, and their significance within the Buddhist cultural sphere of Buner. Through comparative analysis with other regional monuments, especially those of Swat, the article situates these sites chronologically and culturally within the broader landscape of Uddiyana, Gandhara and Kushan-period Buddhism.

Keywords: Survey, Buner, Buddhist-period sites, Gandhara.

1. Introduction[1]

Malakpur lies within the Gadaizi Tehsil of district Buner (Fig. 2), forming part of the historic Uddiyana region known for its dense Buddhist archaeological heritage. The area encompasses valleys, steep ridges, terraces, and foothills of Mount Ilam and Jam Doap hill, providing an ideal setting for monastic establishments, stupas, hermitages, and rock-carving activities during the Buddhist period. Historical surveys by the Department of Archaeology and Museums, Government of Pakistan (DOAM), particularly the investigations of 2014–15 by the Directorate General of Archaeology and Museums, Government of Khyber Pakhtunkhwa, recorded numerous Buddhist sites distributed across Malakpur, Beshunai,

[1] This article is intended as a supplement to the article published in the previous issue of this Journal.

Gogai, and Ilam Kalai and other surrounding villages. These sites demonstrate large stupas, monastic traces, carved boulders, Buddhist and non-Buddhist paintings (see Olivieri 2012), and cultural sites containing multilayered deposits.

2. Buddhist Period Sites in Malakpur Area

The Buddhist-period sites of the Malakpur area form an important archaeological landscape of ancient Uddiyana, reflecting a deeply rooted Buddhist presence in this part of Buner. Their distribution shows a close integration of sacred architecture with the natural terrain, shaped by monastic practices and regional pilgrimage networks. Despite modern disturbances, these sites retain significant research value, making their documentation and preservation essential for understanding the Buddhist heritage of Buner and the wider Gandhara—Uddiyana region.

2.1. Kafero Dherai Stupa

A monumental double-drum stupa was identified at the northeastern foot of Mount Ilam, representing one of the most imposing Buddhist structures in the Malakpur region. Known as the Kafero Dherai Stupa, the site lies near Beshunai village within the Malakpur area of Gadaizi Tehsil (Fig.2.). Geographically, it is positioned at 34.610176 N and 72.362762 E, approximately 2.5 km west of Malakpur village and 1.5 km south of Beshunai, resting on a natural mound beside the right bank of the Koga–Siparai Khwar. It is situated just below the eastern ridge of Alaksar, one of the two principal summits of Mount Ilam. The monument can be approached through either the Malakpur–Gawidhand or the Beshunai–Gawidhand routes. The site was earlier reported by Rehman (1996: 12-13) and Khattak (1997: 58-61) and later on by Samad, Khan (2016: 7) and Khan (2018: 54, 161).

Several architectural components of the stupa remain remarkably well preserved, offering valuable insight into the monument's original grandeur. The stupa (Figs 3, 4) survives in the form of a large square podium, each side measuring 24 m and rising 6.2 m above the present ground level. Above this square base stands the first drum, which measures 12 m in diameter and 1.7 m in height, followed by the second drum, 9.2 m in diameter and 3.9 m high (Fig. 4). The total preserved height of the monument is recorded as 11.8 m. The dome, although partially intact, is

now irregular in shape due to extensive illegal excavations that have cut through the central core down to the ground level, leaving the relic-casket chamber clearly exposed (Khan 2018: 161-162).

One of the most distinctive architectural features of the Kafero Dherai Stupa is its eastern staircase (Fig. 3), which is preserved far better than those of many other stupas recorded in Buner. The stair riser is designed in two widths—8 m wide at the base of the stupa and 5.4 m wide at the outer projection. Double projections and supportive structural elements flank both sides of the staircase. Moldings executed in large, thin diaper masonry adorn multiple levels of the monument, including the middle of the stair riser, the top of the podium, the lower edges of both drums, and the upper part of the lower drum. The overall masonry is composed of ashlar blocks with their interstices packed with thin diapers, reflecting construction techniques characteristic of the region.

The stupa's architectural style places it within the Kushan period (Samad, Khan 2016: 7), and it bears strong stylistic affinities with the Shingardar Stupa and other monastic monuments of Swat (Khan 2018: 161). Its scale, design, and preserved elements indicate the importance of the structure within the religious landscape of ancient Uddiyana. Adjacent to the stupa, on the western plain, lie the remains of a Buddhist monastery, underscoring that Kafero Dherai once formed the nucleus of a substantial monastic and ritual complex. The monument is further enclosed by steep slopes of the natural mound on its northern, eastern, and southern sides, enhancing its commanding position within the surrounding terrain.

2.2 Ramanrai Stupa Site

Ramanrai is one of the largest and most important Buddhist-period archaeological sites in district Buner (Khan 2018: 162). It lies near Balo Khan Kalai (Pir Baba) within the Malakpur area of Gadaizi Tehsil, positioned at 34.608075 N and 72.398002 E at an elevation of 1748 m a.s.l. Approached from the east of Balo Khan Kalai, the site spreads across a steep ridge of Mount Ilam, extending roughly 1.5 km east–west and one km north–south. Ramanrai site was earlier reported by Stein (1929: 167-69; 1930: 98), and later on by Rehman (1996: 48-50), by Khattak (1997: 74-77), by Samad, Khan (2016: 7), and by Khan (2018: 54, 162-164; 2024: 49-67). The landscape is dominated by massive granite and marble boulders, with the archaeological deposits distributed across terraced slopes. Three major parts preserve rock shelters, structural mounds, wall traces, and

architectural alignments that reflect extensive and multi-period Buddhist occupation.

Ramanrai is not only an important Buddhist period site, but it has been previously discussed as it contains prehistoric rock shelters (Samad, Khan 2016: 7; Khan 2018: 146). Ramanrai contains a remarkable variety of religious and secular structures, including the main stupa (Fig. 5), a 'hollow' stupa, numerous votive stupas, chapels, isolated monastic cells, monastic complexes (Fig. 4), rock-shelters, water features (Khan 2024: 49-67), and residential remains. The main stupa complex occupies a minor plain basin in the western part of the site and consists of a large stupa and a 'hollow' stupa built upon a single rectangular platform measuring 24 × 14 m and 2 m high (Khan 2018: 162-164). Both structures are accessed by stairs on the north and east. The main stupa rises to a present height of 9 m, while the 'hollow' stupa shows only its base and traces of a 'hollow' drum, damaged by treasure hunting.

Surrounding the main complex are numerous votive stupas, often erected on large boulders and accessible either naturally or by stair-risers. These stupas occur in both square and circular forms, though most have been damaged by weathering and illicit digging. Small chapels, each about 2 × 2 m, are also situated around the complex, again often positioned on boulders or raised platforms. Additional stupas and at least three monastic complexes lie to the southeast, east, and northeast. The monastic remains near the northern rock-shelter are the best preserved, though partially lost to agricultural encroachment.

Several rock-shelters occur in the western and central areas, some containing internal stairways and structural additions, possibly used as storage or ancillary rooms. The site is rich in water sources, with three springs flowing from Alak/Gaṛhai Sar, channelized through masonry conduits. Two wells and a central water tank—likely used for water storage or ablution—are also present. A small bathroom, with a slab-paved floor and central water channel, is located near a spring beside a monastic complex.

Because the settlement occupies a steep ridge, stair-risers are provided throughout the site, while massive stone blockades were constructed to control the channeled water and erosion during heavy rains (Khan 2024: 49-67). Additional structures include houses, streets, an underground chamber built as a double-storey corbelled structure, and other secular buildings. Although Khattak (1997: 74-77) reported a watchtower on the western side, recent surveys did not confirm its presence.

Architecturally, the site resembles major Kushan-period Buddhist complexes such as Takht-i-Bahi and those of the Swat Valley, indicating that Ramanrai likely flourished under royal patronage and formed a major religious and urban center in ancient Uddiyana.

2.3 Gogai Stupa

Gogai Stupa is located near Bhai Kalai, on the southeastern slopes of Mount Ilam. The site occupies a small natural mound situated on a gently sloping area measuring approximately 200 × 110 m and is most easily accessed through the Bhai Kalai–Gogai (and Bangosar) route. The stupa lies at latitude 34.585052 N and longitude 72.428933 E and at an altitude of 797 m above sea level. The site was reported by Samad, Khan (2016: 8) and Khan (2018: 190-191).

Although the monument has suffered extensive damage, largely due to plundering and treasure hunting, several key components remain identifiable. Surviving traces include mounted stone blocks of the stupa's drum (Fig. 7) and fragments of a huge *chattra*, while the centre of the stupa has been dug out and even the base excavated on all sides. To the southwest of the stupa lie the remains of a monastery (Fig. 8), now largely concealed beneath a mound whose upper surface has been converted into agricultural fields. Scattered wall traces are still visible across the cultivated land. Surface collection at the site has yielded fine pottery, including the rim and base of a dish, a decorative pot handle, and the rim of a jar with thick incised lines (Khan 2018: 190-191).

An important numismatic find was also reported by a local resident, who presented a silver coin of Diodotus I, allegedly unearthed near the stupa. If genuinely associated with the site, this discovery may indicate an earlier, possibly Indo-Greek, phase in the monument's history (Khan 2018: 157, 262). Despite its current state of ruin, the Gogai Stupa clearly formed part of the broader network of Buddhist religious centres that once flourished across the Malakpur region.

2.4 Bangosar Carving–1

Bangosar Carving–1 (Fig. 9) is situated near Bangosar village along the route connecting Gogai to Bangosar. The carving lies at 34.610291 N and 72.384393 E, at an elevation of 953 m, and forms part of a broader concentration of Buddhist rock art in the area. The carved panel itself

measures 202 × 68 cm, executed on a stone surface that has endured significant weathering damage, obscuring much of its original detail (Fig.10.). Nevertheless, its presence—along with other carvings nearby—indicates that Bangosar once served as an important locus for Buddhist devotional imagery rendered on natural rock boulders. The site was first reported by Olivieri (1994: 468-473), by Filigenzi (2015: 115, 116 & 236) and later on by Samad, Khan (2016: 8), whereas conservation activities on this carving were carried out in the framework of the British Council Cultural Protection Fund (CPF) project.

A large boulder, measuring approximately 10.5 × 7 m, stands in the southern part of the village beside the Bhai Kalai–Bangosar route. The boulder contains a rock shelter facing west toward the main track (Fig.9.). The shelter interior measures 6.5 m in width and 2.5 m in height, and at its centre a carved panel of 2.5 m in width and 1.2 m in height features a sequence of five haloed Bodhisattvas rendered in varying sizes and poses (Fig. 10). The figures decrease in size from left to right, and although all are in a poor state of preservation, their stylistic attributes strongly reflect the artistic traditions of Kushan-period Gandhara and Uddiyana (Khan 2018: 164-165).

The first figure, located at the extreme left, is a standing Bodhisattva now too damaged for detailed identification. Unlike the others, it is depicted not as a fully chiseled figure but in contour outline with interior dotted markings. The image measures 60 cm in height and 30 cm in width, and appears to show the Bodhisattva with outstretched arms, possibly holding a beaded garland in the right hand and a pilgrim's staff in the left.

The second figure represents a Padmapāṇi Bodhisattva seated on a throne, though much of it has been defaced. Measuring 85 cm high and 55 cm wide, the figure is rendered in lalitāsana: the right leg is crossed over the left, which hangs downward. The left-hand rests upon the knee of the pendant leg, grasping a pilgrim's staff, while the raised right hand touches the cheek in a characteristic pensive pose.

The third figure is also a Padmapāṇi Bodhisattva seated on a low throne, similarly, depicted in lalitāsana, though in this case the left foot rests upon the right, which serves as the pendant leg. The right-hand rests either on the leg or in the lap, while the left hand likely holds a lotus or pilgrim's staff. This figure, more modest in scale, measures 65 cm in height and 45 cm in width.

The fourth Bodhisattva, largely effaced, measures 40 cm high and 30 cm wide. He is seated on a throne in dhyānamudrā, with hands joined in

the lap. The posture appears close to a full lotus position, with the feet placed upon opposite thighs.

The fifth and smallest image, measuring 36 × 36 cm, is again a representation of Padmapāṇi, executed in the stylistic tradition of the second figure but now heavily damaged. The Bodhisattva is shown seated on a lotus throne, with the right foot placed over the left pendant leg. The right hand appears to touch the cheek in a pensive gesture, while the left hand rests upon the knee.

2.5 Bangosar Carving–2

Bangosar Carving–2 (Fig. 11) was recorded by Samad, Khan (2016: 8) and Khan (2018: 166). It is situated slightly upslope from the first carving in Bangosar village, at 34.610710 N and 72.385308 E, at an elevation of 1024 m. The carving is executed on a rectangular boulder set within the settlement area, forming part of the same cluster of Buddhist devotional rock art that characterizes this locality.

A niche measuring 54 × 37 cm has been carved into the boulder to accommodate the image of a standing Bodhisattva, whose surviving form measures 47 cm in height and 26 cm in width. The figure is now heavily defaced, yet its original posture can still be discerned: the Bodhisattva stands frontally with arms hanging down on either side. It is likely that he once held a beaded garland in his right hand and a pilgrim's staff in his left, a common attribute pairing in Gandharan Buddhist iconography. The carved surface, approximately 2 × 1.5 feet in size, has suffered significant deterioration, leaving only faint traces of the original engraved features (Khan 2018: 166). Despite its damaged condition, the carving holds considerable archaeological value.

2.6 Bangosar Carving–3

Bangosar Carving–3 is located close to the earlier two carvings, at 34.610699 N and 72.384934 E, at an elevation of 1009 m, positioned along the Bangosar–Ramanrai route in the northern part of Bangosar village. The carving is executed on the southern face of a large boulder, where a roughly square niche measuring approximately 1.4 × 1.3 m has been fashioned to contain two Bodhisattva figures (Fig. 12). Although the panel is now damaged, the surviving sculptural forms clearly reflect the Buddhist artistic tradition that characterizes this cluster of carvings. The site was reported by

Olivieri (1994: 468-473), by Filigenzi (2015: 115, 116 & 236), by Samad, Khan (2016: 8), and Khan (2018: 166-167), whereas conservation activities on this carving were undertaken within the framework of the British Council Cultural Protection Fund (CPF) project.

Within the niche, two haloed Bodhisattvas are depicted side by side—one seated on the left and the other standing on the right. Their faces are severely defaced, but their ornamental crowns, jeweled diadems, and other iconographic elements remain partly visible. Both figures appear to wear their hair braided to one side, or perhaps the decorated band of the diadem rests across the right shoulder. They are shown dressed in the Buddhist dhoti, with their torsos left bare in the conventional manner of Gandharan and Uddiyana art. Such stylistic features suggest a date within the Kushan period, consistent with similar carvings in the surrounding region.

The seated figure on the left represents a Padmapāṇi Bodhisattva, portrayed in a serene and regal lalitāsana pose. Measuring about 1.3 m in height and 0.8 m in width, the Bodhisattva sits upon a high, undecorated throne resting on a stylized lotus base. His right leg is crossed over the left, which hangs down as the pendant leg, its toes lightly touching the lotus flower below. The left arm is extended, with the hand resting upon the knee of the pendant leg and likely holding a pilgrim's staff raised above the shoulder. The right hand is lifted toward the cheek in the well-known pensive gesture, emphasizing a meditative and contemplative expression.

The standing figure to the right, identified as Maitreya, is carved in a graceful tribhaṅga posture on a lotus base. Measuring 1.3 m high and 0.7 m wide, Maitreya holds a bunch of flowers in his outstretched right hand, while his left hand carries a spout-less kamaṇḍalu, symbolizing his ascetic qualities and future role as the Buddha-to-come (Khan 2018: 166-167).

2.7 Ilam Kalai

Ilam Kalai is located at 34.616348 N and 72.364372 E, at an elevation of 1884 m a.s.l., in the upper basin of Mount Ilam. The site is accessible via a non-metalled jeepable road branching northward near the confluence close to Char village on the Jawkhela–Jowar road. The small village of Ilam is situated on a bulldozed archaeological site (Khan 2018: 195–196). Archaeological evidence at the site is limited and includes a few structural remains (Fig. 14), small potsherds scattered in cultivated fields, and a long series of stone steps constructed at various locations. More notable

discoveries include a small number of punch-marked coins reportedly found by a local elder, as well as sculptures that were allegedly looted by antique dealers from Ilam village (Khan 2018: 195–196). Earlier, several inscriptions from Ilam village were reported by Senart (1894: 334) and Stein (1898: 19), while Rehman (1996: 36) and Khattak (1997: 64–65) also documented a Buddhist site along the route to Ilam village.

Historically, Ilam has been one of the most frequently discussed sites by scholars. It has been identified as a sacred place since prehistoric times (Tucci 1977: 27; Olivieri 1996: 68–69) and as a sacred Hindu site from the Vedic period, where Ramtakht (Fig.13.) was believed to have been located (Court 1839: 312; Stein 1898: 21–22). Ilam has also been recorded in Alexander historiography as Mount Meros (Abbott 1854: 350–353) or as a probable location of Aornos (Tucci 1977: 52–55; Olivieri 1996: 58, 64–70; Coloru, Olivieri 2019). Furthermore, the site has been identified under various names by historical sources: as Mount Hila or Hilo by Chinese pilgrims (Court 1839: 312), Mount Ilo by Orgyan-pa (Tucci 1940: 52), and Mount Yalom Pelom by sTag tsan ras pa (Tucci 1940: 79).

2.8 Juro Stupa (Alaksar)

The site of Alaksar is located near Ilam village at 34.618723 N and 72.366580 E, at an altitude of 2331 m a.s.l. The structural remains at Alaksar are now heavily damaged, with only fragmentary evidence marking their former presence (Khan 2018: 204). The site was previously reported by Stein (1930: 99) during his identification of sites around Jobra village. Another stupa site of particular importance is situated in a small village known as Juro, near the Alaksar peak of Mount Ilam (Fig. 13). During the 2014–15 field campaign, the Juro stupa site was occupied by a security forces check-post. As a result, detailed photographic documentation of the site was restricted due to security considerations. This Buddhist stupa complex comprises a principal cruciform stupa (Fig. 15), several votive stupas adjacent to the main structure, and monastic complexes (Fig. 16) located at various points across the site (Khan 2018: 179).

The cruciform stupa is situated at the center of the site and rests on a double, or possibly triple, base. The main stupa is square in plan, measuring approximately 30 m on each side. The dome of the stupa was most likely also square in form; however, the exact shape of the drum is difficult to determine, as it has been severely damaged by illegal excavations, with stone blocks scattered across its surface. Stairways

providing access to the base are present on all four cardinal sides. Two monasteries are located to the west of the main stupa complex, both of which are extensively damaged due to weathering and illicit digging. Additional architectural fragments are visible along nearly every ridge of the hill and at the corners of the site.

3. Conclusions

The Buddhist-period sites of the Malakpur area collectively demonstrate that this region formed a major religious, artistic, and monastic landscape of ancient Uddiyana. They reflect sustained Buddhist activity, particularly during the Kushan period, and close cultural and architectural links with the Swat Valley and wider Gandhara region. Despite severe damage caused by natural decay, illicit diggings, agricultural encroachment, and modern development, these sites retain substantial archaeological and historical value. Their integrated study highlights Malakpur's importance within regional pilgrimage networks and underscores the urgent need for systematic documentation, protection, and conservation to preserve this significant component of Pakistan's Buddhist heritage.

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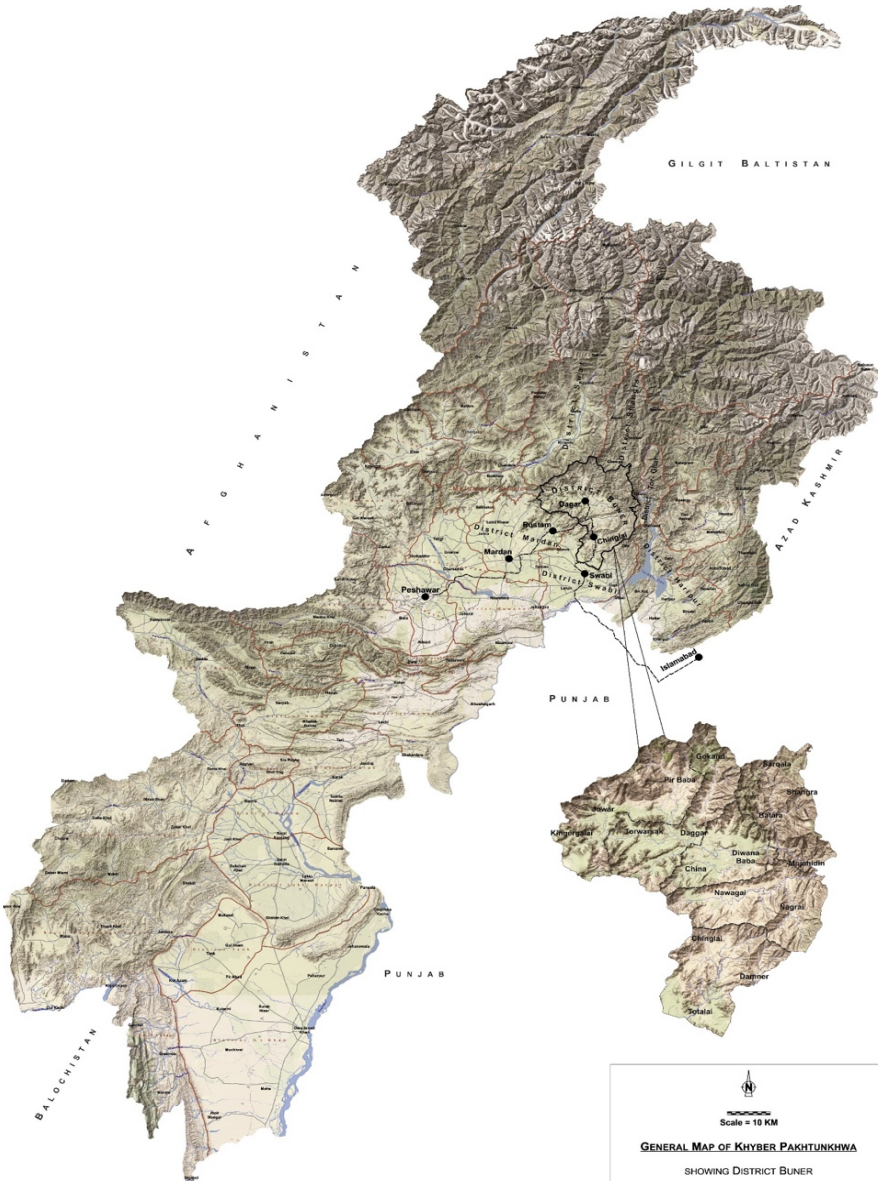

Fig. 1 - Map of Khyber Pakhtunkhwa Showing District Buner.

Fig. 2 - Map of District Buner Showing Concerned Archaeological Sites.

Fig. 3 - Kafero Dherai Stupa (Showing Flight of Steps).

Fig. 4 - Kafero Dherai Stupa (showing base and drum).

Fig. 5 - Ramanrai Stupa Complex.

Fig. 6 - Parts of Monastic Complex at Ramanrai.

Fig. 7 - Visible drum of Gogai Stupa.

Fig. 8 - Exposed structures near Gogai Stupa.

Fig. 9 - Rock-shelter Bangosar Carving-1.

Fig. 10 - A general view of Bangosar Carving-1.

Fig. 11 - General View of Bangosar Carving-2.

Fig. 12 - General View of Bangosar Carving-3.

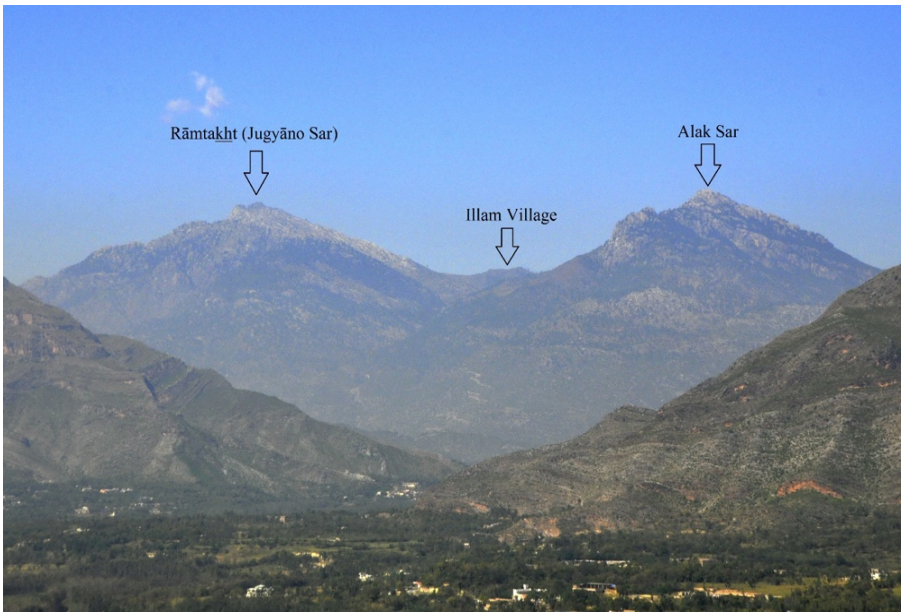

Fig. 13 - Ilam Mountain (Showing Ramtakht, Ilam Village Site, and Alaksar Site).

Fig. 14 - Exposed Structures at Ilam Village Site.

Fig. 15 - Parts of the base and drum of Juro Stupa.

Fig. 16 - Scattered structures at Juro Stupa Site.

Square and Rectangular Shaped Water Wells Reported from District Buner, Pakistan

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Abstract

An archaeological survey was conducted by the first two authors in District Buner, during which they documented numerous sites spanning from the Pre-Buddhist era to the Islamic period. Notably, square and rectangular-shaped water wells were discovered at Landḍisar (Gāṛ), Kachkol Paṭai, Sorai, and Kuhidara. Circular wells have been a common feature throughout human history due to their ease of excavation, cost-effectiveness, and the circular shape creates even pressure on its inner walls to maintain maximum structural strength. In contrast, the construction of square and rectangular wells is relatively less common. Non-circular wells require more labour, precise construction techniques, and they are more expensive to manufacture. It is likely that these square and rectangular-shaped water wells were commissioned under the patronage of the royal authorities of that era, showcasing the economic and technological power of the ancient society that once inhabited modern-day Buner.

Keywords: Water resource, square well, Buner, Hindu Shāhi, Mauryan, Gandhāra.

1. Introduction

District Buner, situated in the central part of Khyber Pakhtunkhwa province in Pakistan, holds a unique place in the ancient geography of the region. It was an integral part of several historical states, including Gandhāra, Uḍḍiyāna, So-ho-to, and Chamlā (Samad and Khan 2016: 1; see Fig. 1). Like its neighboring districts, Buner has earned a significant role in terms of archaeological heritage. During explorations conducted by the Directorate of Archaeology and Museums, Government of Khyber Pakhtunkhwa in 2014-2015, remarkably 373 archaeological sites were discovered in Buner (Samad and Khan 2016: 6). These sites span various historical periods, including Pre-Buddhist, Buddhist, Hindu Shāhi, and Islamic eras (Samad and Khan 2016: 3-5). Among the notable findings were four square and rectangular water wells. These are named as Landḍisar (Gāṛ) Well (Samad and Khan 2016: 32, and Khan, Z.H. 2018: 196-197), Kachkol Paṭai Well (Samad and Khan 2016: 11, and Khan, Z.H. 2018: 199-200),

Sorai (Samad and Khan 2016: 20; Khan, Z.H. 2018: 246), and Kuhidara (Samad and Khan 2016: 35; Khan, Z.H. 2018: 214). Each of these wells contributes to the fascinating historical tapestry of Buner.

1. Lanḍisar (Gāṛ) Well

It is an early Buddhist site (Khan, Z.H. 2018: 196-197) located approximately 1.5 kilometers northeast of Shalbānḍai village in Tehsil Gāgra. The well is situated at latitude 34.507917 North and longitude 72.534170 East, at an elevation of about 723 meters above sea level. To reach Lanḍisar (Gāṛ), one can take the Chañjil–Lanḍisar route, which lies along the Ḍaggar–Amnawar road. Notably, this site lies directly on the ancient route connecting the Swat District (ancient Uḍḍiyāna) with the Indus River via Kaṛākaṛ and Budāl Passes. The ancient water well at Lanḍisar is square in shape and remarkably well-preserved. Its approximate dimensions are 1.5 meters on each side (Fig. 2). It reaches a depth of about 4 meters to the water surface, although we were unable to measure the exact water depth. It is constructed in diaper masonry where the mason has applied large size slabs instead of thin diapers. Interestingly, the local population still relies on this well for fresh water.

According to elders from Shalbānḍai village, Lanḍisar once housed a substantial stūpa. Unfortunately, several decades ago, the stūpa was bulldozed to make way for agricultural land (Samad and Khan 2016: 32). During this process, the ancient well came to light. Moreover, the locals have reported finding punch-mark coins at the site, that may suggest its occupation even before the Indo-Greek era. The surface of the site yields a significant amount of pottery fragments, including rims, potsherds with deeply incised lines, and bases.

2. Kachkol Paṭai Well

This well is also located exactly beside the ancient route that has been discussed earlier. Kachkol Paṭai (Fig. 3) is situated at latitude 34.549218 North and longitude 72.354910 East, at an altitude of 770 meters above sea level. The site lies between the villages of Kāṭkala and Ashezo, near the northeastern end of Nikanai hill in Tehsil Gadaizi. There are two different routes that are leading to the well, one is Kāṭkala – Kachkol Paṭai route and second is Ashezo – Achol Paṭai route.

This well is constructed in diaper masonry but unfortunately it does not contain water. It measures about 1.3 meter on each side and the bed of the well is about 4.2 meters below the present ground level. Other archaeological remains at Kachkol Paṭai consist of small pottery fragments and buried structures. But only the well was accidentally discovered during bulldozing the mound to acquire agricultural land (Samad and Khan 2014: 11). This process may have inadvertently removed the structures from the upper level of the site. Despite our efforts, we have not found conclusive evidence to determine its precise historical period, but the architectural style and construction technique resemble that of the Lanḍisar (Gāṛ) well.

3. Sorai Well

Sorai well is located between Kāṭkala and Ashezo villages, on the boundary of Ḍaggar and Gadaizi Tehsils. This site contains several archaeological remains, in which a rectangular shaped well is also reported. These monuments reside over a steep ridge in the northern end of Nikanai hill. Sorai site can be accessed through Kāṭkala – Sorai sar route. It is laying at latitude 34.549515 North and longitude 72.352696 East on an elevation of 923 meters above the sea level. This well is located on a hill top which may have been used by the dwellers of the site only, as there is no ancient route reported that is leading through this hill.

At this site only a few structures are left behind that are scattered over an area of about 270-280 meters. These structures include part of a fortification wall, foundations of small sized residential quarters, huge embankments at the slopes, foundations of a watchtower, and security posts at both ends.

We observed a rectangular shaped structure at this site which looks like a pool or any other underground structure (Fig. 4). But the local elders described that this structure served as a water well. According to them it contained water throughout the year, and it was not used as a seasonal storage for water. But now there is no water in the well due to the idea that the marble industry may have cut off its waterbed during mining and blasting occurring just below the site at this hill.

This site holds a strategic position on the map. It was established during the Hindu Shāhi rule where they constructed a military watchtower and checkpoint atop Nikanai hill (Khan, Z.H. 2018). They constructed these monuments to identify any movement of the advancing army of the enemies in the plains of Sālārzi, Gadaizi and Ashezi (Khan, Z.H. 2018). This hill is

located over a strategic point which connects Buner with Swat through Kaṛākaṛ and Malakpur passes, with Malakand through Kaṭgala and Bampokha passes, with Mardan through Tañgidara and Jañgdara passes and with Barindu valley through Ashezo and Ḍaggar passes.

4. Kuhidara Well

It is located in the famous Mughaldara valley, where the Mughal rulers fought against the Yusafzai tribe of Buner (Khan, Z.H. 2018: 183). The well is situated at latitude 34.441525 North and longitude 72.450157 East, at an elevation of 818 meters above sea level. It can be accessed via the Chīna – Yārā – Kuhidara route. This well is also situated on one of the ancient routes that connects the Mardan and Swabi Districts (ancient Gandhāra) with the Swat District (ancient Uḍḍyāna) through Ambela, Kaṛākaṛ and Kalel Passes. Kuhidara refers to a small valley located between Alachai and Ḍanḍār hills, with the term itself meaning valley (in Pashto, *dara*) of the well (in Pashto, *kuhi* or *kuhai*).

The site is famous for an ancient well, which is now either filled up by modern dwellers or by the torrential floods that flow down the steep valley during the monsoon season. The only remaining evidence is the periphery wall raised over the boundary of the well (Fig. 5) which is square in shape and roughly measures about 3 meters on each side. This boundary wall was constructed as a safety measure to protect the well from floods. According to local elders and the landowner, there was a square shaped well at the eastern end of Kuhidara site which was constructed in diaper masonry (described by the locals as *rakhi*).

During the survey we reported other structural remains at this archaeological site. Unfortunately, these have been devastated by torrential floods, bulldozed to make way for agricultural land, and encroached upon by modern houses. The Kuhidara site covers an approximate area of 450/260 meters, and the remaining traces of structures do not provide clear clues about their periodization. These could be the remains of a monastery and other secular buildings. However, some locals report that this site may have been associated with the Buddhist period due to the discovery of sculptures.

As stated, earlier Kuhidara is situated within Mughaldara. It is worth mentioning that during a historical conflict the forces of Mughal ruler Akbar and the local Yusafzai warriors fought a war for supremacy in this region (Dani 1995: 102; Khan, Z.H. 2018: 183) but Mughals were defeated (Caroe

1958: 54) and the famous personality, i.e., Rājā Birbul, was killed (Rehman 1996: 3). But later, during the reign of Jehāngir, Yusafzai tribe was defeated by Sultān Ovais and Rājā Todar Mall who captured Buner in retaliation for Birbal's killing (Rehman 1996: 3; Khan, Z.H. 2018: 253).

5. A Discussion and conclusions

District Buner is rich in water springs, hill torrents, and rivers that eventually flow into the River Indus (Fig. 1). Interestingly, the discovered wells are strategically located where no surface water is reported. These wells likely served as fresh water sources for travelers along ancient trade routes.[1] According to Stein (1905: 22) ancient wells of smaller size were generally square in shape and according to Falk (2009: 23) the small opening wells were generally draw wells (through pulley). The tradition of providing water sources along ancient routes was known since Mauryan times (e.g., Thapar 2012). From the following discussion it can be concluded that these water wells may have been constructed by the orders of monarchs.

It is evident from historical accounts that Buner, as part of Gandhara, was ceded to Chandragupta Maurya (the grandfather of Ashoka) by Seleucos I through a treaty (Cunningham 1871: 15-16, Imperial Gazetteer of India 1908: 13, 147 and 217; Caroe 1958: 44 and 60; Olivieri 1996: 69; Khan, Z.H. 2018: 180). The antiquarians like Beal (1869: 193), Cunningham (1871: 61, 82), Dean (1896: 656) and Stein (1898: 31-32, 34-38, 60-62) suggested that five major stūpas erected by king Ashoka over the Jātakas of Buddha are located in District Buner (Khan 2018: 5-6). The discovery of punch-mark coins from eight archaeological sites in Buner (Khan, Z.H. 2018: 55-56) may further attest the glory of this district during the royal patronage of Mauryan rule.[2]

We can take this dialogue back to a period preceding the Mauryans, as there has been extensive academic discussion regarding the presence of the Achaemenians in Buner (Khan, Z.H. 2018: 144). Numerous and the most debated towns and cities dating back to the Achaemenid period and Alexander's invasion were located in Buner by earlier writers (Samad and Khan 2016: 3; Court 1839: 309; Cunningham 1848: 102-105; Abbott 1854:

[1] See Falk 2009: 23-37.

[2] For the Brāhmī inscription of Ashoka from Buner (Mukherjee 1991: 51-54; Behrendt 2004: 39; Khan, Z. H. 2018: 156).

341, 350, 353, 358; Cunningham 1871: 60-61; Eggermont 1975: 11, 141; Tucci 1977: 27, 52-55; Olivieri 1996: 64-70; Khan, Z. H. 2018: 144). That said, most of the evidence for the same typology of well were found in the area of the Swat valley are dated between the 1st-3rd century CE (Olivieri, Vidale et al. 2006).

It becomes evident from the above sources that Buner held a prominent position on the map during the time concerned. Not only the Mauryans but also the Kushān dynasty has ruled Buner as we have reported 64 Kushān period sites during the archaeological campaign of 2014-2015 (Samad and Khan 2016: 6-42). These sites consist of large-sized stūpas, which once again testify to the theory that the rulers of this dynasty gave full attention to Buner.

The Hindu Shāhi sovereigns also ruled over Buner as we have documented 168 sites of this period (Khan, Z.H. 2018: 51, 217). According to Wynbrandt (2009: 52), Hindu Shāhis during the rule of Jaypāl (964-1001 CE) expanded their rule over Swat and Buner (Khan, Z.H. 2018: 216). One more example of manufacturing water well by the orders of the royal patronage of Mughal rulers was to construct Akbari Kuhai (Baoli). It is located in the largest but ruthlessly devastated Buddhist period site which according to Stein (1898: 31-32) was the oldest and largest among all the stūpas erected in Buner. All these water wells, other material evidence and academic references testify the historical importance and architectural glory of Buner, which needs the attention of archaeologists as stratigraphic excavations are needed to correlate the evidence presented above to a chronological sequence and, also, of authorities to preserve such evidence for future generations.

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Fig.1 - A map of District Buner,
locating the ancient square and rectangular wells.

Fig. 2 - Ancient well at Lanḍisar (Gāṛ) site.

Fig. 3 - Ancient well at Kachkol Paṭai site.

Fig. 4 - The probable well exposed during illegal digging at Sorai site.

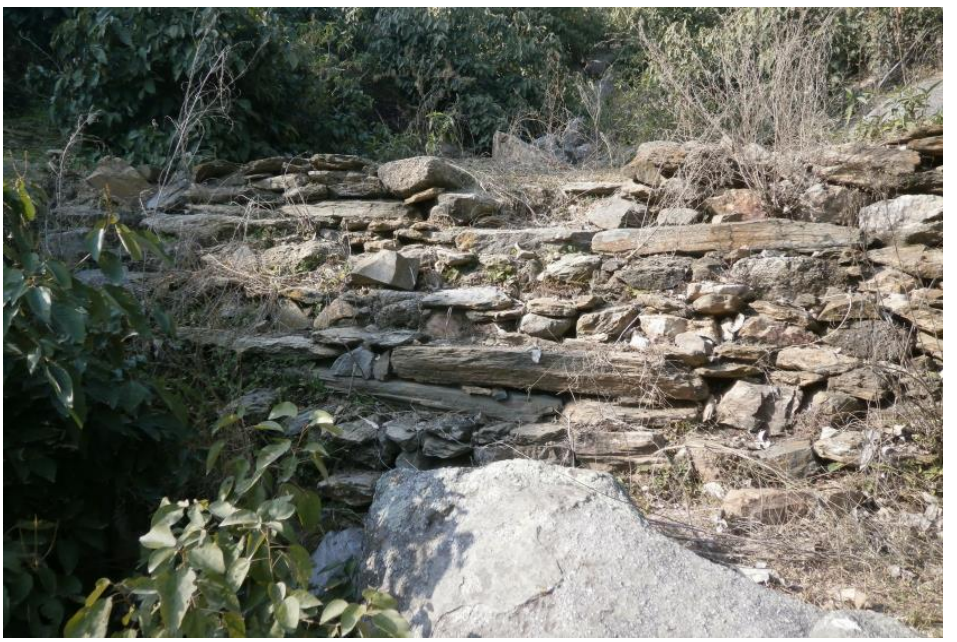

Fig. 5 - A few remains at Kuhidara site (periphery wall of the well).

Amorini in context: A fresh study of their form and function in the collection of Lahore Museum

Zainab Sabri

Abstract

This paper focuses on the Gandhara art collection of Lahore Museum and examines the motif of the amorini*, its iconography and role in different sculptural contexts of Buddhist art and architecture. The paper first addresses the acquisitional history of the collection and then describes the figures of* amorini *and their mythical origins; thirdly, it discusses their functions and shows that they went beyond mere ornamentation. By comparing the Gandhāran* amorini *with coeval figures on Roman sarcophagi, this research seeks to fill a gap in current scholarship by interpreting the celestial figures of* amorini *as fundamental actors in funerary spaces and by highlighting their diverse role as adorants and offer-bearers in Buddhism. The study follows a qualitative research methodology and provides graphic documentation of selected artefacts from the Lahore collection. Altogether this paper aims to contribute to the present research on Gandhara school of art and how these mythological themes help us understand the adaptation and mixture of indigenous and foreign elements.*

Keywords: Amorini, Garland bearers, Lahore Museum, Gandharan art.

1. Introduction

Gandhara, a region located at the northwest of Pakistan and eastern Afghanistan is often divided into Proper and Greater Gandhara (Behrendt 2007: 3). This division gives us a boundary fixed notion about the cultural activity and artistic production of the area. Even though the regions included in these two geographical frames are considered to be different by many scholars (Pons 2018: 10) has rightly pointed out that such geographical boundaries pose misconceptions about the designated art material, and can offer discrepanices about the school of Gandhara art by effecting the conclusions of art historians.

The region of Gandhara broadly includes the Swat Valley, Peshawar Basin and Northern Punjab with the local productions at Jambil-Saidu zone, and later, the region of Kapiśa which are subject to exhaustive studies of specific sites. Gandhara's sculptures stand out for their unique blend of Greco-Roman, Indian, and Central Asian influences. The

collection of Gandhara art in the Lahore Museum provides insights into these cross-cultural exchanges, particularly in the representation of celestial and mythical figures, crucial for our understanding of the philosophical-mythical thinking of Buddhist people and to understand how foreign models were adapted and perceived within a religious landscape. The figures of *amorini* are one such cases, widely depicted on narrative panels, steles and circular drums in the Buddhist art collection.

The existing scholarship (Filigenzi 2020: 219) used these amorini as an example to define the circularity of motifs from West to East. In Buddhist art, the model adapted for the depiction of *amorini* was of Western nature i.e diminutive adult. A. Provenzali (2022: 187) mentions that the earliest depictions of *amorini* can be traced from the 30 brackets found in Butkara I, which were not just particular decorative pieces, but also functional for the hanging of flower garlands.

2. A preamble: Lahore Museum Collection of Gandhara Art

In 1870s, the systematic explorations of the Gandhara region on a *grand scale* started with the Punjab Government by Sappers and Miners, first in Peshawar and Mardan and later onto more remote sites. The main aim of these excavations was to acquire sculptures for the Lahore Museum, however, many sculptures remained in the above-mentioned sites for safe keeping until they finally reached the destination (Errington 1987: 767). According to the accession register of the Gandharan collection in the Lahore museum, some provenience sites for the pieces that depict the motif of *amorini* are *Charsadda* (Acq.no. 1184) *Karamar* (Acq. no. 309) and *Mohammad Nari* (Acq. no. 1139). These objects played an important role in the study about the inclusion of Hellenistic models and subjects in Gandharan art.

At the dawn of the 19th century, the term "Gandharan art" emerged to address Greco Buddhist art: it was at that time that the early scholars of Gandhara art began to relate it to the visual cultures of ancient Greece (Stewart 2024: 37). The impact of the collection of Gandhara art housed at the Lahore Museum is captured in the famous novel "Kim" written by Rudyard Kipling in 1901. He wrote that 'in the entrance-hall stood the larger figures of the Greco-Buddhist sculptures done, savants know how long since, by forgotten workmen whose hands were feeling, and not unskillfully, for the mysteriously transmitted Grecian touch' (Kipling 1901: 7). Another observer of the 18th century, Victor Goloublew, a

member of *Ecole française d'Extrême-Orient*, expressed the impact of Hellenism during his visit to Lahore Museum in 1923. He mentioned that in the silence of this museum, one could see the influence of Hellenism on Indian history and highlighted the excursions of Alexander, and the Greek colonization of ancient India and Menander's rule (Christopoulos 2020: 1-2).

In the collection, the *amorini* sculptures (Figs. 1-9) are carved in schist, a locally available stone from northern Pakistan. However, other available lithic materials as chloritized schist, claystone, slate steatite are also used in the sculptural production of Gandhara (Marshall 1960: 40).[1] Also, by the study of the number of marks present on these fine pieces, Pons (2018: 17) mentions that chisels, compass, burin and drill points confirm the carving process was carried out in series of steps by distinct craftsmen that also enabled to meet the rapidly increasing demands of first centuries of Common Era.

3. The Iconography of *Amorini*

In the visual culture of the Roman E, *cupids*/ *erotes*/ *putto* and *amorini* are widely spread figures. The difference among these terminologies exists on the basis of lingual preferences of different scholars addressing to them. For an instance, Mitchell (2018) made an attempt to clear out the etymological and literary difference between *eros* and *cupids* and their mentions in literature: the Italian scholarship favors *puttino* or *amorino*, German linguistic *erotes*/*eros*, French *amour*, *putto* or *cupidon*, the anglophonic world prefers cupid.

The context in which these subjects are depicted in Gandhara portrays a sense of interconnectivity, as they hold the garlands standing next to each other, facing in two directions. This relation of their depiction helps to understand their functionality as reactive figures holding garland in motion around the sacred space, showing a reaction that comes in a form of an offering to the dead. The imagery of *erotes* and *amorini* – by iconography – differs in Greek and Roman art. In ancient Greece, Eros

[1] Within a cluster of sites, the composition of schist can differ even among specific regions. For instance, the sculptures yielded from the Peshawar basin are made mostly in dark chloritoid schist, while the green talc schist is available in Swat. These sculptures were the result of different specializations of several artists that reflects the organization of labor in Gandhara.

was the son of Aphrodite and often depicted as a young man. In the Roman art of second to third century CE, *amorini* loses its chubby features and changes into a heavy and plump child which apparently shows more close affinity to Gandharan ones (Filigenzi 2020: 220). However, it is pertinent to mention that these figures are also depicted in erotic context within Gandhara.[2] Only in association with the clear statements of Roman influence on Gandhara art of 2nd century CE, the Roman origins of *amorino* lie in Pergamon, present day Turkey. The city became important in the representations of iconographic types, and the earliest known garland bearers are reported from here (Mitchell 2018: 37). But why were *amorini* depicted as infant plump child-like figures in Roman art as incorporated in Gandhara art as well? The author wants to highlight the reasons of plumpness in children depicted in Roman art that were as it is adapted in Gandhara art apparently without the need to question 'why they have to be depicted in a certain way'. An interesting analysis is mentioned by Mitchell (2018: 38) calling it as a product of changing values of children and their roles: the body of a cherub is actually the opposite representation of the real body of children of Roman period. In the period under study – early centuries of Common Era – that is when the *amorini* appeared, there were increased rates of child mortality, therefore, their well-being was the main concern. It is evident from the ancient medical records of this period by the diviner Artimedorus who writes about children being highly susceptible to illness and death before reaching puberty. Thus, these children in Roman period were actually an anti-synthesis of a real child's body (Mitchell 2018: 39-40). Resultingly, for the iconography of *amorini*, the form of idealized children illustrating a healthy, plump infant body with smooth skin as figures full of life were adapted (Figs. 1-2). It seems that, this iconography of *amorini* was copied as it is in Gandhara without investigating the reasons of plumpness from which the artists seemed least bothered here. The present research shall also compare it with Roman sarcophagi as it is understood closely connected to.

[2] Such an example can be quoted from Tanabe (2020: 47, fig. 13) showing a gem seal depicting Psyche and Eros as a couple facing each other, with a young eros standing beside them.

4. Winged *Amorini*: Meanings beyond ornamentation

Wings attached with these figures provide them with movement and motion but potentially they also emphasize their hybrid, bird and animal-like qualities. The wings of Gandharan *amorini* may lead understanding in another direction, highlighting their divine nature and can act as markers of distinction from living experience especially when they are depicted on stupas (Mitchell 2018: 47), as noticeable in an interesting unpublished example of a small circular drum (Fig. 2) depicting a row of garland bearers.

Amorini are said to be the mythological mourners that are found, just as in Roman sarcophagi, circling around the Gandharan stupas in different registers as their horizontal band suggests (Mitchell 2018: 53). The *amorini* are seen with tactile movements in a way corresponding with their environment, thus their touch is understood as tender and soft. Depicted in hard stone, the cupids are considered as non-human mythical bodies, they are separated from the real world, which makes them non-social bodies away from the stress of realities and their act of touch is actually an invitation for the viewer in the environment to touch and commemorate as they are under the constant stress of garlands which requires strength and support. The reasons of the depiction of *amorini* in ornamental context can also be understood by the definition of ornament given by art historian Oleg Grabar that ornament plays an essential role to develop sensory, physical, practical and emotional relationship with buildings, objects and artifacts (Grabar 1992: 44). It is clear that the garland held by the *amorini* is meant to give a touch perception to the viewers and the elements from which the garlands are composed of (i.e fruits and vegetables), highlighting the material properties of the art and architecture. Thus, *amorini* add to the meaning of haptics for the viewer by playing acts like grabbing, stroking and holding and giving an ignition to the viewer to imagine how these objects are perceived (Mitchell 2018: 91). The viewer-object relationship can be understood by the installation of art into sacred spaces: that connects the attendants of the monument to the object itself. The touch-based activity shown in the garland panels reflects that, 'the plastic art is equally effective in evoking or triggering the intention of touch in the viewer as seeing himself in it' (Irwin 2022: 55). In other words, these installations show the ritualistic practice of bringing flowers to the monument, which seems central to the religious practice in Buddhism. The acts of grabbing and holding can be understood

as 'sensational forms' that the material medium triggers among the attendees of the monument. The human body connects with the ornamented object through sensory perception and deep-seated awareness, as drawing the viewer into a sacred space. Hay mentions this concept as resonance (*yùn (韵,* pronounced *"yoon"*) which is actually the over-determination of connection with the decorative element and its capacity to bring feelings and thoughts inside the viewer (Hay 2010: 77-78), also common in the art of early modern China. The close relationship between construction, craft and installation in sacred spaces, that derives sensation among the people, is also seen as a practice of obtaining merit in Theravada Buddhism. It also implies to the role of craftsmen and lay people in design and construction as an act of donation (*dāna*) that is central to Buddhist practice and shows the socio-cosmological relationship between people, things and places where haptics interplay between them (Irwin 2022: 54). The 'emotional systems' that are depicted in the funerary space conveyed messages which are evoked in the passer-by or attendant through figures and motifs. S. Estrin (2023: 156-180) gives example of the mythological figures of sirens which are depicted in the marble steles of the graves in ancient Greece. He expands that sirens are related to the enchanting musical voices and their depiction reflects the lament they bring to the grave. Thus, the motifs around a funeral and sacred space open up sensorial experiences that extend beyond sight and touch. It is actually a way of imagining our own encounter with the deceased and its monument (Estrin 2023: 83). In this multimodal context of art, we can better understand the significance of the *amorini*'s touch while holding garland, as they adore the monument with flowers. This sense is intended to be evoked in the viewer and attendant of the monument, as seeing himself bringing the offering to the stupa.

5. Amorini in the funerary context of Gandhara

The current research, presenting *amorini* bringing offerings to the stupa in the form of garlands, should mention John Marshall's point of view on brackets from the early Buddhist architecture of Gandhara. In fact, in that period brackets were intentionally carved at the *stupa* in the form of winged *devas* to hang flowery garlands (Marshall 1960: 20-22). The inscriptional evidence from Sirkap, mentions that the donor paid the garland holder, confirming the fact that the stupas were embellished and bedecked with donations from patrons, tracing this pattern to the earliest

sculptures from Sanchi and Bharhut (Behrendt 2007: 26). The inscription also confirms Marshall's statement about the construction of brackets in order to hang garlands. This practice of adoration in the form of hanging garlands on stone brackets by the attendees of the monument was made by Early Buddhists and it probably became the reason for carving both the garland and the beholder in the stone itself (Marshall 1960: 21). *Amorini* holding the garland are in fact common to the Kushan empire of Gandhara and the depiction is traceable up to the Mediterranean basin, which still have so much in common with sarcophagi traditions of Asia Minor this time (Mitchell 2018: 207). The subject of amorini has been understood so far to be spread from Hellenistic art to Rome and Asia Minor from where to eastern Mediterranean. This influence can be understood by the presence of *nagadantas* – which are particular architectural elements used as peg to hang garlands and swags. The example mentioned by Provenzali (2022) clearly states the *nagadantas* as brackets combining Indian and classical elements with winged *amorini* figure found from Butkara I, which are not just decorative elements, but also functional (see also Casalini 2023). In the extensive volume put forward by D. Faccenna (Facenna 1964: 165 Pl. DLXXVII) on the sculptures of Butkara I, is mentioned a false bracket (*nagadanta*) with a winged *amorino*, standing on a round base, wearing a shawl and some jewelry.

Amorini are mentioned as the mediating figures between the dead and the architecture of dead that is why their presence can be felt on the garland friezes which in early centuries of CE, adorned the lower levels of the stupas (Provenzali 2022; see also Stewart 2024: 21-22). Before the Kushan rule, when the Bharhut, Sanchi and Amaravati stupas were commissioned between the mid-1st century BCE and the mid-1st century CE, the Buddha's image was not shown in human forms. However, some turbaned and jeweled celestial figures holding the garland were depicted in the panels of Bharhut Stupa as evident in one panel housed in the Indian Museum (Ghosh 1978: 20; Fig. 11). These celestial figures (*yaksas*) differ from the *amorini* of Gandhara in iconography by wearing heavy jewellery, a lower garment and turbans. In Indian iconography, they acquire local apparel (Stančo 2012: 116). Moreover, in Bharhut and Amaravati examples (e.g., Fig. 12), the figures are on the upper left and right side of the stupa rather than in sequentially aligned manner next to each other as Gandharan *amorini*. However, their meaning remains same in bringing garland offerings to the monument (Shimada 2006: 90).

6. *Amorini* in stelae reliefs

In Gandhara art, the scenes of wrestling and combat appear in stelae and other objects such as lifting weights and narrative panels (e.g., Fig. 8). In the collection under study, one such stele is displayed in which small *amorini* can be seen in different acts of playing (Ingholt 1957: 100). The scene of playing and fighting *amorini* shows the transformation of sports and fights into games whose leading character were children rather than adults. The interesting fact is that these depictions of *amorini* are located next to the Buddha's narrative images and *amorini*'s iconography occupies a considerable space in a sacred area (Galli 2011: 290-291; Zwalf 1996: 203). The picture of Gandharan society in terms of depicting wrestling, combat and sports scenes can also be traced from the account of Philostratus in 'The Life of Apollonius' (translation by F.C. Bonybeare), where Taxila is mentioned as the main center of Gandhara where observant of musical performances, exercise and the royal banquet practices occurred at the time of Alexander. Moreover, another narrative panel from the collection depicts two scenes: one shows two individuals (possibly *amorini*?) grabbing each other seemingly engaged in wrestling and witnessed by some spectators. They are representative of the cultural practices which reflected the interests of people or the class that was involved in Buddhist worship and their choice of depictions (Galli 2011: 294-295).

One more representation of the *amorini* like spirit figures holding garland wreath over the head of seated Buddha is visible in the stele of Muhammad Nari house in Lahore Museum (Vendova 2022; Rhi 1991). This stele is also known as "Paradise stele", because of textual sources as *Divyāvadāna* and Lotus Sutra in which the scenes depicted in stele are interpreted as the paradise of Amitabh (Sukhāvatī) or of *Akṣobhya's* paradise *Abhirati* (Vendova 2022: 42; Luczanits 2008: 48). In the *Mahāvastu*, through which Vendova attempts to interpret the iconography of the stele, the small children holding circular wreath are described as *devas* paying homage to the exalted Buddha around and over the coral tree (Vendova 2022: 42). It is evident from the textual sources of *Gaṇḍavyūha sutra* that the concept of purity (*viśuddhī*) and adoration (*vyūha*) were the dominating themes to attain merit and to get access to the Buddhist realm (Rhi 1991: 150-151). Thus, the small spirits in the form of holding circular wreath, garlands, and foliage, around the head of Buddha bear the same

concept as an explicit symbol of adoration and paying reverence to the preaching Buddha in the stele.

Rhi (1991) referring to the Mahayana texts of *Mūlasarvāstivāda Vinaya* and *Divyāvadāna* , explains that this power of Buddha in replicating himself and emitting light was so defined in nature that even 'the small child could see the reflected images or the whole realm which extended from the heaven of *Akaniṣṭha* to small boys' witnessing the adornment of Buddha (Rhi 1991: 97-98). With the support of such textual sources, the figures of 'small boys' could be the same *amorini* bringing garland wreath to Buddha's head (Fig. 3). This concept of depicting figures with offerings and flowers could be translated to the patron, viewer or worshipper as seeing themselves adoring Buddha, in the image where ornamentation and representation mutually exist because these steles were destined to be installed in proposed niches – sometimes on dais – within the sacred areas. On the co-existence of ornamentation and its perception by the viewer in the sacred context, the author will expand in the next heading no. 6.

Recent scholarship on the *amorini* mentions that their range of depiction is diverse in Gandhara, especially during the Kushan empire with respect to iconography of Buddhist narrative art. Also, their extent is shown by the presence of *Amorini* in the Sassanian silver plates that are associated with Dionysus (Karetzky 2012: 12) and as *putti* motif from the art of Khalchayan, southern Uzbekistan (Kiilerich 1988: 148).

7. The garlands and concept of adoration and donation

The garlands of Gandhara art upheld by the *amorini*, with one-foot thrusted forward to bear the weight of garland express a careful gesture of mechanical balance and distribution. On close inspection, *amorini* seem to be closely tied in the net of garlands and *taenia.*[3] Thus these garlands represent *amorini*'s efforts of continued holding, sustaining and supporting (Mitchell 2018: 229). The garlands were composed of assorted fruits, rosettes and auspicious plants (Karetzky 2012: 14) which are leafy and *cornucopia* (Figs 4-7). In the Gandhara art, the garlands' bodies are defined by lozenge patterns replicating tightly arranged laurel leaves and are adorned with floral elements. The fruits and foliage regularly appear

[3] *Taenie* is a sort of woolen band, ribbon or fillet that are visible on the garlands wrapped around them with a knot. "Taenia," Merriam-Webster.com Dictionary.

in the form of hanging clusters (Zwalf 1996: 277; Stewart 2020: 52;). In Greek examples the garlands are continuous, but in Roman art, they divide into stems and leaves featuring flowers too with the latter being close with Gandhara (Stančo 2012: 16). Garlands and flowers are considered to be an offering to the sacred space (Lakshminarayanan 2023: 12). Thus, in Gandhara art, *amorini* as garland holders can be interpreted in the contexts of 'donors' as they bring offering to the stupa in the form of flowery garlands. The commissioner and sponsor of the stupa express materiality[4] and donor's effect of beholding is perceived as human action (Elahi 2023: 230). The beholder-like images actually serve a visual strategy as mirror images, when observed by the viewer, one automatically links himself (the worshipper) with the image, evoking a sense of being present in the scene himself as a visitor of this place (Galli 2011: 321). If *amorini* bring offering to the monument, it is rightly said that the imagery in the Buddhist art is a symbol rather than portraits emphasizing on something 'not meant' to be physically seen but rather an intangible formula based on the perceiver and viewer of it as a reflection of its own (Coomaraswamy 1977: 159).

If the *amorini* of the Roman sarcophagi and circling around the stupa are the same figures, why are they depicted in funerary space? These *amorini* are seen as proxy to the dead themselves, and attendants holding ritual flowery garland to honor the dead free from the expressions of grieving and mediating between the living and the dead. The honoring of the monument through different offerings became an action of obtaining merit for the Buddhist devotees (Swati 2008: 117). The effect of these garlands shows that the funerary structure is forever tended and commemorated. It also implies that the presence of these garland bearers as substitute of human interaction with the funerary structure, as well as encouraging it and to consol the mourners of the time, if, the monument does not receive any offerings or visits, it will remain a place of attention with watchfulness and care (Mitchell 2018: 268). The donor figures who carry such offerings and donations acts, like a bond between the body of the donating person and themselves reflects in it to express their piety while reiterating on the concept of image (*pratimā*) and its subject (*pramā*) that the sculpture conveyed (Elahi 2023: 252).

[4] The concept of understanding how the material itself can contribute to the artistic expression (Yonan: 2011: 232)

8. Conclusions

The schist panels depicting *amorini* bearing garlands were strategically placed on stupa drums. These garlands, composed of flowers, served as offerings and donations, adorning the lower levels of the stupa in stone. Initially, the placement of *nagadantas*, or brackets, on the stupa facilitated the hanging of flower garlands. Over time, these garland-bearing panels evolved to represent the idea that these monuments should be perpetually attended, allowing the worshipper to connect with the act of homage. This concept is a part of multimodal art practice, which studies the relationship between the object and the viewer. The motif of *amorini* interweaves the senses of touch and sight, connecting the attendee to the practice of bringing garlands, thereby integrating the self into the ritual. These emotional and sensory systems, rooted in decoration and ornamentation, convey messages deeply embedded in ritual practices. The *amorini* motif frequently appears in Gandhara art, often depicted as mythological figures. However, their roles varied within the artistic context, including garland bearers, wrestlers, and combatants. Their iconography, characterized by a plump, cherubic appearance, remained consistent across foreign and local cultures, with the exception of anklets. The depiction of anklets, commonly seen on images of women in Gandharan art, serves as a distinct feature, uniquely representing sub-continental women.

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Fig. 1 - The last register of a panel relief depicts two figures grabbing each other by waist. Photo by Author; Courtesy Lahore Museum.

Fig. 2 - A small circular drum with amorini holding garlands on their shoulders; left: detail of the decoration. Photo by Author; Courtesy Lahore Museum.

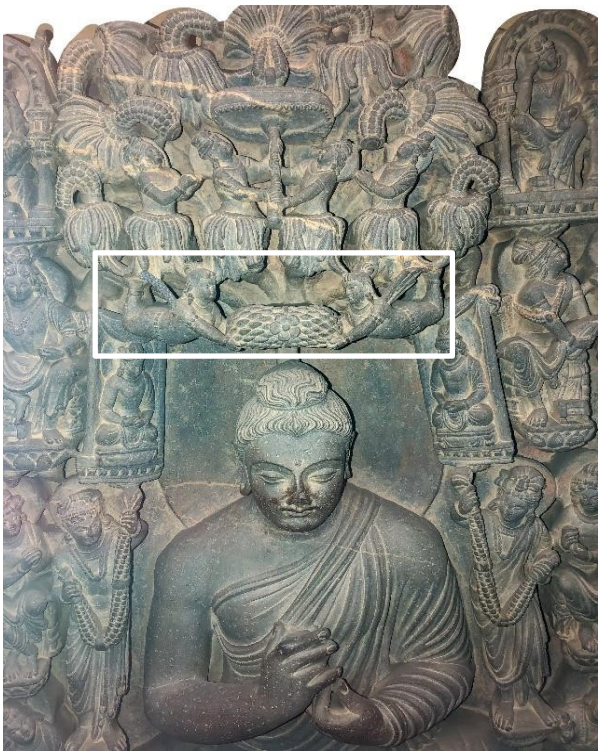

Fig. 3 - Miracle of *Sravasti*. The winged plump amorini like figures are adoring Buddha's head with wreath. Photo by Author; Courtesy Lahore Museum.

Fig. 4 - Young Amorini undulating garlands with winged figures emerging from behind. Photo by Author; Courtesy Lahore Museum.

Fig. 5 - Plump children like Amorini bearing the wreath of garlands. Photo by Author; Courtesy Lahore Museum.

Fig. 6 - Amorini holding garlands bind with ribbons. Photo by Author; Courtesy Lahore Museum.

Fig. 7 - Left: Eagle in a garland frieze; right: *Taenia* (ribbon) and hanging clusters. Photo by Author; Courtesy Lahore Museum.

Fig. 8 - A rectangular panel relief with left border depicting nude amorini, standing and wrestling. Photo by Author; Courtesy Lahore Museum.

Fig. 9 - Winged amorini in worshipping pose. Photo by Author; Courtesy Lahore Museum.

Fig. 10 - Roman sarcophagus with amorini holding garlands (after Stewart 2020: fig. 2).

Fig. 11 - Sculptural panel depicting a stupa and devotees from Bharhut Stupa, Madhya Pradesh (from smarthistory.org).

Fig. 12 - Garland bearers from Amravati friezes (from smarthistory.org).

Two Kharoṣṭhī Inscriptions from Takht-i-Bahi

Stefan Baums

Abstract

This article examines two Kharoṣṭhī inscriptions on architectural elements from Takht-i-Bahi dating to the mid- to late Kushan period, one kept in the Islamabad Museum, the other in the Museum of Art and Archaeology of the University of Missouri. It offers a new interpretation of the Islamabad inscription, identifying the personal names of the donors and clarifying linguistic details of the formula. It then demonstrates that the Islamabad and Missouri inscriptions in all likelihood belonged to the same structure, or to two structures built on the same plan, at Takht-i-Bahi, and were donated by members of the same family.

Keywords: Takht-i-Bahi, Kharoṣṭhī inscriptions, Buddhist donations.

1. The Islamabad Museum Inscription

The Islamabad Museum houses a small piece of stone (49 cm wide × 6.8 cm high × 5.9 cm deep), apparently an architectural element, bearing a Kharoṣṭhī inscription (CKI 596). It was reportedly discovered in 1977 as a chance surface find on the western side of the Takht-i-Bahi site, and published with a reading in Nadiem 1989. On receiving the stone, apparently broken on the right side, Nadiem unsuccessfully searched for further parts near its reported findspot. The piece received the accession number SRP-623 in the Inventory Register of the Reserve Collection of the Sub-Regional Office of the Department of Archaeology and Museums, Government of Pakistan. In 1988, it was displayed in the Taxila Museum (Nadiem 1989, 210). It is unclear when it reached its current whereabouts in the galleries of the Islamabad Museum, with a label stating only in Urdu “خروشتی رسم الخط گندھارا (۲۰۰-۳۰۰ء)” / “Engraved Kharoshti Script (Schist Stone), Gandhara (2nd–3rd Century C.E.).”

The reading and translation given in Nadiem 1989 (with help from A. H. Dani) are as follows:

> “Udakabhadre Dharma Vadha havi (viha) re bha (bhi?) khuna Sibena Iphano-putrena iha”
>
> “Here in Udakhbhadra at the Dharma-Vadha monastery (was established) by the bhikhu Siva, son of Iphano.”

Nadiem took "Udakabhadra" as the ancient name of Takht-i-Bahi and, assuming a transposition in *havire* for *vihare*, "Dharmavadha" as the name of the local monastery. Further assuming omission of a vowel mark in *bhakhuna*, he interpreted Siba, son of Iphano, as a monastic donor. The position of *iha*, taken as "here" at the very end of the inscription is awkward.

I came across the inscription on visits to the Islamabad Museum in March 2024 and in January 2025, and on both occasions took photographs that allowed me to read the inscription differently in several of its akṣaras, and to arrive at a quite different overall interpretation that I would like to present in this article, before making a connection of the Islamabad stone with another inscribed piece kept at the University of Missouri that appears to be from the same findspot at Takht-i-Bahi.

As Nadiem also noted, the inscription seems to be incomplete at its beginning (the right end of the stone). The first preserved word in my reading is *udayabhadreṇa* "by Udayabhadra," i.e., not a place name in the locative, but a personal name in the instrumental. The second akṣara is quite clearly a *ya* rather than a (very cursive) *ka*, and the *ṇa* (rather than *dha*, or *a* or *va*) is beyond doubt. The name is attested in the Pali form Udayabhadda as that of the bodhisattva in a previous birth as a king of Vārāṇasī in the Udayajātaka (Fausbøll 1887: IV 104-113), and in the Sanskrit form Udayabhadra as that of a son of Ajātaśatru in the Saṃghabhedavastu (Gnoli 1978: II 158).

This name is followed by an unusual and difficult akṣara. Nadiem proposed to read it as two separate akṣaras *rma* and *va* written one above the other (possibly as the correction of an omission, though he does not explicitly say so). While the curve on top could be taken as a *ma* tilted to the right, I fail to see a cross-stroke marking *r*, and the larger shape below, with its very distinctly drooping left side, certainly does not look like a *va*. Instead, I propose to read a single akṣara *pre*, in a very cursive form. The stroke on top in my reading either represents the vowel mark *e* or, less likely, is the upward extension that *pa* usually has, with a vowel mark *e* lost in the surface damage just to its right. If the former is correct, then the body of *pre* has a cursive single-stroke form, with unusually small subscript *r*, and unusually long right arm. The following four akṣaras are very clearly *ṭha*, *va*, *vi*, and *te* (rather than *dha*, *ha*, *vi*, and *re*), and the resultant word is *[pre]ṭhavavite* "is established."

The usual form of this term marking a donation (or frequently also a relic establishment) is *pradiṭhavida-*. The contraction of the prefix into a single syllable *pre-* is, however, attested in CKI 116 (Jamalgarhi) *preṭhavide*, CKI 177 (Charsadda) *presthevida*, and CKI 64 (Taxila, eye copy only) *preṭhav[e]tiye* (and an intermediate stage with loss of *d* is attested in CKI 327 *praeṭhavedi*, CKI 332 *paeṭhavedi*, CKI 256 *-praïstavidami*, and CKM 267 *praïṭha[vamaṇa]*). The additional syllable *va* in our *[pre]ṭhavavite* also occurs in CKI 511 (reportedly from the Jalalabad area) *pradiṭhavavido*. Strauch 2007, 79 calls *va* in the latter a "superfluous syllable," but it is possible that we have in these two cases a double causative infix *-vavi-* (< OIA *-pāp-ay-* : *-pāp-i-*) rather than just *-vi-* (< OIA *-p-ay-* : *-p-i-*), on the analogy of CKI 15 (Aśoka's edicts at Mansehra) *ropapita-* (cf. Hultzsch 1925: xcix). The masculine direct-case singular ending *-e* is a common variant of *-o*.

In the following, Nadiem's emendation of *bha* to *bhi* is unnecessary, and it is not clear where he saw the letter *khu*, which would typically be quite large. I read the name *bhadraśirena* "by Bhadraśira" (instead of *bh(i)khuna Sibena*). The first element of this name (OIA *bhadra-*) is well-attested in Kharoṣṭhī inscriptions: Bhadrayaśa (CKC 138), Bhadravala (CKI 172, CKI 467), Bhadrasena (CKI 249), Bhadrasoma (CKI 300), as is its second one (OIA *śiras*): Iṃdraśira (CKI 350), Dhañaśira (CKI 1019), Dhramaśira (CKI 458), Dharmaśira (CKI 1082, CKD 314), Budhaśira (CKI 254, CKI 614, CKI 663, CKI 664), Saṃgaśira (CKD 473). It will also not be a coincidence that the two donors of this inscription share the name element *bhadra* – a common pattern both among relatives and among fellow monastics.

The next word, giving the name of the father of Bhadraśira, I read only slightly differently as *aphaṇaputre[ṇa]* (rather than *Iphano-putrena*). The etymology of the name is uncertain, but the rare letter *ph* suggests an Iranian or possibly Greek origin. The inscription concludes with *[sa]ha* "together with" (rather than *iha* "here"). The top half of the head of the *[sa]* is lost to surface damage, but the akṣara is otherwise quite clear, and can certainly not be read as *i*.

My complete new reading and translation of the Islamabad Museum inscription from Takht-i-Bahi is thus as follows:[1]

> /// udayabhadreṇa [pre]ṭhavavite bhadraśireṇa aphaṇaputre[ṇa sa]ha
>
> " … is established by Udayabhadra together with Bhadraśira, the son of Aphaṇa."

The inscription thus records the installation of some donation by a certain Udayabhadra and Bhadraśila. The two names appear to be those of lay people. Paleographically, the inscription belongs to the middle period of Kharoṣṭhī, and in view of the cursive shape and advanced sound change in *[pre]ṭhavavite* probably to the later part of this period, i.e., to Kushan times.

2. The University of Missouri Inscription

The Museum of Art and Archaeology of the University of Missouri is home to another inscribed stone element,[2] published in Salomon 1985–86 from photographs and a rubbing (CKI 333). This unprovenanced object (accession number L596 g, object ID 88.39) was a donation of Alan and Ann Wolfe, and was acquired by the Museum in 1988 (James Terry, personal communication), though apparently it was already on loan there for some time prior. According to Nagar 1981, v (who does not refer to this object specifically), the Gandhāra collection of the museum was mostly built up in the 1970s, i.e., at roughly the same time as the discovery of the Islamabad Museum inscription at Takth-i-bahi. Salomon read and translated the inscription as follows:

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[1] I would like to thank Andrew Glass, who first reread this inscription together with me based on the illustration published in Nadiem 1989, which already allowed us to apply some of the improvements suggested here in Baums & Glass 2002–. Cf. also Baums 2018: 44 and Khan Khattak 2019: 92.

[2] See the online catalog of the museum under https://maacollections.missouri.edu/ArgusNET/Portal/Portal.aspx?component=AAER&record=f565c2ef-e1fe-4b8f-9853-921a79dbe541. I would like to thank Sarah Thomson for providing new images of the object.

/// vite viharaspamiṃṇa aphaneṇa makṣibhavaṇa bucamaṇeṇapotrakeṇa chapaputreṇa ///

" … is (made / established?) by the *vihāra*-master Aphana, of the descendants of Makṣi, grandson of Bucamaṇeṇa(?), son of Chapa, … "

The reading is sound. Salomon was rightly uncomfortable with taking *bucamaṇeṇapotrakeṇa* as a single word, but saw now alternative that would not leave *potrakeṇa* "hanging" (p. 285). It seems to me, however, that it is possible to take Aphana as the donor, and his "little grandson" (note *potraka-* rather than simple *potra-*) Bucamaṇa, son of Chapa, as a co-donor, beneficiary, or (less likely if Bucamaṇa was a child) an honoree.

What is immediately apparent is the presence in this inscription of the same unusual name Aphana as in the Takht-i-Bahi inscription edited three years later by Nadiem, though spelled with a dental *n* here and with a retroflex *ṇ* in the latter. Paleographically, this inscription also generally agrees with the one edited by Nadiem (with the important caveat that *pa* here has its usual form), and would likewise seem to belong to the Kushan period. Most importantly the measurements of the inscribed stone in Missouri (58.5 cm wide × 7 cm high × 6 cm deep) agree perfectly with those of the Islamabad Museum piece, and there are four further characteristics that connect them. Nadiem (1989: 210) had noted that the piece now in the Islamabad Museum has five square holes on its bottom, of which the four undamaged ones measure 2.2 cm × 2.2 cm; the piece now at the University of Missouri also has five sockets in a row on its bottom (Fig. 3b), though with slightly different dimensions: four smaller ones measuring 3 cm × 2.5 cm, and one larger one measuring 4.5 cm × 3 cm. The Missouri piece further has a socket on its top right (Fig. 3c) that seems to have accommodated a metal cramp connecting it to another stone; Nadiem had likewise noted one hole on the upper side of the Islamabad piece. According to Nadiem, the Islamabad piece is polished on the front, top, and bottom, but has "clear chisel-marks without an effort on its complete dressing" on the back, which also describes the Missouri piece (Fig. 3a). Finally, Nadiem observed that the Islamabad piece has a "a very slight curve"; the Missouri piece likewise seems to be very slightly

curved, with the inscription on the convex side.[3] If this were confirmed, then the pieces would have been attached to the drum of a stūpa. In any case, it seems certain that both pieces hail from the same or two very similar structures at Takht-i-Bahi and were unearthed around the same time.

In light of the Islamabad Museum piece, we can complete the first word of the Missouri inscription and adjust its interpretation as follows:

> /// (preṭhava)vite viharaspamiṃṇa aphaneṇa makṣibhavaṇa bucamaṇeṇa potrakeṇa chapaputreṇa ///
> " … is established by the monastery master Aphana, of the Makṣibhavas ... (his) grandson Bucamaṇa, son of Chapa … "

It is by no means certain that here, too, the word expressing the establishment had the same unusual form as in the other inscription, but the presence of this lexeme seems very likely, and significantly, it had the same variant ending *-e* (rather than *-o*). This was probably preceded by a designation of the object of the donation in the beginning, and an indication of the role of Bucamaṇa (possibly, as in the Islamabad piece, the word *saha*, if he was a co-donor) at the end.

Even though both pieces are physically compatible, it would be textually difficult to link them up into a single inscription (... *(preṭhava)vite viharaspamiṃṇa a[pha]neṇa makṣibhavaṇa bucamaṇeṇa potrakeṇa chapaputreṇa ... udayabhadreṇa [pre]ṭhavavite bhadraśireṇa aphaṇaputre[ṇa sa]ha*) as that would seem to include two (rather than the expected one) verbs of establishment, and even if the first verb were to be reconstructed differently, the position of the two agents with regard to their verbs would be inconsistent (Aphana following it, Udayabhada preceding it).

3. Conclusions

The two Kharoṣṭhī inscriptions discussed in this article both in all likelihood come from Takht-i-Bahi, and make an important contribution to the small epigraphical corpus from this site (including, besides these two, the Buddha image CKI 54, the pottery fragment 55, the large bowl CKI

[3] Unfortunately, Nadiem illustrates only the front side of the Islamabad piece, and the other sides cannot be clearly seen the way it is currently displayed in the museum.

545, and less certainly the stone CKI 53). They probably date to the mid- to late Kushana period. The measurements and physical characteristics of the two stones make it likely that they belonged to the same structure, or two separate structures built using modular elements with identical measurements. The specific structural part may have been a railing, coping, or balustrade according to Nadiem 1989: 210. The inscription now in Missouri records a certain Aphana as donor, and the one in the Islamabad Museum a son of Aphaṇa. As these were members of two successive generations, it is possible that the inscriptions were made at two separate times, but nothing precludes that members of different generations participated in the same donative act. The object of donation, apparently designated by the term *pradiṭha-* that is characteristic of relic establishments, rather than the term *danamuha* that is more typical of the donation of images and similar objects, would appear to have been a stūpa.

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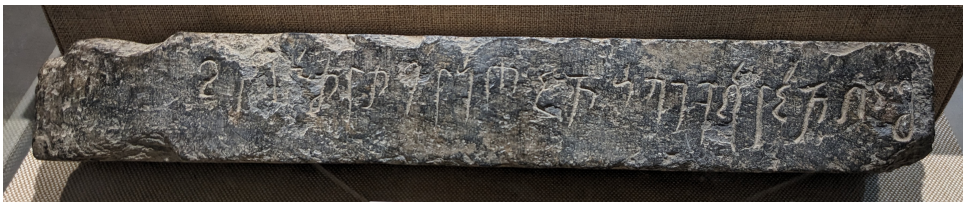
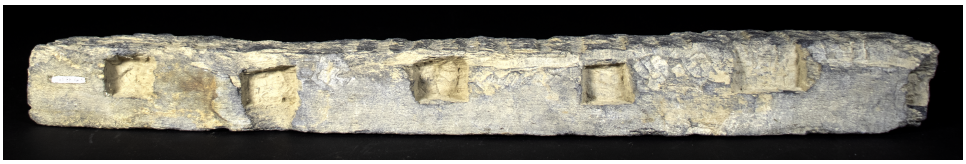


Fig. 1 - Inscription in the Islamabad Museum (Photo by the Author).

Fig. 2 - Inscription in the Museum of Art and Archaeology, University of Missouri (Courtesy of Museum of Art and Archaeology, University of Missouri).

a.



b.

c.

Figs. 3 - Photos of the other sides of the Missouri piece. From top: a. back side; b. bottom side with a row of five sockets; c. top side, with socket for cramp on the top right (Courtesy of the Museum of Art and Archaeology, University of Missouri).

New perspectives on Kanaganahalli site

Michela Prota

Abstract

Kanaganahalli (3rd c. BCE- 3rd c. CE) is a Buddhist archaeological site located on the left bank of Bhima River, in Karnataka. The site was discovered in 1989 and it was excavated by the Bangalore Circle of the Archaeological Survey of India. The main monument from the site is the Great Stupa, known from the inscriptions as Adhālaka-Mahācaitya*. This paper first aims to provide a re-elaboration of the archaeological analysis of the monument, based on the available data, in order to define the structure and chronological features of the Kanaganahalli Mahā Caitya. A specific attention is given to the symbolic value of the monument, explored through the juxtaposition of real and perspectival architectural elements. In particular, the study underlines the importance of the railing (*vedikā*), and of the pillars (*stambhas*). These two elements, recurring both in the real architecture and in the decorative apparatus of the Mahā Caitya, contribute clearly in defining real and imaginary spaces that characterize the monument. Finally, in order to understand the complexity of the structure of Kanaganahalli Mahā Caitya and to remark its importance in the Buddhist overview of the time, the contemporary Saidu Sharif Stupa, located in the Swat Valley, is taken into account and used as comparative paradigm.*

Keywords: Kanaganahalli, Mahā Caitya, illusory architecture, Saidu Sharif, vedikā.

1. An overview of the site

Kanaganahalli site, together with the archaeological areas surrounding the village of Sannati, constitutes one of the largest and most ancient Buddhist complexes excavated in Deccan. Situated in the western region of Karnataka, Kanaganahalli is located approximately 5 km east of Sannati, on the left bank of the Bhima River, a major tributary of the Kṛṣṇa River (Fig. 1).

The site was discovered in 1989 and subsequently investigated by the Archaeological Survey of India (ASI), specifically by the Bangalore Circle, between 1991 and 1993. However, systematic archaeological documentation of Kanaganahalli only started in 1996-1997, culminating in an initial excavation report by the ASI.

Kanaganahalli represents a significant Buddhist archaeological site, centered around a monumental stūpa, identified in epigraphic records as the "Adhālaka-Mahācaitya"[1]. The monument's chronology spans from its foundation in the 3rd century BCE, to its abandonment around the 2nd or 3rd century CE, due to a confluence of socio-cultural, environmental and tectonic factors (Poonacha 2013). Furthermore, the abandonment of Kanaganahalli may be contextualized within the broader recession of Buddhism across the region. This transition appears to be supported by the progressive introduction of Śākta cults, the presence of which is evidenced in proximity of Sannati.

The monument reached its historical and artistic apogee during the Sātavāhana period (2nd century BCE – 1st century CE). This dynastic affiliation is not merely speculative, but is strongly confirmed by an extensive *corpus* of epigraphic and iconographic evidence found in direct association with the Mahā Caitya (Zin 2018; Hinüber, Nakanishi 2014). The site's longevity was thus driven by continuous institutional and aristocratic patronage, conducted both by the *saṃgha* (monastic community) and the local aristocracy.

2. An archaeological analysis of Kanaganahalli Mahā Caitya

The excavation of Kanaganahalli site was based on standard practices of Indian archaeology. Thus, the area was divided into a grid system of 36 squares (10 x10 m), with the Mahā Stūpa at the center of the survey area. However, the excavation was concentrated on 16 of these squares, covering a total area of 1600 m² and reaching a maximum depth of 2.5 m.

[1] The original name of Kanaganahalli Stupa is mentioned in some inscriptions found at the site. One example comes from a slab of the pseudo-*pradakṣiṇāpatha* (Hinüber, Nakanishi 2014: n. 8, p. 31; Tournier 2020: 879); another one is from a covering slab of the northern *āyāka* (Nakanishi, Hinüber 2014: n. 3, p. 42; Tournier 2020: 880-882).

Despite consultations with, Prof. Dr. O. von Hinüber, Prof. A. Drocco and Dr. S. Baums, the meaning of adhālaka remains obscure. However, based on a statistical analysis of Gāndhārī and Brāhmī inscriptions, I suggest it represents the monument's proper name rather than a toponym. This can be supported by the frequent appearance of monument names as compounds, such as *Mahāpriya-ārāma* (Falk 2010: 94), *Sodaśpaviharami* and *Uthalieaṃmi vihavami* (CKI 1112- https://gandhari.org/), *gavhrathuba* (CKI 135- https://gandhari.org/), *gahathuba* (CKI 172, 249- https://gandhari.org/), *Gramathuvami* (CKI 175- https://gandhari.org/), *mahathuba* (CKI 334- https://gandhari.org/), and *mahagandhakutivihara* (Lüders 1993: 102, no. 989).

The decision to extend the excavation into the core of the monument became necessary to evidence its internal structure and to identify its primary construction phase. This data, which have been determined on the base of the data collected by the ASI (Poonacha 2013) in the excavation report, has been implemented and synthetically reformulated by the author, determining six distinct Macrophases, which trace the development of Kanaganahalli Mahā Caitya to better define the architectural changes concerning the monument:

2.1 Period I, layer IV (Macrophase 1): the foundation

This represents the earliest structural stage, testified by a hemispherical *tumulus* of soil and rubble, encased within undecorated limestone panels—a reminiscent of ancient megalithic graves. This archaic stūpa featured a reconstructed diameter of approximately 16 m and a height of 7.5 m, covered by limestone slabs measuring 1 m in height and 1.96 m in width, which likely constituted the original drum (Poonacha 2013: 163). Findings from the archaic phase are often found out of their original context and reused in later structural stages. Notable among these is a sandstone lion capital, which shares stylistic affinities with the pillars of Bharhut and the edict columns of Aśoka.

2.2 Period II, layer III-I (Macrophases 2-4): the Sātavāhana Era

As documented in the excavation reports (Poonacha 2013), following the archaic period represented by Macrophase I, the Kanaganahalli Stūpa reached its mature phase (Periods 2 and 3). Period II marks the site's flourishment and it can be divided into four developmental phases:

Phase 1 (Macrophase 2):
Dated by coins and inscriptions to the 1st century BCE. Key interventions included the expansion of the Stupa and the covering of the lower drum with limestone panels, representing Buddhist narratives and floral motifs. A significant inscription for dating this phase is the one mentioning the 16th regnal year of Chhimukha Sātavāhana (c. 36 BCE), which identifies him as a former vassal of the Śuṅgas (Hinüber, Nakanishi 2014: n. 3, p. 28)[2]. In

[2] A recent reading of this inscription was published in 2025 on *Dharmalekha.info* by V. Tournier (*https://dharmalekha.info/texts/INSKnI00003*).

addition, a critical element from Macrophase 2 regards the circumambulatory corridor (*pradakṣiṇāpatha*). The fact that the uprights (*stambha*) of the sacred enclosure (*vedikā*) rested upon a layer lower than the slab floor, suggests an intermediate constructive phase, during which the stupa was probably already enclosed by an archaic *vēdikā*.

Phase 2 (Macrofases 2-3):
During this stage, the monument was expanded to a diameter of 24 m and it adopted a cruciform axial plan, defined by four platforms (*āyākas*) oriented toward the cardinal points. These platforms were intended to align with the cardinal directions, but they exhibited slight astronomical deviations; for instance, the northern platform is deviated approximately 15° N-NW. Consequently, the entrances were similarly offset from true astronomical North. The decorative program added in this phase, included portraits of rulers such as Sātakarṇi and Vāsiṣṭhiputra Puḷumāvi (II), along with animal friezes used as middle bands. An inscription on a floor slab dates these innovations to the 35th year of Puḷumāvi's reign (c. 126 CE) (Hinüber, Nakanishi 2014: n. 8, p. 31; Tournier 2020: 879).

Phase 3 (Macrophase 4a):
During the reign of Vāsiṣṭhiputra Siri Sātakarṇi (132-138 CE), the stupa underwent a major expansion. This included the reconstruction of the four *āyāka* platforms and the widening of the *pradakṣiṇāpatha*, characterized by a limestone pavement (0.06-0.08 m thick) built upon a uniform layer of lime, pebbles, limestone chips and river sand. The *vedikā* was rebuilt using reclaimed materials from earlier phases. The platforms were decorated with narrative scenes of Śākyamuni Buddha's life and surmounted by *buddhapādas* (Buddha footprints) and octagonal pillars.

Phase 4 (Macrophase 4b):
This final constructive phase introduced colossal sculptures of the Buddhas, positioned both on the platforms and along the circumambulatory path. On the *āyāka*, these seated Buddha figures were flanked by stone pillars. In this phase the *chattras* were also positioned.

2.3 Period III, layer 0 and surface (Macrophases 5–6): decline and abandonment

This phase (Macrophase 5) is characterized by the partial demolition of the monument and its decline, leading to total abandonment of the site (Macrophase 6).

Even if the loss of Sātavāhana political power and the rise of competing religious cults reduced the patronage practices over Kanaganahalli Mahā Caitya, the most widely accepted cause for the site's destruction is seismic activity (Poonacha 2013).

Archaeological evidence supports this: the layers covering the ruins contain high concentrations of lime and mortar, indicating that the decorative *apparatus*, originally placed on the dome with these materials, collapsed suddenly. Over time, the site was reclaimed by vegetation and its stone materials were occasionally scavenged for local reuse.

3. Real architecture: structure and decorative *apparatus* of Kanaganahalli Mahā Caitya

Kanaganahalli Mahā Caitya shares structural affinities with contemporary Buddhist structures most notably the Amaravati stupa in Andhra Pradesh. However, it distinguishes itself thanks to the rigorous organization of sacred space and the sophisticated iconographic elements that decorate the monument.

The structure of the stūpa consisted of three primary components (Fig. 2):

- The lower drum with a diameter of 23.68 m
- The upper drum, measuring 21.70 m in diameter
- The hemispherical dome (*aṇḍa*), which originally supported a *harmikā* (now lost) and a parasol (*chattrāvalī*) (Poonacha 2013: 64-65).

During its second evolutionary phase, four *āyāka* platforms were added to the lower drum (Poonacha 2013: 66). Measuring 3.60 m in length and 1.25 m in width, these projections were oriented toward the cardinal points.

The decorative *apparatus*[3] of both drums and the *āyāka* platforms consisted of figurative panels demarcated by vertical pilasters. These were

[3] In her 2018 volume, "The Kanaganahalli Stupa: An Analysis of the 60 Massive Slabs Covering the Dome", Monika Zin identifies and describes the narrative scenes depicted on

supported by distinct architectural members: cornices in the case of the lower drum, and "collar stones" for the upper drum.

While *āyāka* platforms are diagnostic features of stupas within the Kṛṣṇa Valley tradition, Kanaganahalli Mahā Caitya is distinguished from other monuments across the Subcontinent by its colossal Buddha sculptures. In its final phase, these statues were positioned atop the platforms. On the southern and western *āyāka*, they stood before uncarved panels. Furthermore, two seated anthropomorphic Buddha figures occupied the eastern and northern platforms. These platforms also supported octagonal pillars (*āyāgathambas*), reaching approximately 4.50 m in height. These pillars featured square bases (0.58 m per side) adorned with carved Buddhist motifs and donative inscriptions. Unfortunately, the only extant pillars are those located at the eastern *āyāka*, which likely served as the primary entrance to the Mahā Caitya (Poonacha 2013: 71).

The architecture and decorative *apparatus* of Kanaganahalli Mahā Caitya is summarized in the following table (Table. 1).

Position	**Definition**	**Decoration**	**Figured elements**	**Comparisons**
First body (lower drum)	Band A	Inscriptions	-	-
	Register A	Figured pilasters with figures against shaft	Life scenes of Śakyamuni Buddha, worship of the *caitya*, *dharmachackra*, *Nāga Muchilinda*, *vṛikshachaitya* (*Ficus religiosa*), il *Nāga-bandha-chaitya*, representantion	Bharhut

the panels of the Mahā Stūpa upper drum, establishing correlations with contemporary artistic traditions in the Subcontinent. Zin's methodology relies on the direct identification of these reliefs with Buddhist Jātaka literature, utilizing both visual cues and associated epigraphic labels. Furthermore, she proposes a complete reconstruction of the covering slabs of the upper body and a stylistic analysis that helps in dating them.

			of contemporary *vihāras* stupas and reliquaries	
	Unsculpted band B	Inscriptions	-	-
False *pradakshiṇāpatha*	Cornice (lower part)	Railing motif		
	Cornice (upper part)	Inscriptions	-	
Second body (upper drum)	Band C (*collar stones*)	-	-	-
	Register B	Railing motif	-	Sanchi Mahā Stupa
	Band D	Inscriptions	Graffiti	-
	Register C	Persepolitan pilasters	*Jātaka*, life scenes of Śakyamuni Buddha, donors' portraits.	-
	Band E	-	Flying ducks	Bodhgayā
	Register D	Persepolitan pilasters	*Jātaka*, life scenes of Śakyamuni Buddha, donors' portraits.	-
	Band F	Inscriptions	-	-
	Band G (collar stones)	-	Zoomorphic representations	Butkara I, structure 14 and 17

Table 1 - Structural and decorative elements of Kanaganahalli Stupa.

4. Illusory architecture: the role of the *vēdikā* and its representation within the monument

The reproduction of actual architectural elements within the decorative program of Kanaganahalli Mahā Stūpa represents a significant matter. The term perspectival architecture refers to instances where elements depicted

within the panels assume a functional architectural role[4]. These elements facilitate a spatial deployment on a perspectival plane, extending the viewer's perception beyond the physical boundaries of the monument's actual space. In Kanaganahalli, the decorative *apparatus*, mainly represented by sculpted panels, replicates two distinct architectural forms: the *stambhas* and the *vedikā*.

On the one hand, the pillars depicted in the upper and lower drum panels serve to demarcate narrative scenes. This strategy is used also in other contemporary Buddhist sites, such as Saidu Sharif, where the scenes of the main frieze are separated by Gandharan-Corinthian semi-columns (Olivieri 2022: 43).

On the other hand, the reproduction of the *vedikā* within the decorative *apparatus* is particularly noteworthy, as it transcends mere physical separation (Faccenna 2004: 318): traditionally, the *vedikā* functions as a sacred enclosure that delimits the stūpa from the profane world. The space between the *vedikā* and the stūpa constitutes the *pradakṣiṇāpatha*, where devotees accumulate merit by walking clockwise around the monument.

Looking at Kanaganahalli Mahā Caitya, three distinct representations of the *vedikā* are identifiable: the physical *vedikā* surrounding the Stupa, the cornice situated between the lower and upper drums and register B of the upper drum panels. Further references to the *vedikā* appear on the bases of sculptures depicting the Buddhas and around the *āyāgatambhas*. Beyond their aesthetic role, these three tiers define an "illusory architecture" that influences and defines the devotee's spiritual experience:

4.1 Tangible Space: the physical enclosure

The real *vedikā* surrounding the monument separates the sacred area from the external environment (Fig. 3). Within this enclosure, devotees accessed the *pradakṣiṇāpatha* through gateways (*toraṇas*) each located in correspondence of the cardinal points.

[4] The application of perspective to create illusory effects is not exclusive to Buddhist art in Kanaganahalli; significant parallels, already studied and well defined, can be found in the Italian artistic tradition of the 17th century, across both architecture and painting. Within this context, two distinct methodologies of illusory perspective may be identified: "Prospettiva di sottinsù" (Amoruso, Sdegno, Manti 2019) and "Prospettiva solida" (Trevisan 2001; Thürlemann 2000).

4.2 Imaginary Space: the intermediate cornice

Located between the lower and upper drums, this cornice depicts a false-railing sharing the structural characteristics of the real enclosure. It consists of *vedikā-stambhas* (pillars) connected by three *sūci* (crossbars) (Fig. 4). The pillars are decorated with circular medallions containing full-bloom lotuses, while the crossbars represent zoomorphic elements and garlands.

While this *vedikā* is structurally a decorative element, it serves as an architectural one by delimiting a second and higher *pradakṣiṇāpatha*, which was physically inaccessible due to the lack of stairways. The upper *pradakṣiṇāpatha* represents a liminal space where the devotee, through imaginative effort, could make a transition from reality toward the transcendental dimension, depicted on the covering slabs of the second drum. In fact, this space served as a clear boundary, separating the observer from the esoteric realm witnessed in the upper registers (D and E).

4.3 Transcendental Space: Register B

Register B is the lowest register of the panels covering the upper drum and it represents an entirely illusory *vedikā* (Fig. 5). Even being part of the decorative *apparatus*, this *vedikā* maintains its protective function, distancing the observer from the figures represented in the upper registers. Unlike the lower drum panels, which often depicts generic Buddhist imagery, the upper drum representations focus almost exclusively on the aristocracy, the Buddha, and Bodhisattvas. The vertical pillars of register B share the same decorative features of those ones composing the cornice and the real *vedikā*. However, in register B the *sūcis and the uṣṇīṣa* are left plain.

The hierarchical arrangement of the *vedikā* from register B reveals two critical insights (Fig. 6):

- Kanaganahalli Stupa was designed as a metaphorical transition from the terrestrial to the transcendental dimension.
- The local kings and Emperor Aśoka were placed on a similar ontological and hierarchic level with Bodhisattvas.

Therefore, the reproduction of the railing in Register B serves as a spiritual exercise. It allows the devotee to "encounter" these metaphysical personalities while maintaining a symbolic and physical distance, reinforcing the sacred hierarchy of the Buddhist *cosmos*.

5. Kanaganahalli and Saidu Sharif: a comparative analysis on *vedikās*

A comparative analysis of the Stūpa in Saidu Sharif I and the Mahā Caitya in Kanaganahalli reveals a common interest for the use of perspective and illusory architecture. In particular, both sites are characterized by the use of multiple *vedikās* (both real and illusory) which helps in delimiting the sacred space and have an influence into the devotee's experience. However, the two sites diverge significantly in how they combine structural form and decorative function (Faccenna 2004; Iori 2018).

The archaeological site of Saidu Sharif I is located in the Swat District of northern Pakistan, within the Khyber-Pakhtunkhwa province, southeast of an ancient urban center identified in Chinese sources as Mengjieli (Iori, Olivieri 2016). Systematic excavations were conducted by Domenico Faccenna in 1963 and continued with intermittent phases until 1982. The comprehensive findings were subsequently published in a four-volume series (Callieri 1989; Faccenna 1995; Noci, Macchiarelli, Faccenna 1997; Faccenna 2001). The monastic complex was constructed upon two artificial terraces: the upper terrace housed a quadrangular monastery organized around a central courtyard, while in the lower terrace was placed the main Stūpa. The site's chronology spans from the mid-1st century BCE to the latter half of the 1st century CE—a period historically categorized as Saka-Parthian.

Saidu Sharif Stūpa (Fig. 7) lays upon a square podium (20 x 20 m) standing 3.32 m high, with a northern access point characterized by a double staircase. A *vedikā* composed of white talc-schist, surrounded the podium and extended along the lower staircase as a handrail. The four corners of the podium were originally surmounted by lion-capital columns reaching 13.75 m in height. A *pradakṣiṇāpatha* 2.30 m wide, extends around the Stūpa at an elevation of 2.2 m from the podium surface. The second tier of the Stūpa, accessible via a secondary staircase, was adorned with a continuous narrative frieze, depicting the life of Śākyamuni Buddha. The scenes were separated by Gandharan-Corinthian pilasters and arranged chronologically, giving a didactic function to the monument.

The monument also featured an accessory register decorated with a false *vedikā*. Both registers were executed in green chlorite-schist and surmounted by carved acanthus-leaf cornices. According to Olivieri (2022: 52), this frieze was visible from the *pradakṣiṇāpatha* level and the base of the podium. However, the false railing remained hidden from viewers at ground level, obscured by the real *vedikā* surrounding the podium. This

creates a sophisticated perspectival play: the false railing projects a space that appears horizontal and concentric—encompassing an inner railing, a colonnade, and the stūpa. In this design, a false niche represents a "false door" to an internal space that the devotee can only access through imagination (Olivieri 2022).

In the case of Saidu Sharif, the false *vedikā* is executed as a real architectural element, utilizing vertical pillars and interlocking crossbars, as it occurs in the structural railings that traditionally enclosed Indian stupas (Fogelin 2003: 144-146). Thus here, we observe an architectural element performing a decorative function: its primary purpose is to delimit an imaginary space, serving as a visual threshold to the transcendental realm. Furthermore, the *pradakṣiṇāpatha* in Saidu Sharif remains a tangible, accessible space for the devotee, positioned between the physical railing of the podium and the illusory railing of the drum.

On the contrary, in Kanaganahalli, the relationship is inverted: the false *vedikā* located at the base of the second-drum panels is not a three-dimensional structure but a carved decorative relief. However, this decorative element performs an architectural function by delimiting a real space, corresponding to the upper *pradakṣiṇāpatha*. Unlike Saidu Sharif, this upper corridor in Kanaganahalli, though physically present, was rendered inaccessible by the deliberate omission of staircases. Thus, in Kanaganahalli, the inaccessibility of the upper corridor suggests a rigid symbolic hierarchy, where the space closest to the 'transcendental' registers was visible but physically forbidden.

In both instances, the false *vedikā* acts as a liminal mediator: whether through the architectural realism of Saidu Sharif, or the symbolic carvings of Kanaganahalli, the railing serves to distance the observer from the sacred figures of the upper registers, forcing the devotee to bridge the gap between the terrestrial and the divine, through an act of spiritual imagination.

6. Conclusions

This article aims to bring a new light on the socio-historical value and archaeological history of Kanaganahalli Great Stupa.

Firstly, the archaeological data related to the Great Stupa collected in the archaeological report by Poonacha, were made clear and above mentioned. This latest archaeological analysis results in a new reading of the archaeological history of the monument, represented by five Macrophases. These Macrophases serve to clarify the structural

development of the monument, from its foundation to its eventual abandonment, shedding light on its chronology and on its importance over the time.

Secondly, a complete analysis of the Great Stupa of Kanaganahalli was provided, making a distinction between real and illusory architecture. This distinction is pivotal for deciphering the monument's symbolic function, as evidenced by a sophisticated decorative apparatus that reflects a highly coherent artistic program. The strategic use of architectural elements within the Stupa's ornamentation facilitates a spatial deployment on a perspectival plane, effectively extending the viewer's perception beyond the physical constraints of the structure.

In particular, it was evidenced the importance assumed by the *vedikā*, an element repeatedly reproduced on different decorative elements composing the Stupa. The *vedikā* emphasizes the monument's verticality while guiding a gradual transition from the exterior to the interior. The interplay between physical and imaginary *vedikās*, defining both literal and conceptual corridors, establishes a symbolic boundary between the devotee and the esoteric figures depicted on the upper drum, a border that can only be overcome through a spiritual exercise.

This article has presented a brief attempt at a comprehensive analysis of the monument, bringing together the individual elements that characterize and compose it, in order to promote an overview of the Kanaganahalli Stupa and at the same time better understand elements characterizing other Buddhist monuments from the surrounding area. Despite the existing literature on the site, further interdisciplinary research remains essential to fully decode the functional and symbolic complexity of this extraordinary monument.

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Fig. 1 - Buddhist archaeological sites nearby Bhima River
(from Thakur 2021: fig. 1).

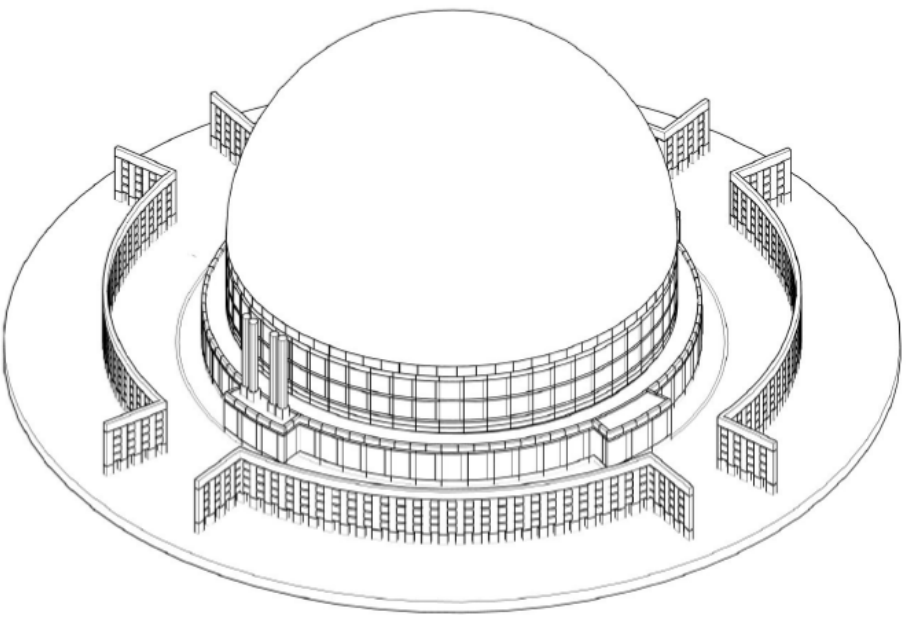

Fig. 2 - Kanaganahalli Great Stupa, axonometric projection, scale 1: 100
(drawing by A. Adamo and M. Prota).

Fig. 3 - Vedikā of Kanaganahalli Stupa
(picture by: C. Luczanits).

Fig. 4 - Kanaganahalli Stupa cornice
(picture by: C. Luczanits, revised by the author).

Fig. 5 - Kanaganahalli Stupa, Register B
(picture by: C. Luczanits, revised by the author).

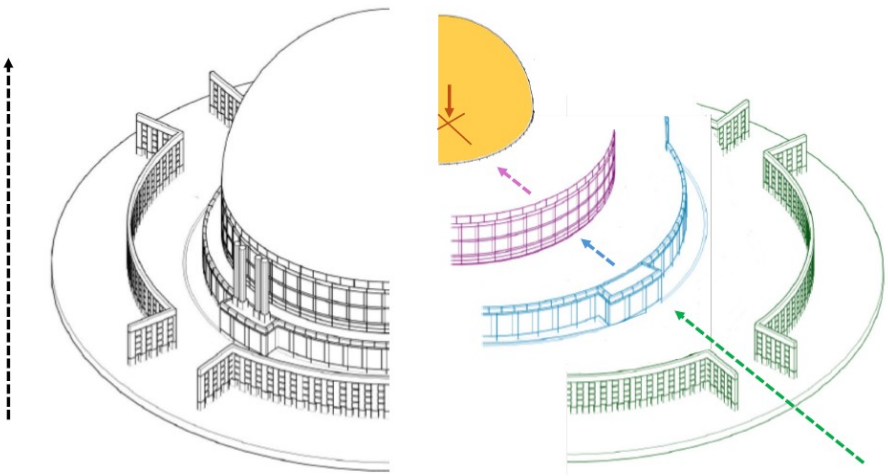

Fig. 6 - Illusory architecture of Kanaganahalli Stupa
(drawing by L.M. Olivieri, not in scale).

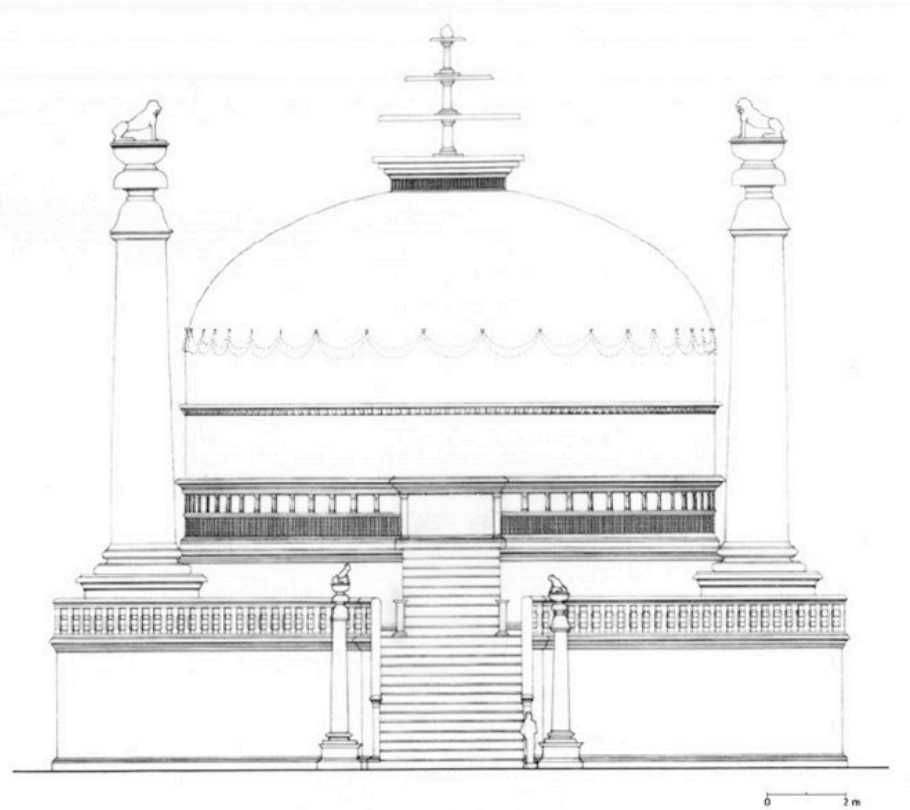

Fig. 7 - Saidu Sharif Stupa
(reconstruction by F. Martore, from Olivieri 2022: pl. IX).

Economic Administration of Swat State: A Study of *Ushar* Collection during Sayyid Abdul Jabbar Shah's Rule (1915-1917)

Jalal Uddin / Abdul Basit Mujahid

Abstract

This research article examines the early state-building efforts of Sayyid Abdul Jabbar Shah during his reign in Swat (1915-1917), with a particular focus on his introduction and institutionalization of ushar*—a tithe on agricultural produce. Drawing upon archival sources and historical analyses, the study situates his taxation policies within the broader context of Swat State's transition from tribal fragmentation to a state formation. It studies Abdul Jabbar Shah's initiatives and the considerable resistance from various tribal factions, revealing the persistent tensions between traditional autonomy and centralized authority. The study also critically focuses on lack of institutional infrastructure that undermined the long-term viability of his system. While Abdul Jabbar Shah's tenure was brief and ultimately unsuccessful in institutionalizing a durable fiscal regime, this article argues that his initiatives laid the foundational groundwork for the more systematic and effective tax administration developed under his successors, the Walis of Swat.*

Keywords: Sayyid, *ushar*, Tax, Swat, State, Wali.

1. Historical Background

Before the establishment of Swat as a princely state in April 1915, the region was predominantly organized along tribal lines, with no centralized political authority or administrative machinery. The social and political structure of the area was based on Pashtun tribal customs, where local power resided with the *Khans* and *Malaks* as tribal elders, who exercised authority over their respective villages and territories (Ziad 2021: 223-224). These leaders maintained influence through personal status, lineage, control over land and the ability to mobilize their followers when necessary. In that segmentary tribal society, governance was localized and operated through informal mechanisms of *jargas* (councils of elders), and traditional codes

like *Pukhtunwali*.[1] These systems emphasized customary justice, mutual obligations, and local autonomy rather than state-imposed laws or regulations. As a result, there was no overarching bureaucratic structure or institutionalized system of governance capable of implementing standardized policies across the region. This socio-political arrangement also meant that there was no formal or uniform system of taxation and revenue, in the modern fiscal sense, did not exist. While the local elites might receive customary tributes, products, or labor contributions from the communities under their influence, such exchanges were irregular, negotiated, and deeply embedded in the fabric of personal loyalty, reciprocity, and customary expectations. These forms of exaction were neither codified nor systematically collected and thus the region remained politically fragmented and fiscally unregulated. Makhdum Tasadduq Ahmad has rightly argued that "before the establishment of the state, *ushar* was not paid to anyone, presumably because there was no central authority" (Ahmad 1962: 164). His observation highlights a critical aspect of pre-state socio-economic organization, where the absence of a centralized political structure meant there was no institutional mechanism or authoritative entity to collect such levies.

Despite the absence of any centralized or institutionalized revenue system in pre-Swat Swat, the historian Altaf Qadir notes that the Hindustani Mujahidin[2] played a role in laying the foundation for a new economic and administrative institution in the region: the Baitul Mal (public treasury). Under the Mujahidin, *ushar*, an Islamic tithe on agricultural produce, was made obligatory for the first time, thereby formalizing a system of taxation that stood in stark contrast to earlier, more informal practices. The model was subsequently adopted and institutionalized by Sayyid Akbar Shah, a close associate of the Hindustani Mujahidin and the ruler of Swat from 1849 to 1857. Following the precedent set by the Hindustani Mujahidin, Sayyid Akbar Shah continued the practice of *ushar* collection as a means of funding both governance and military activities (Qadir 2015: 172-173). Captain

[1] *Pukhtunwali* is the indigenous Pashtun code functioned as the prevailing legal and sociopolitical framework during the pre-state period in Swat's history—also denoted as *Da Pukhto Zamana* literally translated as "the age of Pashto".

[2] The Hindustani Mujahideen, a group of fighters who played a pivotal role in anti-colonial resistance during the 19th century, have frequently been characterized in British colonial literature using pejorative terminology. English writers, particularly those aligned with the colonial administration, often referred to these figures as Hindustani fanatics.

T.J.C. Plowden notes that Sayyid Akbar Shah "was both Treasurer and Prime Minister to the famous Sayyid Ahmad Shah, and formed in his camp a friendship with his Hindustani soldiers" (Plowden 14). He thus positions Sayyid Akbar Shah as a pivotal figure in the Hindustani Mujahidin's movement, not only as a trusted administrator but also as a Treasurer, responsible for managing the financial affairs of the movement.

Following the death of Sayyid Akbar Shah in 1857, Swat again entered a prolonged phase of political fragmentation and power decentralization, during which no enduring centralized authority emerged to exercise consistent control over the region. This period, often referred to as the interregnum of statelessness, was marked by intra-tribal rivalries, localized governance under *Khans* and *Malaks*, and a continued adherence to customary Pashtun norms of autonomy and self-rule. Within this context, no reliable historical sources suggest the existence of any institutionalized revenue collection, particularly in the form of *ushar*, by a sovereign or centrally recognized political authority in Swat. However, during this interregnum, external powers sought to exploit Swat's political vacuum, particularly in regions adjacent to its borders. Notably, the Nawab of Dir, whose territory bordered Swat on the right bank of the River Swat, made repeated efforts to extend his influence into the region. He attempted to realize *ushar* from the inhabitants living along that bank, asserting claims of suzerainty and seeking to extract *ushar* from the local population, through his *muhasils* (tax collectors). These attempts, however, were largely resisted or contested by the tribes who resided there, and the Nawab's influence remained limited and episodic. Nonetheless, these efforts cannot be characterized as constituting a centralized revenue system, as they lacked both administrative continuity and widespread territorial enforcement. Instead, they were expressions of opportunistic border politics by neighboring rulers seeking to benefit from Swat's political disunity. The most assertive phase of external intervention in Swat by the Nawab of Dir occurred during the period between 1912 and 1915, which, according to available historical accounts, represents the apex of his efforts to expand political and fiscal control into the right bank of the River Swat. This interventionist policy was rooted in both strategic calculations and economic incentives, as the region's fertile agricultural lands and decentralized political environment presented an opportunity for the Nawab to assert influence and extract revenue, particularly through the collection of *ushar*, the Islamic tithe on agricultural produce (NWF Provincial Diary, February 1914, February 1915, May 1915). The British archival sources of

that time, explicitly acknowledge the severity of the situation, stating that the Nawab was "advised not to send his muhasils" as "it is [was] they who are [were] at the bottom of the whole mischief" (NWF Provincial Diary, for the week ending the 20th May 1915). Charles Lindholm, in his analysis of Swati society, notes that the Nawab, taking advantage of internal divisions within Swat, would often form alliances with weaker local leaders, referred to as *dallas*, to launch invasions and assert control over the right bank of the Swat River. Although these invasions were successful on several occasions, they consistently encountered a unique form of resistance once the Nawab attempted to exercise sovereign control by imposing taxes on the local population. According to Lindholm, such external impositions were not tolerated by the tribes of Swat, who adhered to a segmentary lineage system. This system, based on the segmentary principle, allowed for internal disputes and rivalries among tribal groups in times of peace, but it also ensured collective solidarity in the face of an external threat. Thus, when the Nawab of Dir attempted to enforce taxation, the previously divided Pakhtun tribes would temporarily put aside their differences and unite against the common enemy (Lindhlom 1979: 488-489).

2. Initiative of Tribes offering *Ushar* Collection to the Miangul Brothers (1915-1917)

During the critical period of political transition in Swat, one of the most enduring and complex obstacles to the authority of Sayyid Abdul Jabbar Shah was the presence and influence of the Miangul brothers,[3] descendants of the eminent religious figure Akhund Abdul Ghafur, also known as Akhund of Swat and Saidu Baba. Their lineage conferred upon them a unique and powerful form of legitimacy that was both spiritual and temporal in nature. The Akhund, who had played a central role in the religious and political landscape of Swat in the 19th century, remained a figure of immense reverence among the people of the valley. His legacy had created a dynastic aura around his descendants, the Mianguls, who were perceived by the local population not merely as political actors, but as custodians of a sacred tradition that had guided Swat through periods of fragmentation and

[3] In historical discourse concerning the early political developments of Swat State, the term 'Miangul Brothers' refers specifically to Miangul Abdul Wadud and Miangul Shirin. Both were prominent figures and were descendants of the Saidu Baba (also known as Akhund of Swat).

external threat. The Miangul brothers, by virtue of this religious and ancestral inheritance, occupied a position of considerable authority that extended beyond mere local leadership. Thus, the Miangul brothers adeptly navigated the complex political terrain of the region, at times asserting their autonomy, while at other times strategically aligning with powerful actors to preserve their position and advance their interests. Thus the "hereditary ability" of Miangul Abdul Wadud, as the Akhund's grandson, "found himself in conflict and competition for the control of Swat with Sayyid Abdul Jabbar Shah, great-nephew of Savyid Akbar Shah of Sitana" (Caroe 1984: 428). Hence, a month before the accession of Sayyid Abdul Jabbar Shah, i.e., in March 1915, a significant development occurred in the valley, when the Swatis, expressed their willingness to pay *ushar* to the Mianguls. This offer signified a shift in the political landscape of the region, reflecting the ongoing tensions between the local tribal leaders and the central authority of the Nawab of Dir. By proposing to substitute the rule of the Nawab with that of the Mianguls brothers, the Swatis were effectively indicating a desire for autonomy from the Nawab's administration, aligning instead with a family that had gained increasing prominence in the region. Miangul Abdul Wadud's response to the offer, however, revealed the complexity of the situation. He declined the proposal, stating that "his brother would not make common cause with him, and that therefore the idea was impracticable" (NWF Provincial Diary for the week ending the 13th March 1915). It is worth stating that the tribes had twice approached both brothers with the intention of seeking their joint leadership (Barth 1985: 52). However, on each occasion, Miangul Abdul Wadud firmly declined the offer. His refusal was grounded in the belief that the concept of dual rulership, where two individuals share authority, rarely meets with success. W.R. Hay offers an account of the political dynamics surrounding the rise of Saiyid Abdul Jabbar Shah and its impact on the authority of the Miangul family. He observes that "the advent of the Saiyid Abdul Jabbar Shah at length united Mianguls and they determined to use every effort to prevent him extending his influence over the left bank tribes" (Hay 1933: 4). This development marked a significant moment of consolidation for the Mianguls, who, sensing a threat to their authority, took proactive measures to assert their dominance. In a strategic move, they "promptly demanded from these tribes the ushr which had previously been offered them," a clear attempt to reinforce their socio-political control through fiscal claims. However, as Hay notes, this assertion backfired, when the action "merely drove the tribes into the camp of Saiyid Abdul Jabbar Shah" (Hay 1933: 5).

The imposition of *ushar* not only failed to reassert Mianguls authority but actively alienated the tribes, thereby strengthening the position of Saiyid Abdul Jabbar Shah. The situation escalated when the Mianguls resorted to coercion, leading a *lashkar* against Saadullah Khan of Udigram in an attempt to forcibly collect *ushar*. This military intervention prompted Saadullah Khan to seek assistance from Abdul Jabbar Shah, who responded decisively by arriving with a Nikpikhel *lashkar* and inflicting a significant defeat upon the Mianguls. Following their military failure, the Mianguls were compelled to retreat to Saidu Sharif, their permanent seat. Their authority was not only diminished but also subjected to the mercy of the new power structure. This episode underscores the interplay between fiscal policy (*ushar* collection), tribal allegiance, and military force in the contest for regional dominance.

3. Steps taken by Sayyid Abdul Jabbar Shah for the Collection of *Ushar* during his Reign (1915-1917)

Although Sayyid Abdul Jabbar Shah (1880-1956) ruled the nascent Swat State for a brief yet pivotal period, from April 1915 to September 1917, the historical record concerning his administration remains remarkably sparse and fragmentary. There exists a noticeable paucity of comprehensive and reliable documentation regarding the specifics of his governance, administrative organization, and policy measures, particularly in relation to the functioning of state institutions during his tenure (Uddin 2024: 2). Unlike the two Walis of Swat, whose governance has been more thoroughly documented and analyzed in colonial archives and later scholarly works, the reign of Sayyid Abdul Jabbar Shah has received scant attention in academic literature. As a result, his era is fragmentary, partially obscured and often mentioned only in passing within broader narratives of Swat's political evolution. Given this historiographical lacuna, the present study aims to reconstruct and critically analyze the nature of Abdul Jabbar Shah's governance by placing particular emphasis on his taxation policies, especially the implementation and institutionalization of the *ushar* system. Since secondary sources offer limited insights into this period, we will also rely on primary sources to infer and contextualize the mechanisms of revenue collection under his rule. Through this approach, this study seeks to illuminate how Abdul Jabbar Shah, despite the brevity of his reign, took some initial measures for the fiscal governance. The deliberate marginalization or neglect of his rule in academic writing further

underscores the necessity of a focused investigation that brings his administrative strategies, especially in the domain of taxation, into critical historical scrutiny.

It must be acknowledged that it was not until the emergence of Sayyid Abdul Jabbar Shah as ruler of Swat in April 1915 that we once again observe a deliberate attempt to reinstate a formal and centralized system of *ushar* collection. Drawing upon earlier precedents established by the Hindustani Mujahidin and his ascendant Sayyid Akbar Shah, he tried to reintroduce *ushar* as a structured fiscal mechanism under the aegis of state authority, thereby reviving an institutional tradition that had effectively lapsed for nearly six decades (Qadir 2015: 172-173). The arrival of Sayyid Abdul Jabbar Shah and his subsequent nomination as the ruler of Swat State marked a critical transition in this context. He made an attempt to move from a fragmented tribal polity to a proto-state formation that sought to legitimize itself through the implementation of a centralized revenue system, most notably through the practice of *ushar*.

In July 1915, after three months of assuming the rulership, Sayyid Abdul Jabbar Shah achieved some success in his bid for control over Swat. His victory was deemed "complete" as he successfully extended his authority over Upper Swat on both banks of the river. This marked a significant political and administrative accomplishment, as the majority of the region's tribes acknowledged his rule and agreed to pay the *ushar* (i.e., a tenth of agricultural produce) to him, recognizing his authority as their ruler (NWF Provincial Diary for the week ending the 29th July 1915). The acceptance of *ushar* payment, a taxation rooted in Islamic law, was not only a financial endorsement of his leadership but also a symbolic gesture of the legitimacy of his control over the area. However, the payment of *ushar* was not without some resistance. The Aba Khel and Musa Khel tribes, notable groups within the valley, did not immediately comply with the new taxation system, refusing to pay *ushar* to the new ruler. This reluctance highlights the complexities of tribal politics and the challenges faced by the new ruler in consolidating power over decentralized and independent tribal societies. In an effort to bring these dissenting tribes into alignment with the broader political landscape of Swat, he, together with the influential religious figure, Sartor Faqir, made a diplomatic move to Ghaligay (a village in Swat that remained capital of his ascendant, Sayyid Akbar Shah), to negotiate with the Aba Khel and Musa Khel tribes. The purpose of this visit was to resolve the ongoing differences and persuade these groups to accept his rule and taxation policies. Their discussions centered around persuading the tribes to

accept the payment of *ushar*, a key point of negotiation that would ensure the financial sustainability of the new administration. While these tribes were initially resistant to the full scope of Sayyid Abdul Jabbar Shah's authority, they were agreed to the payment of *ushar*, thus demonstrating their willingness to cooperate with him. However, despite their agreement to pay *ushar*, the Aba Khel and Musa Khel tribes were firm in their refusal to accept any other form of service (NWF Provincial Diary for the week ending the 29th July 1915). The event highlights the challenges faced by the ruler in attempting to bring together disparate tribal groups under a unified system of governance.

With regard to the taxation and revenue administration, it is important to highlight a significant development that took place in October 1915. In an effort to consolidate his authority and streamline the collection of revenue across the Swat Valley, Sayyid Abdul Jabbar Shah significantly expanded the number of personnel involved in fiscal operations. British archival records from the period indicate that he enlisted a considerable number of additional men to assist in the assessment and collection of taxes (NWF Provincial Diary for the week ending the 28th October 1915). This move reflected his attempts to strengthen administrative control over the valley, during his short-lived tenure. The last Wali of Swat's recollection also provides a significant insight on this aspect. One particularly noteworthy aspect confirmed by the last Wali is that Abdul Jabbar Shah delegated the responsibility of *ushar* collection directly to the army (Barth 1985: 53). This approach can be interpreted as a pragmatic response to the absence of a well-established bureaucratic framework.

In a significant reversal to his earlier successes, in November 1915, Abdul Jabbar Shah encountered strong opposition in the Jinki Khel clan that ultimately undermined his authority and disrupted his efforts to impose *ushar* taxation. Initially, a faction within the Jinki Khel agreed to accept his authority and pledged to pay him *ushar*. This acceptance, which reflected a degree of recognition for Sayyid Abdul Jabbar Shah's political legitimacy, was a notable achievement in his efforts to consolidate control over the region. However, this shift in allegiance was not universally supported within the clan, and internal divisions soon emerged. The party in power (locally termed as *dalla*), led by Habibullah Khan, who was the most influential and powerful figure in the Jinki Khel clan, rejected the changes introduced by Sayyid Abdul Jabbar Shah. Habibullah Khan, leveraging his strong leadership and support within the clan, took decisive action to challenge the new ruler's encroachment on the clan's traditional autonomy.

The opposition, under his command, mobilized *lashkars*,[4] drawn from the clan's fighters, a common practice in Pashtun tribal conflicts for the defense of local interests. In a decisive confrontation, Habibullah Khan's forces inflicted a severe defeat on Sayyid Abdul Jabbar Shah and his supporters. The consequences of this defeat were far-reaching, as not only was his authority in the Jinki Khel clan severely undermined, but the grain that had been collected as *ushar*, was looted by the victorious forces (NWF Provincial Diary for the week ending the 6th November 1915). Similarly, in the broader historical context of governance, the imposition of a house tax by Sayyid Abdul Jabbar Shah in January 1916 holds particular significance. As a ruler, he sought to consolidate administrative authority and generate revenue through formalized taxation mechanism. Among these measures was the introduction of a house tax amounting to Re. 1 per household, a policy decision that elicited a degree of resentment among the local Swati population (NWF Provincial Diary for the week ending the 14th January 1916).

The tax was perceived as an imposition that contravened traditional norms of tribal autonomy and self-governance. The Swatis, who had historically enjoyed a fiscal independence under customary tribal structures, viewed the tax not merely as a financial burden but as a symbol of increasing centralization and encroachment upon their socio-political autonomy. This resistance must be understood in light of the region's prior experiences with external authority, including the exactions levied by the Nawab's tax collectors, which had previously led to unrest, such as the notable 1915 uprising by the Shamizai and Sebujni clans. The introduction of the house tax under Sayyid Abdul Jabbar Shah, should be thus interpreted not in isolation, but as a continuation of broader trends in state-building efforts that clashed with indigenous notions of governance, property rights, and communal obligations. The policy, though administrative in intent, inadvertently deepened local disaffection and underscored the complex dynamics between state authority and tribal society in Swat. It illustrates the broader tensions inherent in attempts to institutionalize fiscal systems in regions where centralized rule had historically been limited and contested.

[4] *Lashkar* is a traditional military or tribal force, typically composed of armed men from a particular tribe or community. In the context of Pashtun culture, a *lashkar* is often mobilized for purposes of defense or warfare. The term refers to a collective group of fighters, usually assembled under a tribal leader's command, to undertake military actions or to protect the interests of the tribe.

4. Analysis of Taxation System under Sayyid Abdul Jabbar Shah

Makhdum Tasadduq Ahmad, in his analysis of governance and fiscal structures in the region, contends that "in 1913 Sayyid Mubarak Shah[5] imposed *ushar* on all crops at the rate of 10% in accordance with the Islamic jurisprudence. When the father of the present Ruler [Miangul Abdul Haq Jahanzeb] came into power in 1917, he continued this form of taxation. The present ruler increased the rate of *ushar* from 10 to 13.4% and this is the rate of taxation in force these days" (Ahmad 1962: 164-165). Makhdum's statement clearly indicates that Sayyid Abdul Jabbar Shah was the initiator of the *ushar* system in the State. By tracing the institutionalization and subsequent enhancement of this Islamic tax through successive rulers, the author underscores Sayyid Abdul Jabbar Shah's foundational role in embedding the *ushar* as a formalized fiscal mechanism within the State's governance framework.

In reflecting on the early taxation and developments in the State era, Miangul Jahanzeb, the last Wali of Swat acknowledged the foundational role played by Sayyid Abdul Jabbar Shah in the introduction of a formal taxation system, particularly the collection of *ushar.* The Wali noted that, although Abdul Jabbar Shah was unable to fully implement or enforce the collection across the entire region during his brief tenure, the initiative itself was unmistakably his (Barth 1985: 52-53). This indicates that Abdul Jabbar Shah laid the groundwork for the fiscal infrastructure that would later be expanded and institutionalized by the two Walis with greater vigor and success. The last Wali's account not only attributes the origin of the taxation system to Abdul Jabbar Shah, but also offers a rare glimpse into the mutual respect and nuanced personal perceptions between the two figures. Recalling a moment of reflection shared by his father [Miangul Abdul Wadud], the Wali quoted him as saying, with a hint of humor, "Do you know what I thought of Jabbar Shah, and what he thought of me? He was a very intelligent person, and a good writer and orator. I thought: 'I wish I were Ruler and he were my prime minister!'" These words reflect an acknowledgment of Abdul Jabbar Shah's intellectual and rhetorical capabilities, as well as his potential for statecraft. In a reciprocal sentiment, the Wali imagined that Abdul Jabbar Shah might have viewed his father as

[5] The author has stated Sayyyid Mubarak Shah in the dissertation. However, contextual and historical evidence suggests this is a typographical error, and the correct name should be Sayyid Abdul Jabbar Shah.

a man of action and military strength, perhaps thinking, "I wish that I should be Ruler and he, that brave man, be my commander-in-chief!" (Barth 1985: 52-53). These reflections also reveal a recognition of each other's strengths—one in governance and intellectual affairs, the other in leadership and valor. The last Wali of Swat, though, offers a critical reflection on Abdul Jabbar Shah's administrative practices. He writes that "one reason was that he had brought many of his relations into Swat – none of his female relations, but men that he trusted more and used to staff his administration. And they did not behave well – they took taxes by force" (Barth 1985: 32). This version argues that the major source of discontent during Abdul Jabbar Shah's tenure was the coercive taxation practices carried out by his appointed administrators, trusted male relatives, who, according to the Wali, abused their authority and extorted revenue from the populace. The use of force in tax collection thus exacerbated existing tensions between the central authority and local communities, ultimately contributing to his political isolation and weakening his claim to leadership.

Interestingly, Miangul Abdul Wadud, who governed Swat State from 1917 to 1949, provided a critical assessment of his predecessor's administration in his autobiography. He remarked that, "even the short rule of Sayyid Jabbar Shah had failed to achieve anything. There was no State treasury, no army, no forts, *no source of income other than the tithe paid by agriculturists* [italics mine] no means of communication with Peshawar or Mardan" (Hussain 1962: 46-47). Miangul Abdul Wadud;s critical reflection on Abdul Jabbar Shah's rule thus serves both as a historical judgment and as a rhetorical device to highlight the transformation of Swat State under his leadership, from a loosely governed territory into a functioning princely state with recognized institutions of governance.

The folk poetry in many cultures, especially Pashto, has historically served as a means to express social realities, including the discontent, hardships, and grievances of the common people (Ahmad 2023: 332). Through metaphor, humor, and imagery, poets could communicate complex issues in a way that was accessible to all, often without explicitly stating criticisms of the ruling elite or governmental structures. Folk poetry and *tappa*,[6] especially in the form of oral traditions, often serves as a vehicle for

[6] *Tappa* is a form of traditional Pashto poetry, typically consisting of two short lines, often used to express emotions, humor, or social commentary. It is an important aspect of Pashtun oral culture, conveying wisdom, satire, or reflections on daily life in a succinct and rhythmic manner.

memory and historical narrative. It may not always be historically accurate in a strict sense, but it is significant because it offers insights into the emotions, fears, and hopes of the people. The taxation system of Sayyid Abdul Jabbar Shah also inspired creative and humorous commentary in local Pashto oral traditions. One such playful *tappa* says about the taxation:

> *Chargay chargorhi di pa shmaar ka, Abdul Jabbar Shah da chargey akhli qalanguna*[7]
>
> (Oh hen, count your chicks—Abdul Jabbar Shah is collecting tax even from hens)[8]

This amusing *tappa* paints an amusing but sharp picture of how deeply taxation was felt, to the point that even chickens had to be aware of revenue collectors. It reflects how ordinary people perceived the reach of authority—when not even poultry could escape the tax net. While it may not be a precise historical account of how taxes were actually collected, it reveals the perception of how the all-encompassing taxation system was seen and perceived by the people at that point of time (Balala 2019: 39).

A critical analysis of the *ushar* and taxation system introduced by Sayyid Abdul Jabbar Shah in Swat reveals some key missing elements that significantly undermined its effectiveness and long-term viability. While the system was an important initial attempt at formal revenue collection, its structure lacked the institutional depth and administrative capacity required for a sustainable fiscal policy. The collection of *ushar* was delegated directly to the army, was though necessary in the short term, was prone to inefficiencies, inconsistencies, and potential abuse. There is little evidence to suggest that a standardized method for assessing agricultural output or determining tithe rates was in place. The absence of proper land records, or revenue registers meant that tax assessments could be arbitrary and non-uniform. The *ushar* system under Abdul Jabbar Shah was not part of a broader fiscal or economic policy and no surviving historical evidence establishes the existence of a centralized state treasury during his reign. This

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[7] *Qalang, Ijara* and *Ushar* are used in different connotations. However, in these lines, it appears that the author has used it for *Ushar*. For details read, Muhammad Ali Dinakhel, Da Swat Pukhtu Abad aw Safafath, Academy of Sciences of Afghanistan, 2020, 234.

[8] The lines also suggest alternate meaning "O owner of hens, count your hens and chicks carefully—Abdul Jabbar Shah is even collecting tax on them!"

constrained the ruler's capacity to invest in public works, infrastructure, or military development. The *ushar* collected under Abdul Jabbar Shah had limited redistributive or developmental impact. The most telling deficiency in Abdul Jabbar Shah's taxation system is the absence of records of revenue as the contemporary sources and later historical accounts provide no information on how much *ushar* was collected during his rule. This absence underscores the lack of formal financial reporting structures. In addition to it, there is also no documentation of any surplus being handed over to Miangul Abdul Wadud, suggesting that either little revenue was collected or that what was collected was spent or lost due to the absence of institutional oversight (Hussain 1962: 46-47). The lack of documentation not only hinders historical analysis but also reveals the rudimentary nature of statehood at the time. Besides, the *ushar* system was not implemented in its true letter and spirit, as influential individuals within the valley were excluded from the *ushar* tax net and consequently did not contribute to its payment (Balala 2019: 39). The fiscal shortcomings of Abdul Jabbar Shah stand in contrast to the administrative reforms introduced by Walis of Swat, who ruled from 1917 to 1969. During their 52-year rule, they established a functioning state treasury, built a civil and military bureaucracy, expanded and diversified the income of the State, moving beyond *ushar* to include other sources of revenue.

5. Conclusions

The pre-state history of Swat reveals a region defined by deeply entrenched tribal autonomy, governed through customary Pashtun structures, such as *jargas,* and guided by the principles of *Pukhtunwali*, where the absence of a centralized political authority precluded the establishment of any formal fiscal or administrative system. In that decentralized context, revenue collection was irregular, locally negotiated, and embedded in systems of personal loyalty rather than institutional governance. The earliest attempts to change that fragmented order came through the efforts of Sayyid Akbar Shah in the mid-19th century, who introduced the *ushar* as a formal Islamic tax in Swat. These initiatives, while significant, proved short-lived following Akbar Shah's death, ushering in another prolonged phase of political disunity. The brief but historically significant rule of Sayyid Abdul Jabbar Shah as ruler of Swat State from 1915 to 1917, marked a crucial transitional phase from tribal fragmentation to the embryonic stages of statehood. His efforts for revival of the *ushar* system, drawing upon

precedents set by Sayyid Akbar Shah, represented the first serious effort in over half a century to establish a centralized fiscal structure in the region. However, the effort to implement a structured taxation regime encountered considerable resistance from the tribal interests. Despite early successes in gaining partial recognition and compliance from various tribes, Abdul Jabbar Shah's administrative strategies—such as delegating tax collection to the military and involving his close associates—proved insufficient in building the institutional depth required for long-term governance. While his taxation system laid the foundational ideas for future state-building, it remained flawed in execution, lacking systematic record-keeping, administrative coherence, and developmental foresight. In contrast, the reforms introduced by the later Walis of Swat capitalized on the rudimentary framework laid by Abdul Jabbar Shah, institutionalizing and expanding the revenue base into a sustainable model of governance. Thus, Sayyid Abdul Jabbar Shah's fiscal experiments, though ultimately unsuccessful, must be recognized as a formative moment in the political and administrative evolution of Swat.

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A Comprehensive Overview of the Urban Development of Samarkand (Zeravshan River Valley)

Carla Biagioli

Abstract

This paper is a study of the evolution of the urban pattern and architectural development of Samarkand as an oasis city. Drawing on archaeological data, historical sources, cartographic analysis, and urban morphology studies, this paper examines the city's development from pre-colonial and medieval configurations through Russian imperial rule and Soviet urban planning, up to the post-independence period. The analysis highlights how successive political regimes imposed distinct urban models onto the city, often changing earlier spatial logics while selectively preserving monumental heritage. These interventions transformed the medina, altered the traditional neighbourhood structures (mahallas), and introduced a Russian and subsequently, socialist planning system, including radial avenues, monumental axes, and microrayon-based housing estates. While these interventions modernised infrastructure and facilitated tourism, they also contributed to the fragmentation of historic urban fabric and the displacement of local populations. The paper argues that Samarkand's current urban challenges, particularly those related to heritage conservation, water management and tourism development, require integrated urban regeneration strategies that balance preservation, social vitality and sustainable development. This will ensure that the historic city remains a living urban environment rather than a static monument.

Keywords: Samarkand, oasis city, rivers, urban history, architecture.

1. Introduction

The present article aims to examine the evolution of the urban landscape of Samarkand with a particular emphasis on its distinctive urban and architectural elements. As an oasis city and a former point of rest along popular trade routes, Samarkand's urban structure has undergone a continuous process of change and adaptation.[1] The stratification and

[1] This paper is an excerpt from my master's thesis. I completed my degree in Architecture at the Department of Architecture, City and Territory at the ENSPM (Ecole nationale superièure d'architecture Paris Malaquais), in Paris. My thesis was supervised by Jerome Treuttel in 2009, following a field mission to Samarkand in 2008.

integration of diverse urban models, frequently originating from external cultures, contribute today to the cultural richness of this city and have proven beneficial for the development of local tourism. The present analysis mainly focuses on three different architectural periods in Samarkand's history: its medieval design, its development under Russian rule, and the urban model imposed by the Bolsheviks. Each leader modified the city to suit their purposes, every time shaping it anew within its specific geographic, ideological, and geopolitical context.

The main sources and literature used for this study of the evolution of Samarkand's urban development were collected from the Italian Archaeological Mission in Uzbekistan, formerly directed by Professor Maurizio Tosi.[2] The Mission's archaeologists kindly provided me with the documentation from the Aga Khan rehabilitation works, which were conducted on the historical part of the city in 1997. Using CAD, I produced graphic analyses of the modern settlement patterns. These images, as well as historical photographs, maps, and screenshots from Google Earth, can be found throughout the paper and supplement my analysis of the urban and architectural changes that have taken place in the city.

Given its central position in shaping the urban pattern from an ecological perspective, water is of particular note here. The management of water resources constitutes in fact, an integral component of the local ecological knowledge, which has been instrumental in shaping Samarkand's urban areas. When working on the graphics, I therefore placed a central focus on the role of water in shaping the city's design, both in the past and in modern times.

With a population of 591,000, the city of Samarkand ranks 2nd in terms of administrative size, just after the Uzbek capital, Tashkent, and it plays a significant role in the local tourism sector. In the context of the debate around revitalising city centres and the tourist industry, a key question arises: can urban regeneration enable the local population to remain in the city while preventing it from becoming an open-air museum, devoid of vitality and social dynamism? This article examines the issue of urban regeneration in the city centre, looking at whether past interventions have succeeded in preserving the city's architectural diversity.

[2] The Uzbek Italian Archaeological Project (UIAP) 'Samarkand and Its Territory' began in 2001 as a collaboration between the University of Bologna and the Institute of Archaeology of the Uzbek Academy of Sciences.

2. Contextualising Samarkand

The city of Samarkand is located in the modern state of Uzbekistan. It lies in the Zeravshan Valley at an elevation of 743 m asl and in a vast oasis at the edge of the Kizyl-Kum desert, where it is protected by high mountain ranges that provide the town with an abundant supply of water and thus fertile agricultural land (Figs. 1-2).

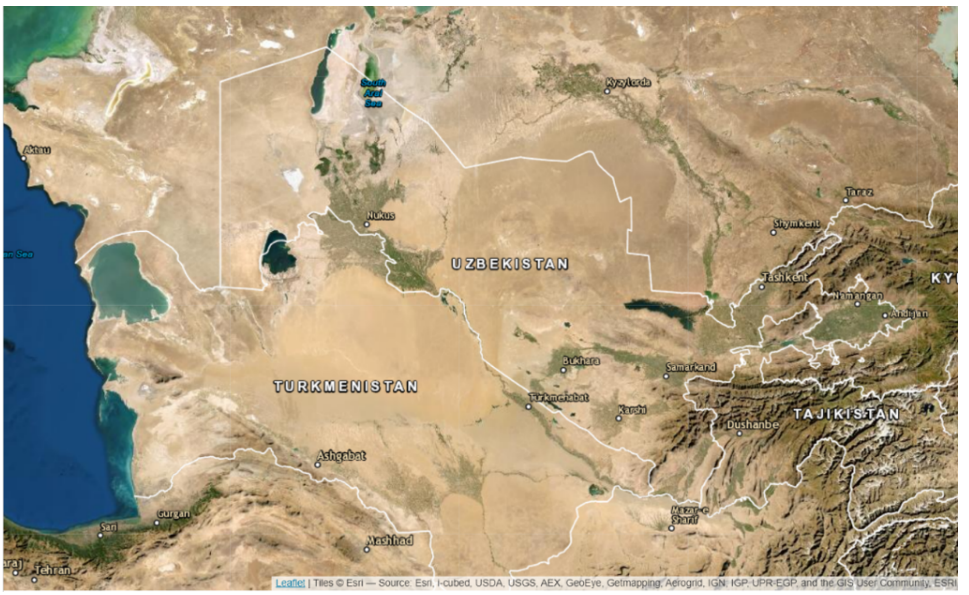

Fig. 1 - Location of Samarkand (GISmap worked by the author).

The 'doubly landlocked' territory of Uzbekistan includes three main geographical zones:
1. The Kizyl-Kum desert, including steppe and semi-arid regions, which cover 60 % of the territory, mainly in the central and western areas;
2. The fertile river valleys (including the Fergana Valley), irrigated by the Amu Darya and Syr Darya rivers and their tributaries (formerly including the Zeravshan River, though this now rarely joins the Amu Darya), which have their source in the mountainous area in the east of the country; and
3. The mountains in the east (parts of the Tian Shan and Alay ranges), with peaks reaching up to 4,600 m asl.

The longitudinal Zeravshan Valley is situated between the two major rivers of the region, the Amu Darya and the Syr Darya. It has historically

been a fortuitous ecological zone, with a documented human presence since the late Palaeolithic Era. Permanent urban settlements have existed along the Zeravshan River at different locations, as well as near the present city of Samarkand, for millennia, making this valley one of the earliest centres of civilisation in Central Asia.

2.1. Settling the Zeravshan Valley

The complex development of an oasis town such as Samarkand can only be understood within its general environmental context and through its embeddedness in these geographical surroundings. The landscape, climate, and varying altitudes have all had an impact on the liveability of this area since even before the first human settlements emerged here.

The soil of the valley benefits from regular floods, which have sustained life around this pocket of fertile land since ancient times. Water management has always been a major factor for survival in the valley, as its rivers provide the population with water for consumption (Mantellini, 2017). The upper course of the Zeravshan River flows between the mountains of Turkestan, travels on through the Zeravshan Valley, and continues along the foothills until it reaches the plains and the arid desert. Life in the Zeravshan Valley is thus dependent on the nearby mountains.[3] The high-altitude areas and the low arid plains (ca 100 m asl) are connected by an intermediate mountainous area (ca 500 m asl). This includes the oasis at the middle of the valley, which has been fashioned by fluvial erosion and human influence into fertile agricultural fields. The oasis of Samarkand is thus a floodplain situated along the middle course of the river.

The Zeravshan Valley exhibits a remarkable diversity of landscapes. It is a natural geographical complex of mountain foothills, semi-arid plains, and green oases – formerly serving as routes for silk, jade, and tea caravans – that have been developed for farming and various other complementary activities by means of an extensive irrigation system of artificial canals. The surrounding mountains, used as summer pastures, also provided the people living in the plains with wood and stone to build their houses.

[3] S. Bensidoun in: *Samarkand and the Zerafshan Valley; an oasis civilisation in Uzbekistan*, 1979, presents his work as an attempt to clarify the effort made by man to adapt to the natural environment and the technical and social skill involved, He explores the hardships faced by inhabitants of desert regions and the ability to overcome challenging conditions, such as drought (Bensidou 1979).

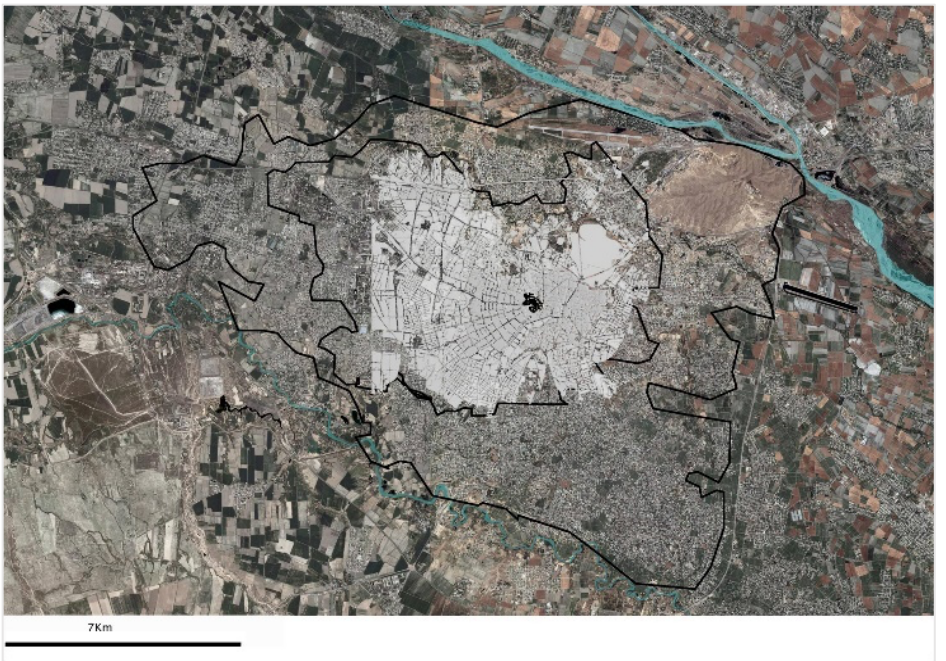

Fig. 2 - Samarkand agglomeration in 2009 (Google Earth. Elaborated by the Author from Aga Khan historical development plan).

The climate of the valley alternates between torrid summers (with high temperatures that climb above 50 °C) and very cold, snowy winters (-25 °C), but the green strip of the oasis tempers these climatic extremes.

According to research conducted on the middle Zeravshan Valley by the Italian Archaeological Mission, the earliest occupation of the ancient settlements found here can be dated to the late 4th-1st centuries BCE. Settlement of the area was made possible by the development of irrigation, which allowed agricultural practices to expand across nearly the entire floodplain. A combined economy developed, based on efficient use of the soil for irrigated agriculture, dryland farming, mountain grazing, and forest activity. This had an impact on the social dynamics between the settled farmers of the plain and the semi-mobile pastoralists of the steppe. Thanks to flooding and efficient resource exploitation, an agrarian and hydraulic society practicing polyculture was able to flourish in the valley for thousands of years. The Samarkand region thus represents the human ability to exploit the benefits of a territory, making it an example of successful agrarian and urban societies in challenging desert oasis ecological zones.

2.2 Historical background

In the northern part of the modern city of Samarkand lie the archaeological remains of Afrasiyab (Figs. 3), the site of the ancient capital of Sogdiana, an eastern satrapy of the Persian empire that was later conquered by Alexander the Great who destroyed the water channels that serviced a large part of the city. During this time, the city appears in literary sources as Maracanda. After the Macedonian conquest, the Zeravshan Valley became the crossroads of an international commerce network and an important centre of trade, connecting the oasis with important centres in Persia, India, and China. Control over these trade routes became strategically important, and major urban centres started to develop along them.

Maracanda was conquered by the Arabs at the beginning of the 8th century. Much later, the Mongol invasion in 1220 saw Genghis Khan reduce the city to ruins, causing it to be abandoned. Recent city excavations have revealed an ancient citadel with fortifications, the palace of the ruler, and residential and craft quarters (UNESCO World Heritage Convention, n.d.). Modern Samarkand developed as a newer settlement located to the south of this historical site, though only during the late medieval period after Maracanda was destroyed by the Mongols. In the 14th century, Tamerlane conquered Samarkand, turning it into the capital of his vast new empire. The city of Samarkand thus began a period of growth and splendour as the Timurid capital (The Aga Khan Trust for Culture 1997).

In 1504, an emir from the Ferghana Valley, Babur, briefly held Samarkand before being driven out from the new invaders, the Uzbeks. Babur then seized Kabul in Afghanistan and went on to establish the powerful Mughal Empire in India. He was a Sunni and a Turk who administered his empire in the Persian language. Persian was also the language of the court and of literature.

The appearance of the Russian empire in the region was a political, economic, cultural, and social breakthrough for Samarkand's inhabitants. The Russians subjugated the Khanates of Bukhara and Khiva in 1864 before moving on to take over the eastern part of present-day Uzbekistan, including Tashkent, in 1865. Samarkand surrendered to the Russians in 1868, following a brief battle. In general, the Russian advance was slow and relatively peaceful, leaving in its wake settlers who appropriated land for cultivation. The Russian imperial administration sought to apply its own model to areas previously administered according to indigenous logic.

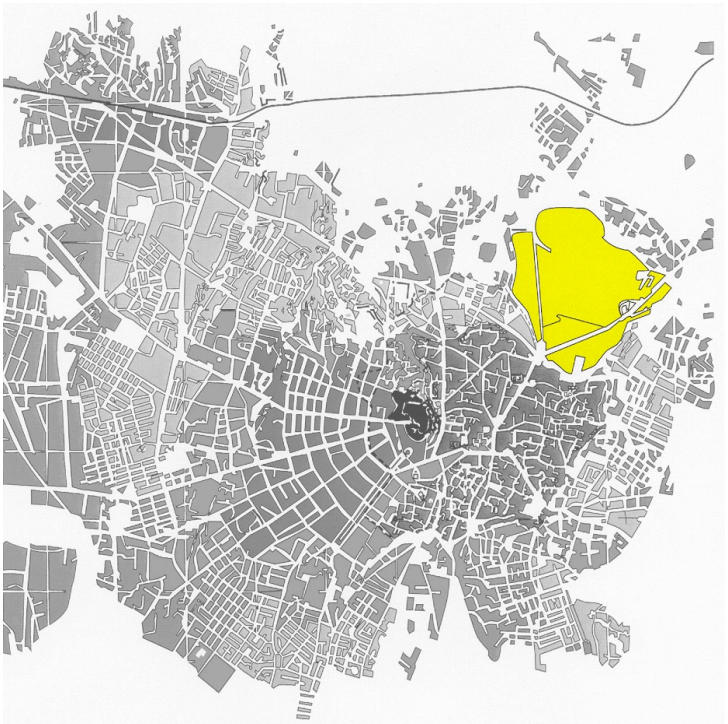

Fig. 3 - Afrasiab, Sogdiane Capital (Elaboration
by the Author from Aga Khan historical development plan).

Later, in 1918, the introduction of cotton monoculture and the attempt to implant Bolshevism in Central Asia, where no indigenous Communist enterprise had existed previously, saw the start of great economic change for the region.

In pre-modern Central Asia, ethnic groups hardly corresponded to a physical territory. Their primary identity was one of a 'solidarity group', which was reinforced by living in the same neighbourhood of a village (*mahalla*) and that could have very different sociological foundations, whether tribal, clan-based, religious, or geographic. The Soviet system of the 20th century allowed these 'solidarity groups' to be recomposed within the socio-economic framework of its agrarian communities (Russian: *kolkhozy*).

With the collapse of the Soviet Union in 1991, however, the territories in Central Asia were divided into independent republics that overrode previous transnational entities, identities, and affiliations (e.g.

Islam, Pan Turkism, or Persian cultures). The population thus passed from a multi-ethnic imperial structure without precise borders, to separate ethnic groups, to a modern nation-state structure in which a people was defined by its territory, its language, its flag, and a national anthem, all of which were lined up according to artificially determined political borders. The new capital cities were geographically distant from the centre of their respective countries and were not necessarily the historical capitals of these regions.

This heavy-handed division of territory in Central Asia was marked by the emergence of numerous enclaves and general geographical discontinuity. The creation of the borders of modern Uzbekistan and Tajikistan is a good illustration of this: when Tajikistan was created, the two large historical capitals of Samarkand and Bukhara, which were mainly populated by ethnic Tajiks, were allocated to Uzbekistan. The construction of new national languages also contributed to division between the emerging nations.

A national Uzbek identity was thus established based on a series of codes rather than as a result of indigenous culture or local history. The former President Karimov's administration relied on this and sought to maintain the idea of a strong and modern Uzbek nation-state. The government based its legitimacy entirely on ethnic nationalism, a form of rule that can be summarised as a cult of strong power (or authoritarian presidentialism).

Today, tourism has taken on an important economic role in the historic cities of Bukhara and Samarkand. In the course of its shift from a command economy to a market economy, the major international organisations, such as the IMF and the World Bank, demanded a complete privatisation of the economy, the complete dismantling of the *kolkhozy* (collective farms), and the establishment of differentiated forms of ownership and control over land and production. However, the young republic remains hesitant to liberalise and appears reluctant to permit the emergence of an entrepreneurial class or welcome massive foreign investment.

3. Pre-Colonial Settlements

A look at village morphology in the Zeravshan Valley shows the success of previous and current adaptations to the diverse natural environment. Villages display a variety of forms, from concentrated, to semi-dispersed, to dispersed, while the complex division of the population, which is

distributed between higher mountain villages, foothills, and the alluvial plain, has had an impact on settlement dynamics and forms in this location. In the irrigated territory, settlements are usually grouped together in a kind of cluster of villages and can be found in proximity to a main artery, be it a canal used as a water resource or a main road such as the Tashkent–Samarkand–Bukhara caravan routes of ancient times. In the region of Samarkand, villages are concentrated around and strongly dependent on the canals, *aryks*, that run parallel to the roads. Away from the river, as the water resources decrease and the provenance of agricultural water shifts from irrigation to mainly rainwater, rural settlements become more dispersed or semi-dispersed. Communities that live around mountain oases survive by means of arboriculture, sericulture, and viticulture (which requires habitation in groups to bring together the necessary manual labour), and in this case their economy is also symbiotically linked with the lower plains area of the Zeravshan Valley.

The population of the valley is concentrated mainly between 600 and 1,200 m asl, an ecological zone where people can best benefit from mountain activities and cooperate with the farms of the plains area. The implementation of irrigation for agriculture has also historically allowed larger concentrations of people to grow; the two largest metropolises of the regions were Samarkand and Bukhara, which were in turn surrounded by rural populations (the *raions* of the Soviet era).

Following Alexander the Great's destruction of the old city in 329 BCE, Maracanda was reconstructed several kilometres south of its original location along the Zeravshan River. Arab travellers of the late 10th century described the city of Samarkand as a commercial centre organised into specific urban districts (Fig. 4): the *ark*, or high citadel; the *shakhristan*, or walled city; and the *rabad*, or suburbs, with their bazaars, baths, caravanserais, and artisan workshops (The Aga Khan Trust for Culture, 1996).

A network of channels brought water into the city, and a system of open-air basins was established. Houses were constructed using sun-baked bricks; from the 11th century onwards, the wealthiest patrons built their homes using kiln-fired bricks. However, following its destruction by the Mongols in 1220, the city was abandoned again and once more sprouted up elsewhere along the river.

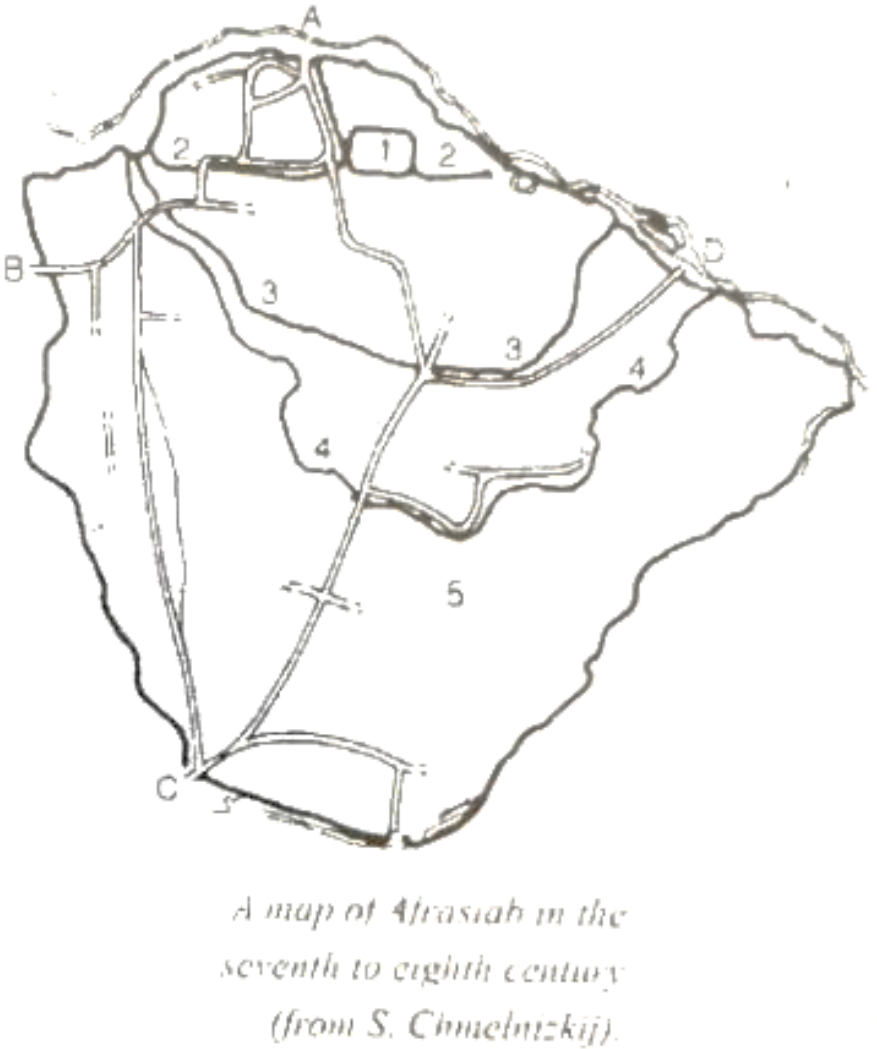

Fig. 4 - Map of Afrasyab in the 7th-8th century: 1 Citadel; 2 Walls around the Ark; 3-4 Wall around Shakhristan; 5 Rabad; A-C gates (from Aga Khan Foundation).

At the end of the 14th century, the newest iteration of Samarkand became part of the Timurid empire. As its capital, the city experienced a period of splendour. In developing Samarkand's layout, Tamerlane borrowed from Persian culture, which had left its mark on the Zeravshan Valley since the 10th century. The caravan routes, constituting the main commercial arteries,

met inside the city's main bazaar, where a covered dome market structure was conceived as an articulation point from which other commercial streets departed. The city's irrigation system was further developed, new walls were built, and new entrance gates were erected for those routes leading to other important commercial cities of the region. Caravans arrived at these gates and then converged at the centre of the city in Registan Square (lit: 'the place of sand'), a public marketplace and religious centre where significant representational buildings were erected (*madrasa*s, caravanserais, public bathhouses) during the rule of Timur. (Figs. 5-8). In 2009, the main ancient commercial road was blocked by a wall that was built to prevent traffic passing in front of the major monuments and to hide the old houses of the historic urban centre, or *medina*,[4] from tourists (Fig. 9).

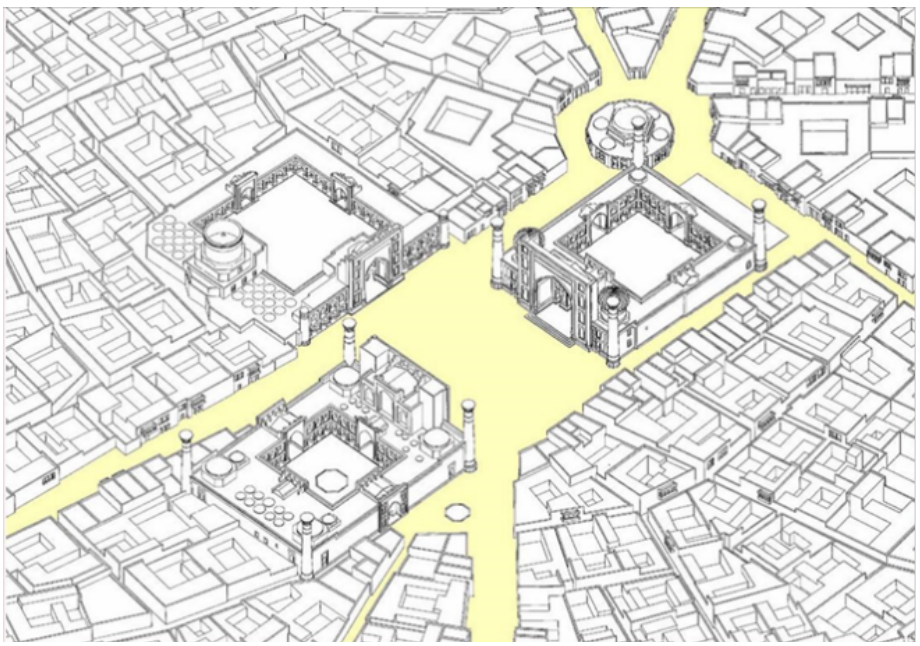

Fig. 5 - Registan square complex, hypothetical reconstruction (by Klaus Herdeg).

[4] Initially, the Arabic word *medina* simply meant 'the city'. With European colonisation and the creation of 'new towns' juxtaposed with the old *medina*s, the term shifted in meaning to designate the 'historic, traditional town'. A *medina* is characterised by its intersections with the surrounding rural areas and trading activities; in fact, a large part of a *medina* is occupied by bazaar spaces.

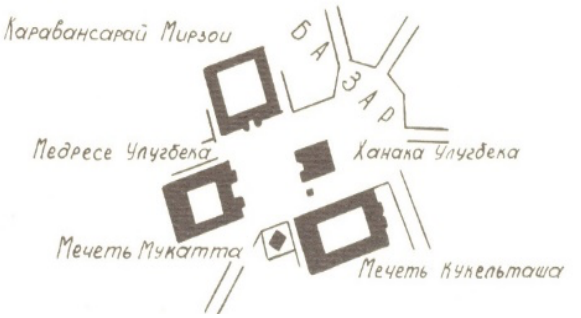

Fig. 6 - Registan square during Oulugh Beg, 15th century, and its buildings: Medersa, Mosque, Hospice, and Caravanserai (after Pougatchenkova, 'Chefs-d'œuvre d'architecture de l'Asie Centrale').

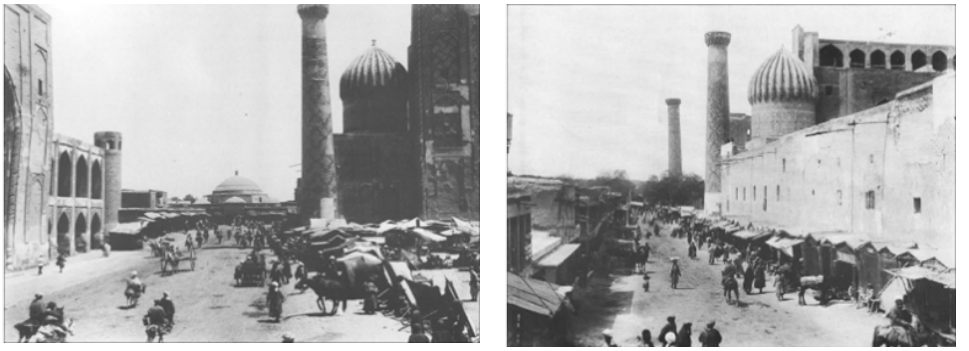

Fig. 7 - Registan main commercial road (Photos by P. Nadar 1890).

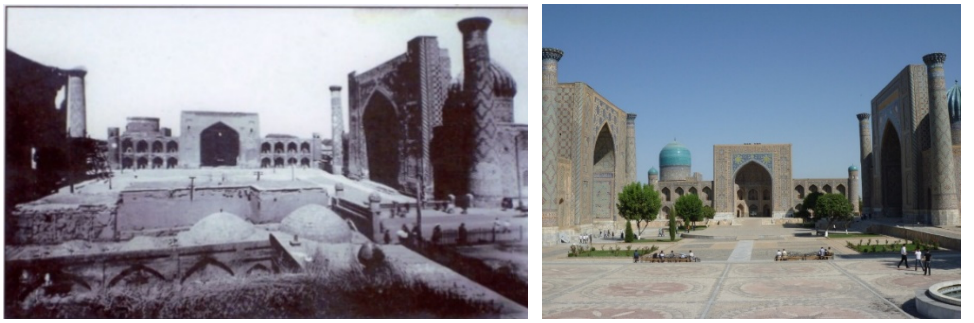

Fig. 8 - Left: Registan main commercial road before bazar's structures were cleared (Photo by H. Burhardt (1857-1909); right: Registan Square (2010, Courtesy of UNESCO).

Between 1403 and 1406, the Spanish ambassador Ruy Gonzalez de Clavijo (2006) journeyed to various principalities along the Silk Road, leaving behind a description of the lands and cities he visited. These writings are one of the most valuable sources on life in the city of Samarkand during this high point in its history. Clavijo paints a picture of a prosperous and densely populated city surrounded by orchards, vineyards, and noble and beautiful houses with rich pleasure gardens. He writes about the numerous bustling marketplaces with shops open day and night. Every day, caravans and camels passed through the city laden with fruit (melons in particular), silk from China, spices, fine stones from India, silver products from Iran, Byzantine cloth, and ceramics.

Samarkand was a multicultural city home to various ethnic groups. The so-called Silk Road was not only used by trade caravans but was also traversed by people of various religious beliefs; those persecuted by neighbouring states followed it to seek refuge in Samarkand, for example. In the late 14th century, Timur Beg brought craftsmen, engineers, and other skilled workers from several countries to the city. Architects from Iran made their mark upon the city, constructing the renowned Timurid palaces and ornamental gardens, which later inspired those of the Safavids and the Mughals and remained a prominent model for subsequent generations. Networks of canals and ponds lined with paving stones ran through the gardens, and fruit trees and roses gave the city the image of being a true paradise.

After Timur's death in 1405, the capital was moved to Herat, where Timur's son Shah Rukh ruled until 1447. From 1417, Shah Rukh's son, Ulugh Beg, developed Samarkand's central Registan Square and further embellished the city by erecting new religious buildings and caravanserais. A few hundred years later, the 17th century saw a new Uzbek dynasty reconfigure Registan Square with the construction of the Shir Dar *madrasa* on the eastern side of the square (1619-1636) and the construction of the Tila Kari *madrasa* on its northern side ten years later.

In the 18th century, Samarkand experienced a gradual decline, and nomadic raiders ravaged the region. It was only under the Bukhara emirs (1785-1920), who absorbed Samarkand into their domain, that the city returned to its former status as a regional market town as in its golden years of Timurid rule.

Fig. 9 - Registan Square transformations in 2008. A wall separates the medina space from the Registan complex (by the Milan Polytechnic).

4. The *Medina*

In the past, the fabric of the *medina* was extremely dense; the streets were narrow with a consistent characteristic sinuosity, resembling a labyrinth in which one can easily get lost. However, it was possible to find one's way through these small streets, which were defined by certain reference points and public gathering spaces, very often located directly in front of house doors. Any part of Samarkand within the *medina* was connected to a *mahallah* (a community-based neighbourhood) and a mosque, which was considered to be a meeting point for the entire community. Belonging to a *mahalla* had in fact traditionally played a palpable role in creating a sense of social cohesion within its community (Fig. 10).

A traditional house in Samarkand, such as those standing in the *medina*, was closed off from the neighbourhood, with its living space organised around a rectangular or square inner courtyard that was not visible from the outside. Though a house might have had a very modest exterior, its interior may have been characterised by exceptional opulence.

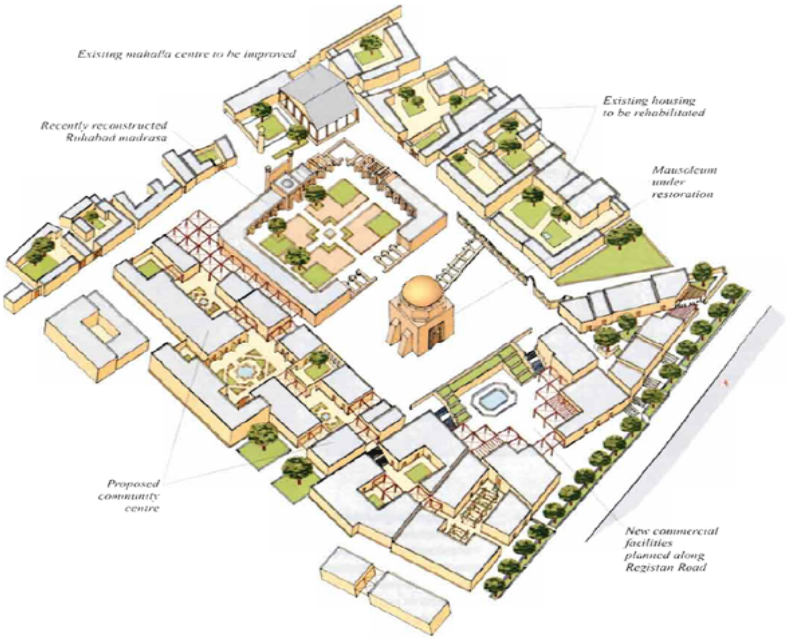

Fig. 10 - Typical pre-colonial district space organisation with *Mahalla* and dense habitat (from Aga Khan Foundation).

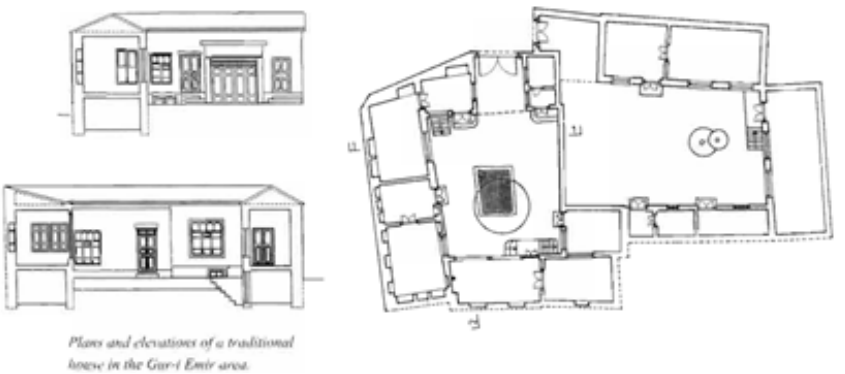

Fig. 11 - Late 19th century traditional houses with single and double courtyards (from Aga Khan Foundation).

The main room, or *iwan*, featured a high ceiling and was richly decorated, while other rooms had more flexible functions. The house was also divided into a winter area, with thicker walls and lower ceilings, and a summer area. The freshness of the central garden during scorchingly hot summers was doubled by the presence of *panjarab,* a practical solution for catching daylight without letting heat inside the rooms. To promote ventilation and thus provide some coolness to its inhabitants, these buildings were generally oriented to catch the wind from the north (Fig. 11).

Today, the style of residential architecture being built in the *medina* is undefinable because of its heterogeneity. The traditional building materials of sun-baked brick and wood have been replaced by kiln-fired bricks or cement. In some cases, the spatial organisation of the interior, however, remains similar to that of the historical houses, leaving these structures caught between a traditional spirit and a sometimes poorly executed attempt at contemporary architecture.

5. Russian imperial period (1868-1917)

With the arrival of the Russians in 1868, the medieval city pattern was suddenly confronted with a different urban model. The site of the ancient Timurid Citadel, the old place of power, was first to be modified. Its walls were demolished, and the old gates were completely transformed. The fortifications and the king's palace were also taken down to make way for new military buildings, a school, a church, and a military hospital. Starting from this symbolic centre of ancient power, Russian engineers laid out new roads and avenues towards the 'new city', which was designed according to the models of St. Petersburg and Moscow. The houses and the historical monuments of the *medina* were abandoned, though all of the water canals running through the city were kept in place (Fig. 12).

The new Russian section of the city (built in 1871) was developed to the west, according to a European model. Built under the Tzars, this phase introduced wide radial avenues and administrative buildings (such as the town hall and national bank) around which colonial and neoclassical houses surrounded by large gardens with pavilions were concentrated (Figs. 13-14).

Large radial avenues were connected to semi-circular and concentric axes at regular intervals of 200 m, starting from the Citadel, but any connection with the pre-colonial city was avoided or removed (Fig. 15). In a radical break with the urban design of the past, none of the new roads

joined any of the pre-existing ones, and the pre-colonial part of the city ultimately lost its importance as the urban centre of Samarkand and fell into ruin. Further destruction was caused by the opening of new routes through the old settlements. Though Registan Square had previously been a popular site for people to go to pray and to engage in trade, it had now lost its main function. The area was transformed into a veritable wasteland.

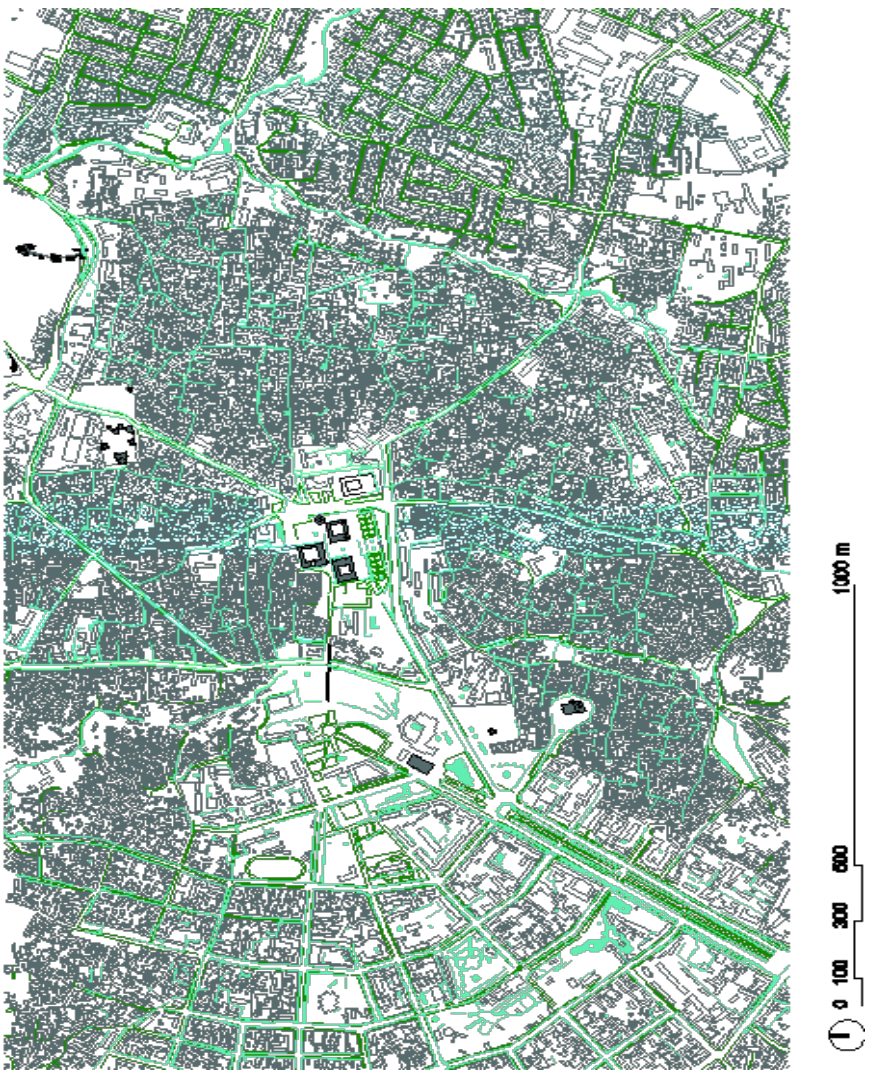

Fig. 12 - Graphic map of pre-colonial habitat and water channels distribution (from the Aga Khan Foundation. Elaborated by the Author).

Fig. 13 - 1872-1917, Tzarist urban pattern in purple (from Aga Khan historical development plan. Elaborated by the Author).

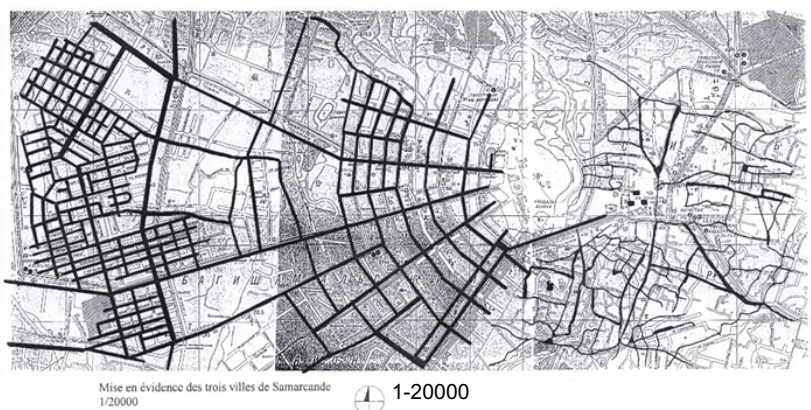

Fig. 14 - Urban street pattern development From left to right: pre colonial urban layout; tsarist urban layout; soviétic urban layout (from Aga Khan Foundation).

Fig. 15 - Left: Russian urban pattern with large avenues (from Google Earth); Right: Avenue in Russian Tzarist city in 2008 (photo by the Author).

6. Soviet period (1917-1991): Demolition, construction, and preservation

In 1924, Samarkand briefly became the capital of the Uzbek Soviet Socialist Republic until this was relocated to Tashkent in 1930. During the Soviet period, the colonial policy towards the ancient city was marked by ambiguity, oscillating between attempts to restore its built heritage and episodes of functional destruction. While the main monuments were preserved and restored, other modernisation efforts considerably changed the urban landscape. Large commercial roads were carved through the city, such as Registan Street and Tashkent Street, commercial streets that run from Registan Square to the Bibi Khanum Mosque and the site of the new Siab Bazaar (Figs. 16-18).

The Soviet leaders wanted to represent their presence in the old city centre, and as a result the pre-colonial zone underwent many functional transformations.

Fig. 16 - Map showing Soviet city building extensions. In red 1917-1958 ville sovietique (1917-1991) (from Aga Khan historical development plan. Elaborated by the Author).

Understanding the need for preservation on some level, they sought to rehabilitate the old centre, using commercial streets to literally reconnect it to the newer Russian districts in the west. In the 1920s, the many houses of the *medina* formerly surrounding the Registan area were cleared to make way for large parks (and, in more recent years, hotels) beside the isolated surviving monuments. The Bolsheviks carried out extensive restoration work on Registan Square itself (Fig. 19), stabilising the minarets, rebuilding the domes, and removing the sand that had accumulated on the square; subsequently, they used it as a stage for organising political demonstrations. Major roads were opened in the *medina* (Registan Street and Tashkent Street, mentioned above).

6.1 The functional rehabilitation of historical buildings

As early as 1918, Lenin signed a decree calling for monuments to be listed and all those that might have a religious connotation to be demolished; this Communist campaign against religion continued until 1940. The government began attacking the institution of the *mahallah*, and religious properties were expropriated as part the systematic dismantling of Islamic institutions, while mosques and *madrasa*s were brought under the direct control of the government.

Meanwhile, new 4/5-storey blocks were built along Registan Street opposite Registan Square, in the middle of the historic centre, partially demolishing the houses of the *medina* in the process. Inhabitants were evicted and relocated to large Soviet-style housing estates, a process that happened systematically throughout the USSR and was replicated in Samarkand without taking into consideration the climatic or cultural differences of the region. The Registan complex itself was transformed to accommodate tourists.

Another hallmark of the Bolshevik's pragmatic approach was that many public buildings, particularly those related to religion, were not destroyed but rather given a new function that erased their history of pre-Soviet activities. The Ulugh Beg *madrasa* on Registan Square, originally part of the Registan complex, was used as a grain warehouse, for example. The House of the Soviet and the headquarters of the Communist Party were erected in the old Citadel, an historically symbolic place of power. Subsequently, in the 1950s and 1960s, various public administrative and cultural buildings, such as the Opera Theatre, were also built in that area.

The only possible culture was that of the proletariat, and historic buildings, now belonging to the people, were transformed into places of propaganda, celebration, and commemoration. It was not until 1961 that more protective heritage laws were drawn up to safeguard the preservation of the historic centre of Samarkand. An inventory of historic buildings was also created at this time, though ultimately it was the lure of attracting tourism that stood behind this new attention to the old town.

Fig. 17 - Tashkent Street, 1890 (Photos by P. Nadar).

Fig. 18 - Before (above) and after (below): Tashkent Street, from Registan and reaching Bibi Khanum and the new bazaar, Siab (M. Colla, 1997-98).

Fig. 19 - Left: Restoration work during Soviet periods of Registan *madrasa*s (Photo by P. Nadar); right: the Registan madrasa today.

6.2 Master plans and old city development

A first master plan for Samarkand was developed in 1938 and foresaw the completion of the radial plan begun during the Russian imperial period in 1870. Main monuments became focal points for the new roads that cut into and through the *medina* area. New master plans for the development of the city were drawn up in 1960 and in 1980 (Fig. 20). Both of these abandoned the previous radial plan, as its execution would have been too expensive and would have required further demolitions (Fig. 21).

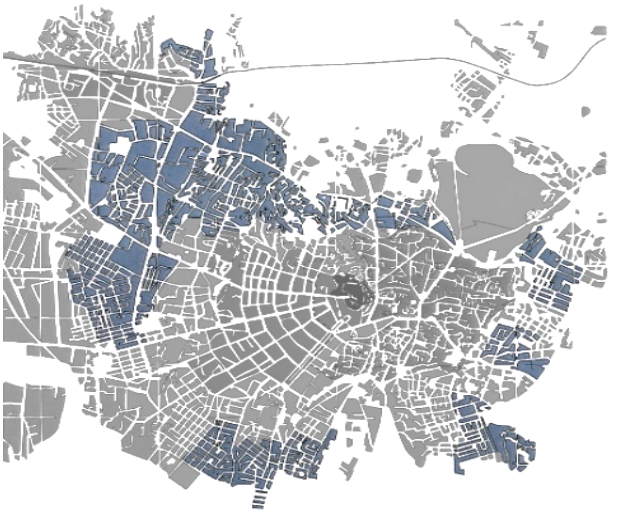

Fig. 20 - Soviet master plans development in blu color, 1958-1972 (Aga Khan Foundation).

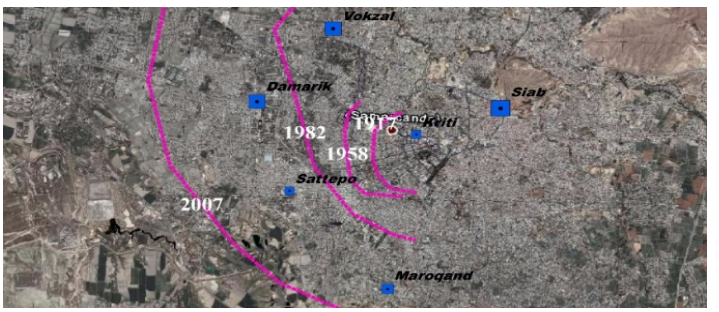

Fig. 21 - Urban development over time indicated by purple lines, 1917-2007 (Courtesy, Italian-Uzbek Archaeological Mission).

As the population increased throughout the mid-20th century, the city continued to expand between the Zeravshan River and the Dargom canal, and an industrial district was also created in that area (Fig. 21). From 1969 to 1970, the historic centre was emptied of its residents and devoted entirely to activities related to tourism. The lack of sanitary conditions and water in the old houses of the *medina* led their inhabitants to move to the new Soviet buildings, which were richer in modern comforts. The 1960s and 1970s also saw the historical monuments begin to receive international attention (with the 1964 International Charter on the Conservation and Restoration of Monuments and Sites and the 1972 UNESCO World Heritage Convention), and local urban policies evolved to ensure more systematic protection of the pre-colonial districts.

These changes paved the way for the master plan of 1980, which also reflected the increasing cultural and touristic importance of Samarkand. The urban scheme of 1980 proposed a central axis connecting the historic centre and the newly developed areas in the southern part of the city. New large roads were to be constructed within the old Timurid city in order to fulfil the main objective of this plan: a monumental area that harmoniously integrated the old city with the new constructions and infrastructure. However, the 1980 plan was ultimately only partly realised (Fig. 22).

When the Soviet Union collapsed in 1991, the *medina* area suddenly became the most coveted real estate in Samarkand – a distinct change from the century before. Empty lots were purchased as investments for tourism development, while the few remaining inhabitants began selling their houses to Westerners. Functional rehabilitation was no longer the prerogative of the government, and private actors began to appear on the stage. The medieval part of the city was again undergoing important changes, shaped now by the more lucrative tourist industry. Some inhabitants tried to take advantage of tourism and use part of their houses as bed and breakfasts or private hotels, yet the government maintained total control over tourism as large new hotels sprang up in the city. As of 2008, local people participating in the tourism sector still could not take full advantage of its economic benefits.

Fig. 22 - Urban development Master Plan (from Aga Khan Foundation).

6.3 The Soviet social housing programme: Microrayons, or grouped habitat organisation

After the end of the Second World War, the population of Samarkand increased with the arrival of people from across the USSR. New residences (apartment blocks) containing several flats were built to house them, and working-class people were resettled in close proximity to their industrial place of work. Utilitarian spaces (such as the toilet, kitchen, and bathroom) were shared by several families. Large green spaces in front of the buildings or in the courtyards served as children's playgrounds.

Following the uniform organisational scheme applied across all cities within the USSR, the modern Soviet residential city was composed of apartment blocks that also contained all necessary services, such as shops, an internal committee to solve local problems, and public gardens. Public institutions were at their centre. The Soviet urban model consisted of residential and industrial areas that contained a population of 40,000 inhabitants. These '*radii*' were divided into neighbourhoods of 10,000 inhabitants, called '*micro-rayons*' (Fig. 23). Like the apartment blocks, each district included all necessary social facilities. Between 1959 and 1965 (during the Khrushchev era), these complexes were built on the outskirts of the modern city. From the middle of the 1970s to the end of the 1980s, construction continued along the same typology in peripheral districts for industrial workers (with Sattepo and Sogdiana in the south and Vozkal in the north), (Fig. 24).

Fig. 23 - *Microrayons* built from 1958-1980 (Google Maps).

The *microrayons*' buildings were constructed using standardised, prefabricated materials, reflecting the prevailing ideal of equality, technology, and progress. Initially, the houses were 4/5 storeys high; later they reached up to 10 floors. The buildings were well-equipped with water and heating, but they were not designed with the local climate in mind, and the concrete flats became extremely hot during summer. Another drawback was their relatively small size: each flat allowed for 8 m^2 per person, though a traditional Uzbek house possessed 30 m^2, including the garden. Some of these housing blocks contained up to 500 flats for more than 2,000 people, constituting self-sufficient villages – a city within a city. Samarkand's new districts thus increasingly resembled the suburbs of Moscow and other cities throughout the USSR and its sphere of influence (Figs. 25-26).

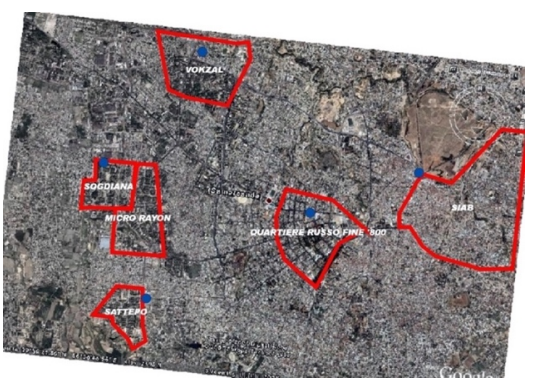

Fig. 24 - New residential areas developed to the west of the city near the industrial zone (Courtesy of the Italian-Uzbek Archaeological Mission).

Fig. 25 - Right: New soviet buildings. Left: Soviet city planning around residential and industrial areas called *rayons.*

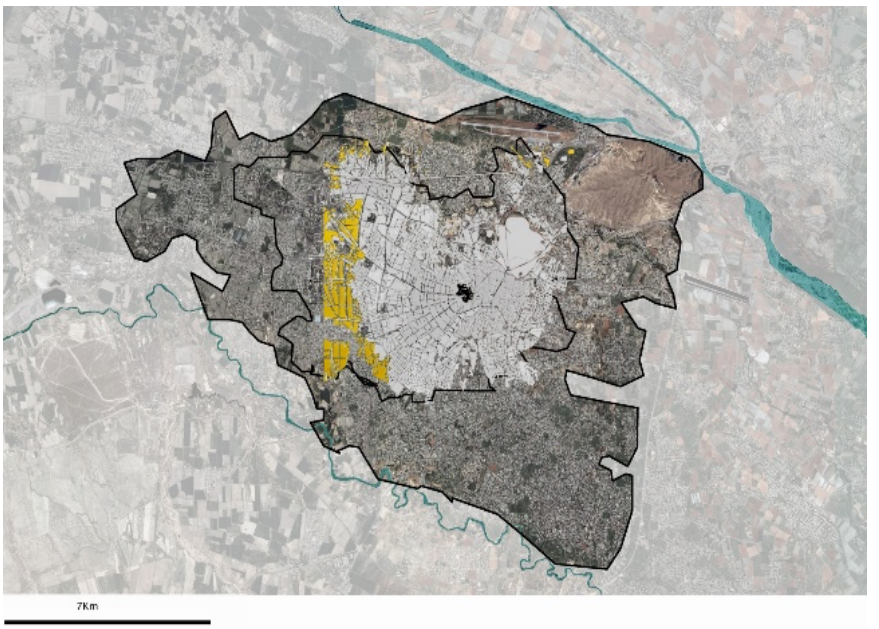

Fig. 26 - New urban agglomerations after independence in 1991 (Source(s). Elaborated by the Author).

7. Closing remarks

Overall, the city of Samarkand has undergone radical urban transformations. During the Russian occupation, irremediable destruction was caused to the *medina* area, though the city's main symbolic historical monuments were nevertheless preserved and in some cases reconstructed or

restored. The area around Registan Square was one of the most affected by demolitions during the Soviet period. The large *madrasa*s in the main square are currently well-protected, but the empty space created around them still reflects the consequences of previous urban policies. Having lost their original function as religious schools, the *madrasa*s are now occupied by craft merchants or make up a vast shopping area with nightly folk music concerts targeted at tourists.

As of today, the trend in the city's urban development continues along the lines of the Soviet policy. Water management continues to pose difficulties, and traditional settlements in the *medina* are still being demolished to make way for new larger roads that are better suited to automobile traffic and tourism. Without policies in place to prevent this kind of development, the Samarkand of the future will thus surely lack a significant number of its historical pre-Soviet features.

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In Memoriam (2000-2025)

A Problematical Toilet-tray from Uḍegrām

Maurizio Taddei[†]

Abstract

The so-called "toilet trays" are particularly important for the genesis of Gandharan figurative art. These objects are characterized by a figurative part and concave divisions. These small plates, most probably "libation trays" (Falk 2010), are associated to urban contexts dated from mid-1st century BCE to mid/end-1st century CE. After this date, their production ceased. This chronological limit is particularly important because it coincides with the end of the Saka-Parthian kingdoms and the beginning of control of the territory by the Kushana imperial power. H.-P. Francfort (1979) distinguished these trays into three main types: type A: "Hellenizing," type B: "Parthian," type C: "Indian," or rather "Indo-Scythian" (Lo Muzio 2002, 2011, 2018). The tray presented in this article (type C) belongs to the latter category. Made of gray chlorite schist, it dates back to the 1st century BCE in Uḍegrām (UD 370). The plate has nine partitions, with the central square that features three male busts facing forward. In front of them hang what appear to be banquet tablecloths, but which Taddei interprets as lotus petals. Although dated sixty years ago, the article is an extraordinary gem of insight and acumen by Maurizio Taddei, who was always attentive to the archaeological context and Eurasian models with an eclectic and disciplined eye, but above all gifted with a visual memory for ancient art in general (not only Gandharan or Indian) with expertise that fully encompassed 14th-century Tuscany. [LMO] [1]

Keywords: Toilet-trays, Saka, Uḍegrām, funerary banquet.

[1] This article was originally published with this title in *East and West*, 16, 1/2, pp. 89-93. Its inclusion in this issue is due to the editorial team's desire to honour the memory of the scholar 25 years after his death. Maurizio Taddei (1936-2000) was a long-time member of the Italian Archaeological Mission in Pakistan, then Director of the Italian Archaeological Mission in Afghanistan from 1967 to 1977. A great scholar of Indian art, he was Rector of the Instituto Universitario Orientale of Naples (1981-1984) and then Director of the Italian Archaeological Mission in Pakistan from 1996 until his death. For more on his life and work, see Gherardo Gnoli (2000) Maurizio Taddei, 1936-2000, *East and West*, 50, n. 1-4: 544-564. Permission to publish has been graciously granted by *East and West* and Prof. Taddei's family.

[89] Among the objects found in the so-called "bazar" of Uḍegrām (Swat) during excavation there carried out by Prof. G. Gullini (of the Italian Archaeological Mission directed by Prof. G. Tucci) a toilet-tray from stratum I deserves our particular attention.[2] Though its existence was made known at the time of the Exhibition of Pakistan and Afghanistan Excavations in 1960,[3] it is still practically an unpublished find (Figs. 1-2).

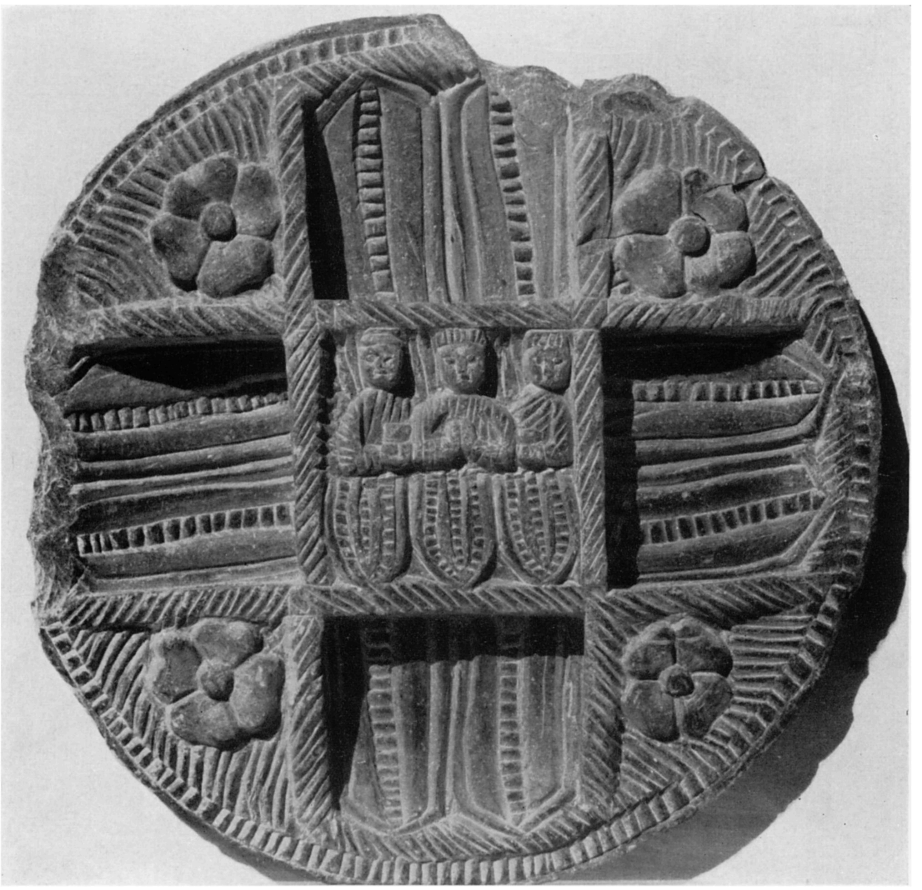

Fig. 1 - Toilet-tray from Uḍegrām (Swat). Italian Archaeological Mission, Saidu Sharif.

[2] Of schist, 16,5 cm. in diameter. On the Uḍegrām excavation, see G. Gullini, "Uḍegrām", in *Report on the Campaigns 1956-1958 in Swat (Pakistan).* (IsMEORepMem I), pp. 173 ff.

[3] G. Gullini, in *Attività archeologica italiana in Asia. Mostra dei risultati delle Missioni in Pakistan e in Afghanistan*, Torino-Roma 1960, p. 32, no. 26, pl. III.

The tray is divided by four listels into five panels arranged in the form of a cross and into four triangular panels that fill in the remaining spaces. The four arms of the cross are each diversified by lotus petals and each of the triangular zones decorated with a four-petal rosette, while a scene with figures is the motif of the central panel. In fact, three half-bust figures are here represented: the central one is portrayed full-face with hands joined in front of the chest, whereas in the two lateral ones, the face is in full, but the torso in three quarter, view. The latter are holding an object in their hands which is certainly a cup in the case of the figure to the left and probably the same where the figure to the right is concerned.

The execution is somewhat approximate, and of the dress worn by these three persons (they all seem to be male figures) it can only be said that it is, perhaps, a long-sleeved tunic. As to hair arrangement, it seems to be in the form of a melon in the central and right-hand figures, while the left-hand one has no apparent sign of hair which makes me think it likely that the head is covered by a hat. Below the three busts three bands are visible with beaded edge and central rib. Rather than "drapes",[4] these are to be identified as lotus petals; and a further three can be glimpsed behind the heads of these figures. They were, then, conceived of as emerging from a corolla, and we can thus dismiss the notion that the marks carved in the lower half are meant to indicate haloes. This way of portraying figures is not without a parallel in toilet-trays (e.g., in an unpublished one seen on the Karachi market of antiques and here reproduced in Fig. 3):[5] but in this toilet-tray the intention is clearly to depict figures actually surrounded by a corolla.

Let us make the point, to begin with, that this scene has much in common with one familiar in a fair number of Taxila toilet-trays where a pair of figures (usually a man and **[90]** a woman) bearing cups[6] are portrayed. Here, there is the addition of a third, and central, figure.

Plainly, there is a dearth of characterising features that would allow sure identification of the scene: the comparisons possible are, moreover, numerous and varied, but in none of them is there a regular correspondence in every one of these scanty features. We must, then, be content with a few suggestions relating this object to one religious and

[4] *Ibid*. (English ed.).
[5] Diam. 15 cm.
[6] J. Marshall, *Taxila*, Cambridge 1951, pp. 493ff., pl. 144, nos. 67-71.

cultural background rather than another, but not such as to label it once and for all.

The very composition of the scene with its three frontal, rigid figures[7] performing extremely simple gestures leads us to attribute a liturgical, or at any rate religious, character to it. If, as seems evident, we are here face to face with a libation scene, no thought of anything profane can enter our minds. This is also confirmed by the lotus petals from which the figures emerge: these would in no way be justified in the case of three ordinary mortals attending a common banquet. It might well be a scene, then, similar to those already familiar in the Taxila toilet-trays (drinking couples, banquets) with the addition of the lotus corolla of which more anon.

Fig. 2 - Detail of Fig. 1.

[7] The fact that the torsoes oft he two lateral figures are seen in three quarter view does not, of course, affect the "frontal" character of the representation.

There is, however, a one and only feature that may enable us to push our research a little further: the hat worn by the figure on the left. It is difficult to imagine it to be a chignon, for we would then have to account for the absence of incisions to indicate the hair. Now the only type of headgear that seems plausible is the Phrygian cap that, from a frontal view, has a two-tiered appearance.[8]

This is a detail immediately suggesting a possible connexion with Mithraic iconography. Let us, in fact, examine a Mithraic relief (albeit much later) from 4th century Dalmatia.[9] Cumont has shown that it is a sacred banquet representing the ritual repetition of the feast celebrated by Mithras and Sol before Mithras' ascent. Two figures are lying on a couch and surrounded by four initiates of different ranks of whom *Corax*, *Persa* and *Leo* may be recognised.[10] Of these, *Persa* is wearing a Phrygian cap and offering a *rhyton* to the banqueters. The analogy is evident but we are not for this reason entitled to look upon it as significant.

Let us bear in mind the entire series of Mithras and Sol banqueting scenes so common in Mithraic reliefs[11] which lend themselves so readily to comparison with the drinking couples of the Taxila toilet-trays. In this connexion, it should be observed that one of the latter[12] portrays a couple of busts that could both belong to male figures like those **[91]** appearing on a Rang Mahal vase (Rajasthan).[13] In the other trays the presence of the female figure may well be due to a tendency to Indianize the subject transforming the solar couple into a *mithuna*, as is suggested by the Taxila tray no. 70 which appears strongly Indianized as regards style also.

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[8] Cf. *Sculptures Butkara I*, pt. 3, pl. DCLXIb: second from the left, which has been wrongly described by me.

[9] Sarajevo, Archaeological Museum; from Konjic: F. Cumont, *Les mystères de Mithra*, 3rd ed., Bruxelles 1913, pp. 163 f., fig. 21; *Corpus Inscriptionum et Monumentorum Religionis Mithriacae (cited CIMRM),* II, Hagae Comitis, 1960, p. 265, no. 1896, fig. 491.

[10] On degrees of initiation, see above all Cumont, *Les mystères…,* cit., pp. 155ff.

[11] *Les mysteres...,* cit., pp. 155 ff. (10) *CIMRM*, II, nos. 1648, 1740, 1975, 2050, 2051, 2052, 2181, 2338 and *passim*; cf. also *CIMRM*, I, 1956, nos. 693, 782 (with three figures).

[12] Marshall, *op. cit*., loc. cit., no. 67.

[13] H. Rydh et al., *Rang Mahal*. The Swedish Archaeological Expedition to India, 1952-54, Lund, 1959, p. 157, pl. 73, and p. 158; cf. also M. Taddei, "An Ekamukhaliṅga from the N. W. F. P. and Some Connected Problems", *EW*, XIII, 1962, p. 296, note 11.

Nor must we lose sight of the fact that the pair of figures making libation is represented on the solar chariot in two toilet-trays: one from Uḍegrām, and the other preserved in the Berlin Museum für Völkerkunde.[14] That there is a connexion between the communion scene (the banquet) and that of the ascent (solar chariot) both in a generally religious and funerary context is a detail not worth dwelling upon.[15] But I should like to recall a particularly striking example - that of the large gold triangular plaque from the Karagodeuašh mound (Kuban).[16] Here in a panel the Great Goddess is visible in the centre of a communion scene according to a scheme corresponding to the Uḍegrām tray, and placed above it is a solar chariot whose form, Rostovcev (*sic*) hesitantly remarks, "is influenced by the type of Helios, but the god... is the great Iranian sun-god, the Sol Mithra of the Roman Empire". At the top of the Karagodeuašh plaque is the standing figure of a Tyche which Rostovcev (*sic*) believes can be identified "with the Iranian Hvareno".

We are, then, dealing with a phenomenon of religious iconography whereby "the aniconic Iranian religion... became peopled with divine images, created by the Greek artists and no doubt accepted by the Scythian devotee";[17] it has its analogy, even though distant in time, with what occurred in Gandhāra Buddhism. We are, in fact, witnessing an intrusion by Near Eastern iconographical features (ones that are Mithraic or in touch with a Syrian religious environment) that are adapted to meanings inherent in Mahāyāna Buddhism.[18]

Confining ourselves for the moment to the toilet-trays alone, it seems difficult to admit, as Buchthal does,[19] that "for the Indian artists these figures and scenes were genre motives of purely decorative value", even if it can be readily accepted that nothing, or almost nothing, of their original mythological significance remains. It is my view that much

[14] Taddei, *op. cit.,* figs. 22-23.
[15] See in particular F. Cumont, *Lux Perpetua,* Paris, 1949, pp. 291f.
[16] E. H. Minns, *Scythians and Greeks*, Cambridge 1913, pp. 216 ff. and *passim*, fig. 120; M. Rostovtzeff, "Le culte de la Grande Déesse dans la Russie Méridionale", *Revue des Études Grecques*, XXXII, 1919 (1921), pp. 462-81; Idem, *Iranians and Greeks in South Russia*, Oxford, 1922, pp. 104 f., pl. XXIII 1; G. Vernadsky, *Essai sur les origines russes*, I, Paris, 1959, p. 81, pl. V, fig. 6.
[17] Rostovtzeff, *Iranians and Greeks*..., cit., p. 108.
[18] Cf. H. Buchthal, "The Western Aspects of Gandhara Sculpture", *Proceedings of the British Academy*, XXXI, 1945.
[19] *Ibid.,* p. 7 (of the off-print).

research still needs to be done into the religious value of the numerous western iconographies assimilated by the north-western region of India: by drawing attention to this toilet-tray I merely wish to add one more piece to the jigsaw puzzle that I hope can in time, though with much labour, be fitted together.

[92] Moreover, that the opinion of Buchthal is not to be adhered to in this instance at least is proved by the lotus corolla from which the three busts emerge — a sure sign that the subject represented is of religious significance.[20] But it is not easy to say what this significance is: comparisons with figures emerging from flowers or palmettes in classical art or in works deriving from classical models are anything but scarce;[21]

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[20] Regarding divine figures on lotus flowers, see especially: E. Bielefeld, "Eros in der Blüme", *AAnz*, 1950-51, cols. 47 ff.; S. Morenz-J. Schubert, Der Gott auf der Blume. *Eine ägyptische Kosmogonie und ihre weltweite Bildwirkung* (*Artibus Asiae*, Supplementum XII), Ascona, 1954; among the latest contributions to the subject: Y. Krishan, Symbolism of the Lotus-Seat in Indian Art, *OrA*, XII, 1966, p. 36-48. In this connexion, we may perhaps recall the flowers with articulated petals known also in the West: e.g. the one in the Cairo Museum that probably dates from the Ptolemaic age and contains a small image of Horus: G. Daressy, *Catalogue general des antiquites egyptiennes du Musee du Caire. Statues de divinites*, I, Le Caire, 1906, pp. 63 f., no. 38222, pl. XI.

[21] See L. Curtius, "Republikanisches Pilasterkapitell in Rom", *Römische Mitteilungen*, XLIX, 1934, pp. 22-32; J. M. C. Toynbee, J. B. Ward Perkins, Peopled Scrolls: a Hellenistic Motif in Imperial Art, *Papers of the British School at Rome*, XVIII (NS, V), 1950, pp. 1-43; A. P. Ivanova, "Mestnie motivi v dekorativnoi skui'pture Bospora", *SA*, XV, 1951, p. 197 (whose opinions are briefly summarised in G. Azarpay Laws, A Herodotean Echo in Pompeian Art?", *AJA*, LXV, 1961, pp. 31-35); H. Jucker, *Das Bildnis im Blätterkelch. Geschichte und Bedeutung einer römischen Porträtform*, 2 vols., Olten-Lausanne-Freiburg i. Br., 1961; D. Schlumberger, P. Bernard, AI Khanoum, *BCH*, LXXXIX, 1965, pp. 645 ff., and above all note 4 on p. 650 (with further bibliography). Busts emerging from foliage are very frequent in Sasanian glyptic, but are not lacking in toreutics: see e. g. M. S. Dimand, A Group of Sasanian Silver Bowls, in *Aus der Welt der islamischen Kunst*. *Festschrift für Ernst Kühnel*, Berlin, 1959, pp. 11-14. As evidence of the means by which the motif spread, it is worth recalling the hunting putti emerging from foliage or from a flower on fabrics found in Mongolia but imported from the West: *Kratkie otcety ekspedicij po issledovanijo severnoj Mongolii* (Akademija Nauk SSSR), Leningrad, 1925, pp. 28 f., fig. 8, pl. 4; M. Rostovtzeff, *The Animal Style in South Russia and China*, Princeton, 1929, pp. 85 f., pl. XXIV A 1; S. I. Rudenko, *Kul'tura Hunnov i noinulinskie Kur gany*, Moskva-Leningrad, 1962 (*non vidi*; reviewed by O. Maenchen-Helfen, *AAs*, XXVII, 1965, pp. 365 ff.). I forego quoting examples of Gandhāra art since the subject merits a study of its own; but it may perhaps be recalled that busts of *deva*s and centaurs which, emerging from acanthus and suchlike leaves, decorate brackets and *nāgadanta*s (false brackets: see e.g. *AGBG*, I, fig. 89) seem to derive from analogous rep-

yet to my mind of scant significance. It is perhaps more pertinent to make a comparison with some Gandhāra figures (also of classical derivation) which are generally interpreted as *kiṃnara*s: they emerge from a lotus flower and are sometimes grouped in three though not within the same corolla.[22] Such semi-divine images gave rise to those analogous Central-Asian *kiṃnara*s[23] which grew into a real decorative motif without forfeiting any of their religious meaning.[24]

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[93] What conclusions, then, can be drawn at this stage? Since this object is unique of its kind, it is as well not to go beyond a few sure notions or at least those that are least uncertain.

1) The scene depicted on the Uḍegrām tray is embodied in terms that are not human as is shown by the fact that the figures emerge from a lotus flower.

2) Such a scene must be interpreted as a ritual banquet.

3) The presence of a personage with a Phrygian cap (?) is reminiscent of Mithraic environments with which north-west India, as we know, had close ties.[25]

What we have been studying, then, is probably an Oriental counterpart of the various *cenae* whose formation and primitive development in Christian iconography is not to be divorced from that

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resentations in classical *rhyta*: see e.g. E. Breccia, *Terrecotte figurate greche e greco-egizie del Museo di Alessandria* (*Monuments de l'Egypte gréco-romaine*, II 2), Bergamo, 1930, pp. 73 f., no. 477, pl. XIX 7; A. Adriani, Rhyta, *Bulletin* [*de la*] *Société Royale d'Archéologie*, Alexandrie, NS, X, 1939, p. 355, fig. 2. But see also the *rhyta* from Nisa: M. E. Masson, G. A. Pugacenkova, *Par fjanskie Ritony Nisy iz kuVturnogo nasledija Turkmenskogo Naroda*, portfolio (Juzno-Turkme nistanskaja Arheologiceskaja Kompleksnaja Ekspe dicija), Moskva, 1956, *passim*; R. Ghirshman, *Iran: Parthes et Sassanides*, Paris, 1962, p. 30, pl. 41.

[22] See *AGBG*, II, pp. 20-22 (for the name); *GAP*, nos. 255,366, 368.

[23] For instance, N. V. D'jakonova, S. S. Sorokin, *Hotanskie drevnosti*. *Terrakota i štuk*, Leningrad, 1960, pls. 8, 9, 46; L. Hambis, ed., *Toumchouq* (Mission Paul Pelliot I-II), Paris, 1961-1964, pp. 386-88, fig. 454.

[24] Suffice it to recall that in Central Asia even the image of the Buddha, repeated countless times, becomes a decorative feature.

[25] For the relations between Buddhism and Mazdeism, see above all: A. C. Soper, "The Roman Style in Gandhara", *AJA*, LV, 1951, pp. 301-19; *GAP*, p. 36; E. Lamotte, *Histoire du Bouddhisme Indien, I: Des origines à l'ère Śaka*, Louvain, 1958, pp. 783-85; J. Duchesne-Guillemin, *La religion de l'Iran ancient*, Paris, 1962.

Roman funerary symbolism that was likewise closely linked to Mithraic iconography.[26]

But no solution can now be given to the chief problem concerning both this tray and many other Gandharan reliefs, that is, what connection exists between them and Buddhism. In my opinion only a thorough examination of the three aspects of Gandharan art — stylistic, iconographic and religious — taken as a whole can lead us to a satisfactory solution of it; but too many invaluable documents remain unpublished. I hope that the reader will forgive me for this preliminary approach to the iconographic questions raised by the Uḍegrām tray.

Maurizio Taddei

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[26] For the parallelism between Christian and Buddhist iconography, see H. Buchthal, "The Common Classical Sources of Buddhist and Christian Narrative Art", *JRAS*, 1943, pp. 137 ff. For the influence of Mithraism on Roman sepulchral imagery, see E. Strong, *Apotheosis and After Life*, London, 1915, pp. 187 ff.

[27] To the abstract.

Fig. 3 - Toilet-tray N.W.F.P. *Location unknown*.

List of abbreviations

AAnz	—	*Archäologischer Anzeiger*
AAs	—	*Artibus Asiae*
AJA	—	*American Journal of Archaeology*
BCH	—	*Bulletin de Correspondence Hellénique*
EW	—	*East and West*
JRAS	—	*Journal of the Royal Asiatic Society*
OrA	—	*Oriental Art*
SA	—	*Sovetskaja Archeologija*

Maurizio Taddei (standing on the right), with Vittorio Caroli and a local worker; Butkara I, 1958 ("Archivio D. Faccenna" Italian Archaeological Mission in Pakistan, Saidu Sharif)

The Cultural Geography of Kot Dijians on the Indus and Beyond: A Comparative Analysis of Kot Diji and Sarai Khola Pottery Assemblages

Mehar Ali / Zaheer Ahmad Shaikh / Rashid Ali

Abstract

Kot Diji culture refers to the prehistoric people of the Indo-Pak subcontinent, predating the urban Harappan (Indus Valley) Civilization. This is called the pre-Harappan period, which began around 3300 BCE and continued until 2800-2600 BCE. It was first identified at the site of Kot Diji in 1958, with a distinguished craft and technological sophistication, and a simple but standardized living style with homes made mainly of stone and mudbrick. The ceramic style differs from that of the Harappans, with commonly thin, lightweight, short-necked, short-rimmed vessels, wide black colour bands on the neck, community ovens, and fortifications. Moreover, until the 1970s, the geographical limits of the Kot Dijian occupation were considered to be in Sindh. But now, throughout the Indus region and beyond, the Kot Dijian occupation has been discovered, for example, at Burzahom, Kashmir; Kunal, Haryana; Gujarat; Cholistan; Baluchistan; Tuchi Gomal in the Gomal Valley; and Sindh. This essay relies on pottery specimens from the Kot Diji and Sarai Khola sites because, based on regional variation, the same period and culture spread across a large landmass with various geographical and ecological zones, exploiting its resources. Now, in this paper, we are comparing this cultural expansion to the wider limits, ever happened to any culture before the existence Kot Dijians.

Keywords: Kot Diji, Sarai Khola, Cultural Geography**,** Early Harapan, Indus Civilization.

1. Introduction

Prehistoric records from the Indo-Pak subcontinent indicate that several civilisations gradually emerged from early nomadic societies. This evidence has been documented through multiple disciplinary approaches. For example, it is now established that the Harappan Civilisation was developed by populations inhabiting the Indus plains and western highlands, extending to the modern borders of Pakistan and Iran (Possehl 1986). As Mughal states that “at Mohen jo Daro […] during the initial excavations in the 1920’s and early 1930’s, the archaeologists recovered early materials from two deep pits, but they did not, at that time, understand that these materials were significantly different from the mature Harappan materials. Then, in 1932, E. J. H. Mackay found some potsherds in a pit 42 feet deep, potsherds which he assigned to ‘early' levels” (Mughal 1974: 107).

Prevailing paradigms regarding the evolution of the Indus Civilization shifted significantly after the late 1950s and further evolved during the 1970s, when Mughal identified distinct cultures in the Cholistan and Baluchistan regions that predated the Mature Harappan phase of the Indus Civilization. Mughal introduced the term "Early Harappan" to describe these cultures, which emerged in a developed and organized manner from the mid-fourth millennium BCE (Mughal 1970; 1974). In those cultures, the Kot Diji and Amri were the more advanced, and the Kot Diji expanded over a large area in the early third millennium BCE and eventually merged into the urban Harappan/Indus about 2600 BCE. This paper discusses the Kot Dijian expansion, whether it was an occupational expansion or was merely trade interconnectedness with other existing communities in different South Asian region majorly in Sindh, Baluchistan, KPK, Punjab, Rajasthan, Gujarat, and Haryana.

As trade interactions extended beyond the Indus Valley Civilisation, the exchange of goods among early Harappan communities facilitated the emergence of a more advanced and organised system (Mallah *et. al*. 2002). This process contributed to the formation of one of the world's most significant and ancient civilisations. Although contemporary civilisations exhibited their own advancements, their primary interactions remained commercial. Sindh, or the lower Indus Valley, provided a substantial food-producing environment but lacked most natural resources aside from soil and water. In contrast, highland regions contained more abundant resources or raw materials. A pattern established during the early Harappan Kot Diji period and persisting into the Mature Harappan phase, as demonstrated at sites such as Mohenjo-Daro, Chanhu Daro, Kot Diji, and other locations in Sindh with Kot Diji occupation.

This research presents a comparative analysis of the cultural geography of the Kot Dijian people. Pottery styles characteristic of the Kot Diji period have been analysed from two principal sites: Kot Diji, located on the left bank of the Palaeochannel of the Indus River in Khairpur district, Sindh, and a site in the Upper Indus Valley within the Pothohar Plateau. These sites are approximately 900 kilometres apart. The study correlates the pottery assemblages from both locations to assess whether the Kot Dijian cultural material at Sarai Khola indicates permanent settlement or reflects trade interactions. Furthermore, the research reexamines data from collections maintained by the Exploration and Excavation Branch, Culture, Tourism, Antiquities and Archives Department, Government of Sindh, to elucidate potential interregional trade and technological connections during the late fourth millennium BCE and the subsequent urban Harappan period. This study presents a reanalysis of pottery from the Kot Diji site, which was originally excavated in 1955 by F. A. Khan. While preliminary results were published, these findings have provided the basis for subsequent interpretations of settlement history and the transition to the Urban Indus. Recent developments in material culture studies now facilitate more detailed investigations into Early Indus

settlement patterns (Flam 1981). The Kot Diji collection is currently housed in several museums in Pakistan, including the National Museum in Karachi and the Islamabad Museum.

Site	Layer/Period	Dates	
Kot Diji	Period 1, 1A- 1D to 3A	Harappan	
	Period 4, 4A-5A to 16 including 4A	Kot Dijian	
Sarai Khola	Period IV	Early Medieval	
	Period III	Iron Age- Cemetery	
	Period 11	Kot Diji	
	Period I	Late Neolithic, beginning of Kot Diji	
Harappa	Period V	Late Harappan	1800-1300 BC
	Period IV	Transitional Phase	1900-1800 BC
	Period III	Harappan Phase	2600-1900 BC
	Period II	Kot Diji	2800-2600 BC
	Period I	Ravi/Hakra Phase	3300-2800 BC
Gumla	Period V & VI	Later Occupation	
	Period IV	Harappan	
	Period III	Kot Dijian	
	Period II	Chalcolithic	
	Period I	Pre-Ceramic	
Mehrgarh	Period VII	Kot Diji Ware	Mid-3rd mil.
		Late Quetta ware	Mid-3rd mil.

Table 1 - The table presents the periodization of selected major sites based on their stratigraphy, arranged from bottom to top.

2. Location of the Sites and the previous works

Sarai Khola is located near the Taxila Museum, approximately 200 meters west of the Kala Nala bridge, on the Grand Trunk Road, and three kilometres southwest of Bhir Mound. The site was discovered in December 1967 by Muhammad Sharif. The first excavation season began on 17 January 1968 and continued until 15 May 1968, with subsequent seasons resuming until March 1971. (Halmi 1971). Halim published preliminary results in 1967 in the Journal of Pakistan Archaeology. The discovery of prehistoric occupations at the site Sarai Khola has changed the

Marshal's speculation based on his twenty-six years of experience in the excavations and explorations dedicated to the Gandhara Civilisation in Taxila Valley, that "no prehistoric settlement existed in the Taxila Valley" (Halim 1971).

Moreover, the systematic and detailed results of the excavations were then published in the Journal of Pakistan Archaeology 1970-71, number 7. The four major periods were revealed, period II was assigned to Kot Diji, and the following period I was designated red burnished wares (Hamil 1971). Moreover, the material remains from period II included flint blades, stone celts, human and animal figurines, bangles, rattles made of terracotta, and the most prominent part of this collection was typical Kot Dijian pottery (see fig 5). The site of Kot Diji was first discovered by Madhu Sarup Vats during explorations in the former princely state of Khairpur (Vats 1938), and later revisited by G. S. Ghurye, who identified it as a prehistoric settlement but did not define the Kot Diji Culture (Ghurye 1936). The discovery of the site is thus attributed to the first half of the twentieth century. Subsequent large-scale excavations were conducted by the Department of Archaeology and Museums of Pakistan under the direction of F. A. Khan (Khan, 1964), who first to associate the earliest occupations at the site with the pre-Harappan period. The sophisticated craft technologies evident in the cultural material, such as pottery and architectural remains, illuminate the development of early urban societies that preceded the Indus Civilisation (Mughal 1970).

3. Geographical Extent and Distribution Pattern

The precise centre or core region of the Kot Dijian culture remains difficult to determine. However, evidence suggests that the core area was likely located in Sindh along the Indus River and its palaeochannels. This inference is based on the presence of standardised stone fortifications set upon bedrock, as well as mud brick and stone houses within these fortifications, which are clearly associated with Kot levels at the site of Kot Diji[1] (Khan 1964). Comparable features have not been identified elsewhere, except for pottery and other cultural materials. Notably, no single mapped boundary or defined radius has been published for the entire Kot Dijian culture (Fig. 1b). Drawing on the published materials, we have addressed this issue in our discussion.

[1] F. A. Khan reports that "there is no evidence to show that Harappans used the fortification wall" and suggests that the fortification was constructed by the Kot Dijian community. Khan further notes that the wall was reinforced with bastions and that the top of the wall was "disused" by the Harappan people. He also observes a burnt or ashy layer throughout the excavation area, which separates the Harappan and Kot Dijian occupations. Based on his analysis, Khan implies that the Harappan people did not match the Kot Dijian community in terms of technological advancement and craftsmanship.

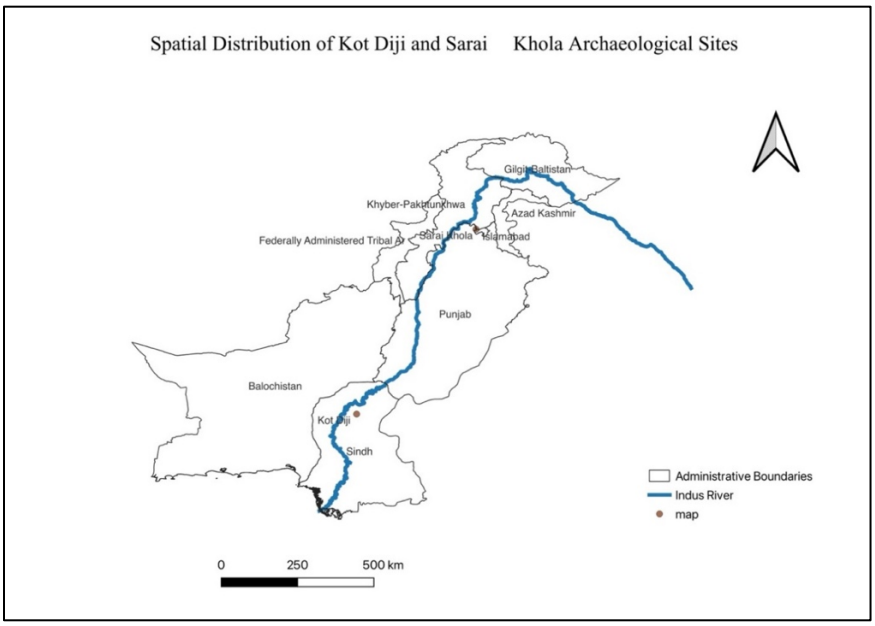

Fig. 1a - Thematic map of sites along Indus River.

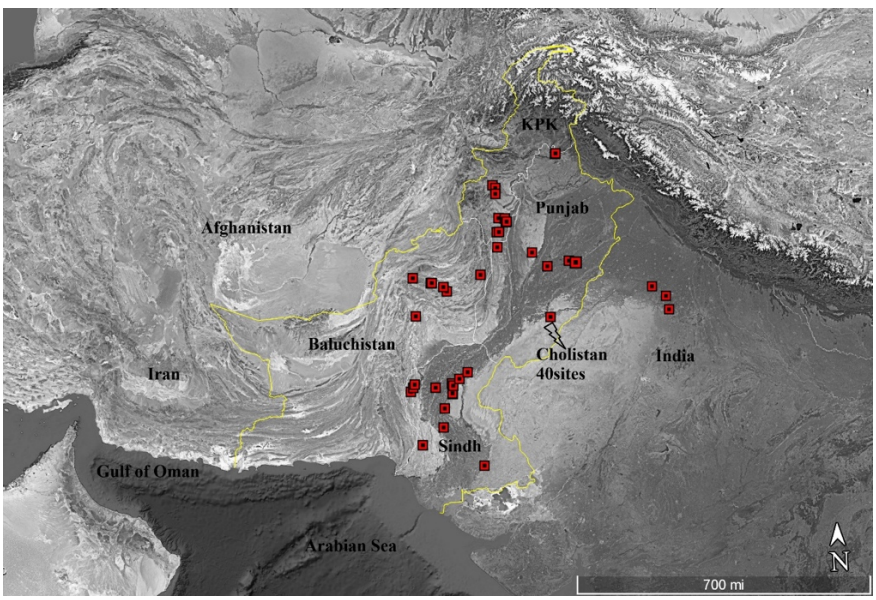

Fig. 1b - Settlement pattern, and the distribution of Kot Diji culture.

Outside of Sindh, evidence for the full establishment of the Kot Diji culture remains limited. Its presence in other regions likely reflects connections, particularly through trade in raw materials, as observed in the mid-third millennium BCE. The Indus Civilization acquired raw materials from diverse areas, and a comparable pattern is apparent during the Kot Diji cultural phase. For instance, the discovery of a pot from Kashmir depicting a Horned deity characteristic of Kot Diji suggests such trade connections (Lahiri 2017). While additional research is necessary, current findings indicate that the Kot Diji culture maintained a transitional association with the Indus Urban period in Sindh. In other regions, including Tuchi-Gomal in the Gomal Valley, Baluchistan, Gujarat, Haryana, and Cholistan, the Kot Diji culture either overlaps with or transitions into other cultural phases. For example, at Rehman Dheri, it is associated with the Tuchi-Gomal phase, and at Siswal, it overlaps with the Suthi-Siswal phase, but not with the Harappan or Indus period. This leads us to assume that probably the core region of the Kot Dijian culture was the Sindh region.

The Kot Dijian, or early Harappan period, is also identified from pre-defence levels at Harappa (Mughal 1974). Characteristic Kot Dijian ceramics have been found at Dam Sadat I-II, dated to the early third millennium BCE, which corresponds to the chronology of the Kot Dijian culture. Evidence suggests that the Kot Dijian people maintained either possible links or permanent settlements in both central and northern Baluchistan. Early wet wares at Mohenjo-daro have been discovered in association with "Kot Dijian wares." The Kot Dijian culture is generally dated between 3155 and 2590 BCE (Mughal 1974). Additional evidence of Kot Dijian occupation has been identified at Kalibangan, Siswal, Mitathal, and Surkotada in India, as well as at Gumla in the Gomal Valley on the Gomal River plain in northwestern Pakistan (Mughal 1974). Mughal has reported forty Kot Dijian sites in Cholistan, located between Derawar and Fort Abbass (Mughal, 1997). Prior to the Kot Dijian occupation, the region was inhabited by the Hakra people. In India, stratified evidence for Kot Dijian levels has been identified at Kalibangan[2] (Thapar 1975; Lal 1979), Mitathal I and Rakhi Shahpur (Bhan, 1975), Kunal Additional sites have also revealed Kot Dijian levels. In Pakistan, references to Kot Diji levels are found in the stratified contexts of the Kot Diji site itself (Khan 1964; Mughal 1970), Jalilpur (Mughal 1974), Jhang (Mughal 1972), Gumla (Dani 1970-71:1-177 Rehman Dheri (Durrani 1981).

Until 2001, Khan (2002) provided a list that included only eight sites from Sindh, located in the Indus Plains, Thar Desert, and Kirthar piedmont (Khan, 2002). In Baluchistan, only four sites are listed, while Punjab has forty-seven sites, with forty situated in the Cholistan Desert (Mughal, 1997; Khan, 2002). Additionally, six sites from Khyber Pakhtunkhwa (KPK, formerly NWFP) are mentioned. The Kashmir valley is notably absent from this list, despite evidence

[2] *Indian Archaeology: A Review*, from 1961 to 1964, 1967 to 1969.

of Kot Dijian links in Kashmir, such as a ceramic jar depicting a horned deity, which is characteristic of Kot Dijian ceramics. According to Khan, this list is based exclusively on "ceramic evidence." In contrast, Shaikh, Mallah, and Veesar (2002) present a list of Kot Dijian sites that includes twenty-nine locations: one in the Rohri hills and twenty-eight in the Thar Desert (Shaikh *et. al.* 2002). After Kot Diji site the mounded and stratified settlements which have been so far excavated from Sindh are Lol Mari Taloor-ji-Bhit, Bhir (Shaikh at al. 2002) Nuhato[3]. From Baluchistan's Lorlai District nine Kot Dijian sites have been discovered (Zahir and Khan 2021). The Kot Diji Culture is distinguished by its unique pottery designs, which include short-necked vessels with short rims and red ware featuring black painted motifs such as interlacing and fish scale patterns (Shaffer & Thapar 1992). Excavations also revealed a fortification wall (Khan 1964), indicating that the society relied on agriculture and animal domestication. These findings suggest the presence of early but developed economic structures that laid the groundwork for the later Urban Harappan civilisation. The Kot Dijian pottery styles in both places exhibit remarkable stylistic similarities, suggesting common trade routes, raw material procurement, and craftsmanship, according to a comparative analysis of the artefacts. The discovery of semi-precious stones and bead-making tools at Sarai Khola contributes to our knowledge of early interregional connections, especially trade routes between northern Punjab and the wider Indus Valley region.

The given above map (Fig. 1a) exhibits the geolocation of both sites i.e. Kot Diji and Sarai Khola Sindh and Punjab respectively with reference to Indus River as well as provincial boundaries of Pakistan. Meanwhile map shows that the Kot Diji is on lower basin however, Sarai Khola is near the Taxila valley on elevated region allowing for the visual comparison of their position along potential trade and communication routes. This spatial perspective helps clarify how environmental features, like river system, may have influenced the movement and exchange of goods, raw materials and ideas between these two regions. In this regard by placing both sites within the same cartographic frame it will help us to interpret the resemblance and differences in their pottery styles and assessing the significance of interregional connections during the late fourth and early 3rd millennia BCE.

4. The Material Description

The material selected for this study is derived from the pottery styles of both Kot Diji and Sarai Khola. A comparison of pottery types between Kot Diji and period II at Sarai Khola reveals strong similarities in rim shapes, texture, colour, rim diameter ratios, and thickness, as exemplified by a large jar's rim (Fig. 5**)**. Notably, during excavations at Kot Diji, F. A. Khan observed that semi-precious stone beads

[3] Excavation of Nuhato Site of Indus Valley Civilization (Excavation Report).

were absent in the Kot Dijian or Early Harappan levels. Khan states, "semi-precious stone beads do not appear to have been in use before the Harappan period" (Khan 1965: 83). In contrast, several semi-precious stone beads, including both finished and unfinished carnelian beads, have been found at Sarai Khola (see Halim 1970).

The excavator of Sarai Khola reported the presence of unfinished and exotic semi-precious stone beads, stating that "it is likely that raw material was imported from elsewhere and beads were locally made at Sarai Khola" (Halim, 1970: 16). Although all evidence comes from period II at Sarai Khola, which is clearly associated with the Kot Diji culture occupation at the site, the style and characteristics of these stone beads are consistent with the Harappan bead-making tradition (Kenoyer 2001).

Sherd type SK-07, distinguished by grooved lines, closely resembles those found in early Harappan levels, particularly period II at Harappa (Ahmad *et. al*. 2023; Fig. 14 b). Period II at Harappa corresponds to the Kot Dijian period, which Kenoyer dates to 2800–2600 BCE. Although Kot Dijian culture pottery displays some local variation, the excavator notes that pottery at Kot Diji was produced locally (Khan 2002). Published observations state that "the Kot Dijian pottery from various sites differ little from each other, except some local variants, like the horizontal grooved vessels found in pre-Indus levels at Harappa, Jalilpur, and Sarai Khola" (Khan 2002: 58).

Minor variations in Kot Diji pottery are observed at Thar Desert Sindh settlements located east of the Kot Diji site (Khan 2002; Mallah 2008, 2018). The evidence indicates specialised craftsmanship, high-quality ceramics, sophisticated decorations, and the development of distinctive motifs such as the pipal leaf, fish scale, and interlacing patterns. These features demonstrate both inspiration from nature and the advanced skills of early Indus artisans. Although techniques and vessel forms may have diffused from the region where the Kot Dijian culture originated, the precise area of origin remains uncertain. Shaffer conceptualises the emergence of the Indus Civilisation as a process of regionalisation, with Kot Diji recognised as a prominent cultural community associated with long-distance trade.

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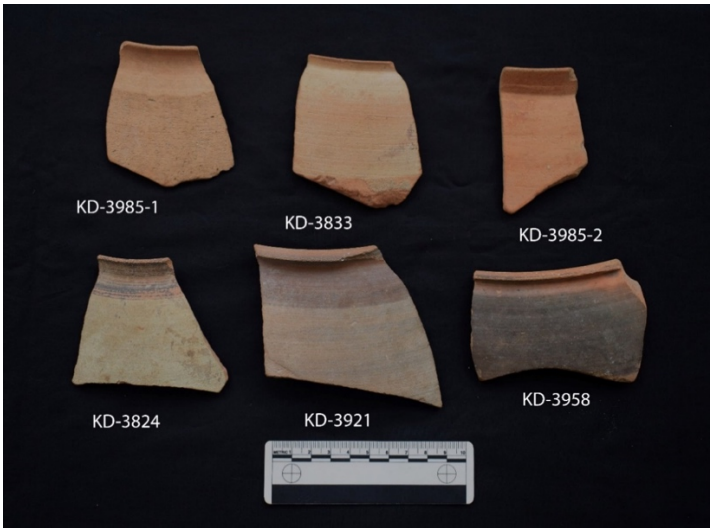


Fig. 2 - Typical Kot Dijian pottery styles from Kot Diji Site (Photo by Ali M).

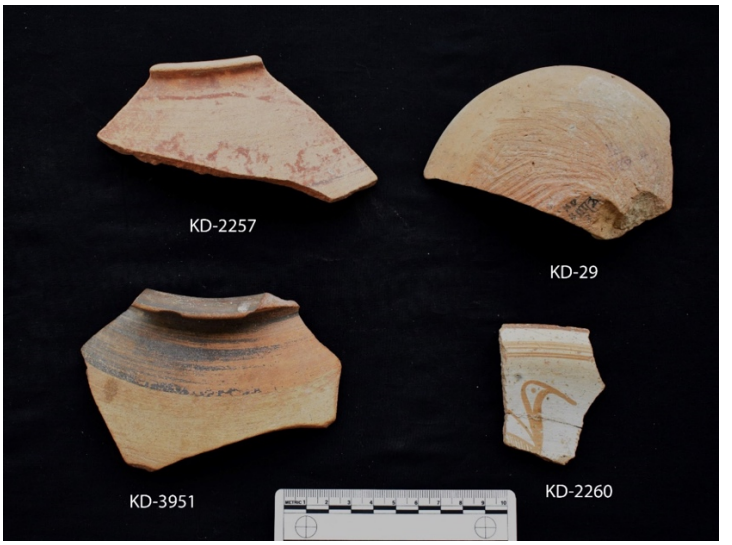


Fig. 3 - Sherds from Kot Diji Site, Sherd type KD-3951 can be placed in the late Kot Dijian period its rime style slightly differs from typical Kot Dijian style, however the wide black band can be seen, it can be associated with first Indus period. KD-2260 is a plate rim piece unique to other Kot Diji styles it is pained in light brown on bright gray background between the bands along rim the sherd has yellow background. (Photo by Ali M)

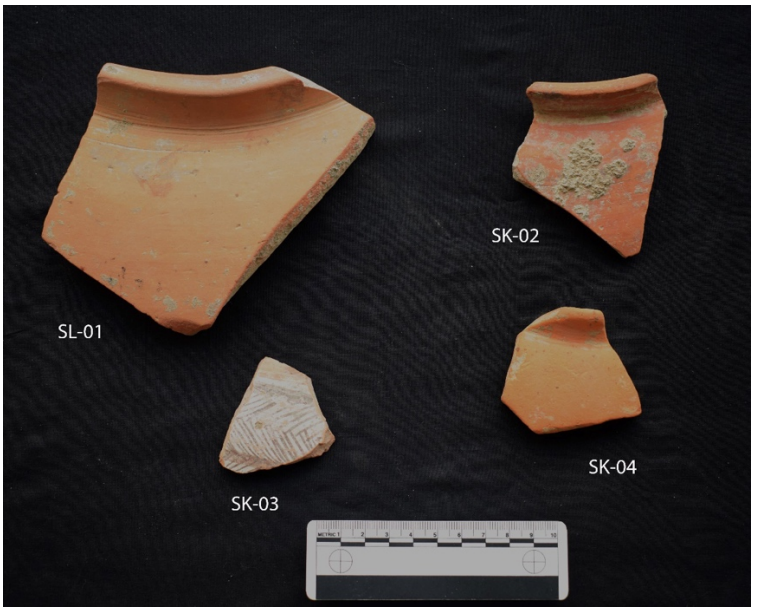
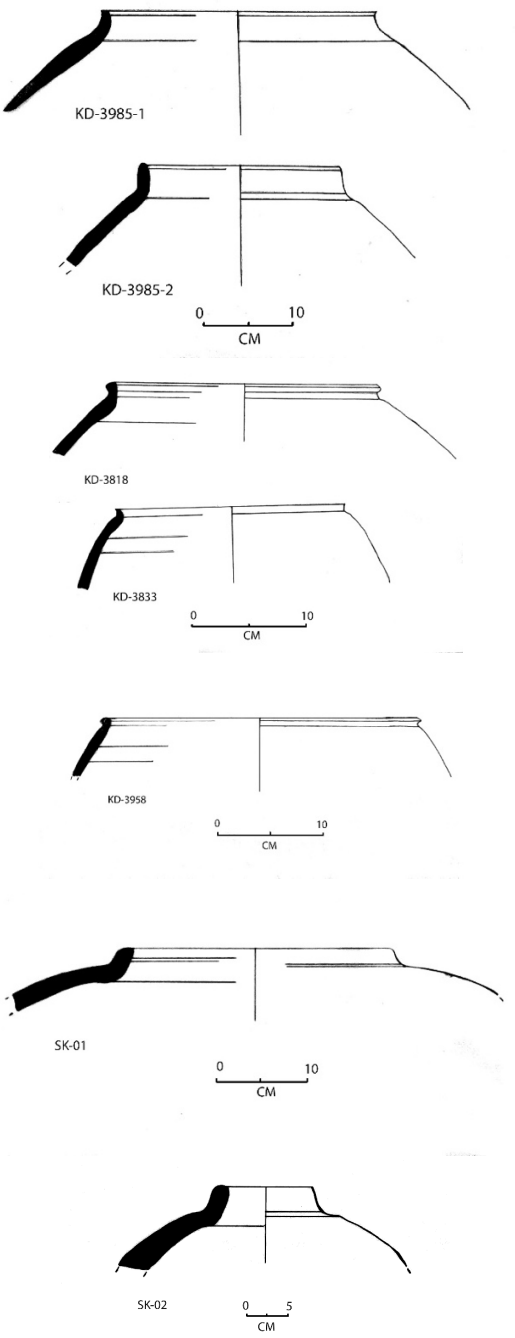


Fig. 4 - Sarai Khola typical Kot Dijian pottery forms (Ali M).

Fig. 5 - Sarai Khola SK-07is a variant of the Kot Dijian vessels forms from Punjab sites such as Harappa, Jalilpur.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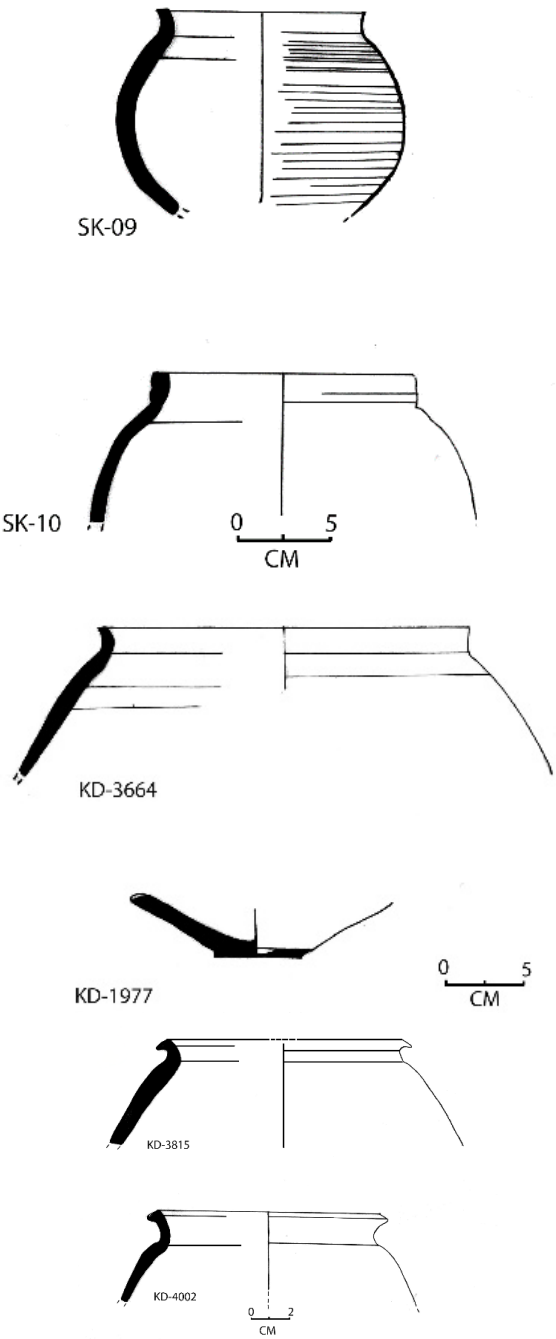

Fig. 6 - KD stands for Kot Diji; SK stands for Sarai Khola. Rim shapes of the stylistic pottery from both sites Kot Diji and Sarai Khola (Drawings by Ali M).

5. A Discussion

The origins of strategic urban Harappan trade can be traced to earlier village and town settlements in the Indus Valley. During the Kot Diji period, settlement patterns exhibited a wide distribution extending beyond the Indus River basin into regions such as north Baluchistan, the Bannu Basin (now in Khyber Pakhtunkhwa), the Taxila Valley (including sites like Sarai Khola), the Cholistan Desert (Mughal 1997), the Thar Desert, and the Indus Alluvial plains (Mallah, 2008; Mallah & Qasid 2018). This period of cultural expansion was characterised by the development of systems for extracting diverse raw materials and products (Possehl 1986; Kenoyer 1995, 2006; Shaffer & Lichtenstein 1995). Trade intensified during the Mature Harappan phase and persisted until the decline of the Indus Civilisation (Mughal, 1989, 1990; Miller 2008). The urban Harappan trade system likely resulted from the efforts of Early Harappan groups, such as the Kot Dijian and other early Harappan peoples. Interregional cultural connections also expanded significantly, reaching from the Indus Plains to central and northern Baluchistan, parts of Khyber Pakhtunkhwa such as Swat, Bannu Basin and also concentrated in and around Taxila valley and Pothohar Plateau including Jhang and almost entire Punjab.

The Bannu Archaeological Project has significantly contributed to understanding prehistoric settlement history and the development of Indus urbanism by illuminating early Harappan cultural groups, particularly Kot Diji. Excavations at the Lewan site in Bannu revealed evidence of bead production and distinctive pottery characteristics associated with the Kot Dijian context. The three major occupational phases identified are Sher Khan Tarakai (4500–3000 BCE), Tochi-Gomal (3300–3000 BCE), and Kot Diji (3000–2800 BCE) (Durrani 1995; Morris & Thomas 2002). Collectively, these findings suggest the presence of advanced village life undergoing processes of urbanisation.

Due to its extensive reach, the Kot Diji culture was connected to broader cultural trends within the greater Indus Valley and surrounding regions. Its manufacturing techniques, ornamental motifs, and ceramics closely resemble those found in the Gomal Plain, the Bannu Basin, and northern Baluchistan (Fairservis 1967, 1975; Mughal 1970; Zahir & Khan 2020). The widespread distribution of Kot Diji artifacts indicates the existence of a sophisticated system of communication and interaction among communities. Transitional elements identified at Lewan further demonstrate that Kot Diji culture represented a cultural continuum, incorporating Tochi-Gomal and earlier phases. These findings suggest that the Kot Diji culture played a crucial role in bridging and shaping local cultures, thereby facilitating the broader urbanisation processes later observed in the Indus Valley civilisation. The widespread adoption of the Kot Diji culture likely promoted technological innovation and cultural exchange across a significant portion of the subcontinent.

This study also reviews cultural and trade interactions. Evidence of bead-making at Sarai Khola during the Kot Diji occupational level (period II) indicates the use of non-local semi-precious stones, including the discovery of a long cylindrical preform carnelian bead. Additionally, lapis lazuli has been identified at Sarai Khola, also associated with the period II Kot Diji occupation (Halim 1970). The Cultural from Hakra to Kot Diji period is well documented from Thar Desert such the Lol Mari, Taloor-ji-Bhit, Bhir, Dubi4, Dubi5, Ganero8 and Kandharki (Shaikh at al. 2002). Ther all sites are important and are mounded settlements in the nature representing a continuous occupation at least from the Mesolithic period.

At Sarai Khola, the transition from the Neolithic period to the introduction of pottery and, subsequently, to the Kot Dijian cultural phase was first identified in 1968 by Muhammad Abdul Halim[4] The excavator at Sarai Khola designated the lower strata as "pre-Kot Dijian" levels. Regionally, evidence suggests that Paleolithic populations inhabited the Soan Valley for an extended period, gradually transitioning from a hunting-and-gathering lifestyle to a sedentary existence[5] passing the Mesolithic and later the Neolithic periods. This transformation is supported by findings at Sarai Khola. Comparable developments are observed in the Sindh region, where the Rohri Hills, the hills in Karachi and Thatta, as well as the plains and the Thar Desert, contributed to the evolution of the Kot Diji Culture. In particular, Mesolithic evidence has been discovered in the sand dunes of eastern Sindh in the Upper Thar Desert, around lakes, and in the small plains of the Thar Desert which latter transformed into sedentary life in the shape of different cultures such as Hakra (Mughal 1999), Ravi (Kenoyer 1997), Kot Diji (Khan 2002).

The distribution pattern of the Kot Dijian culture (Fig. 1b) is demonstrated by its widespread presence across modern Pakistan, as well as the Indian states of Gujarat, Rajasthan, Haryana, and Kashmir. The entire region of Sindh was also occupied by the Kot Dijian people, who are considered direct ancestors of the urban communities of the Indus Civilisation, including rulers, traders, and artisans. Trade became increasingly significant and expanded considerably during the early third millennium BCE, coinciding with the Kot Dijian community's rapid transformation toward the first major urbanisation in South Asia. This process can be described as "rapid urbanisation" because, in contrast to other prehistoric cultures, hunter-gatherer societies required extended periods to develop and transform until the fourth millennium BCE. Following the Neolithic revolution, human settlements became permanent along riverbanks, in oases, and in areas where subsistence resources were readily available. The Indus plains and the broader Sindh region were particularly advantageous for settlement in prehistoric times due to easy access to land, water, and other subsistence resources, as well as

[4] Pakistan Archaeology Journal for the first preliminary report in *Pakistan Archaeology* 1968: 29.
[5] This view is expressed by the Excavator of Sarai Khola in his Preliminary report, and this argument is supported to indigenous model for the cultural evolution.

extensive grazing plains. Consequently, much of Sindh was extensively utilised during the Kot Diji period, facilitating the emergence of Indus Urbanism.

Radiocarbon dating conducted at the Lewan site by the Institute of Archaeology, UCL, yielded four chronological estimates for the Kot Diji cultural sequence based on four samples. The first sample is dated between 2920 and 2680 BCE. The second sample is dated between 2870 and 2600 BCE, and the third sample falls between 2870 and 2570 BCE. The final, or uppermost, sample is dated between 2860 and 2580 BCE (Morris & Thomas 2002). These chronological ranges align with those established for the Kot Diji culture at other sites, such as Chanhu jo Daro and Kot Diji. Mughal has also proposed a general time frame for the Kot Dijian culture, spanning the late fourth millennium BCE to the early third millennium BCE. The most widely accepted dates for the Kot Diji culture range from 3300 to 2800–2600 BCE.

6. Conclusions

This study examines the expansion of the Kot Dijian culture, its duration, and the primary factors that contributed to its development and transformation into the urban society of the Indus Valley during the 3rd and 2nd millennia BCE. Pottery specimens from two principal sites, Kot Diji and Sarai Khola, which represent the culture in its early stage and demonstrate cultural continuity, are analysed. Previous research based on these sites shifted the prevailing view regarding the origins of the Indus Valley civilisation, confirming that it evolved from earlier cultures that existed a millennium before its mature phase, with Kot Diji being the most extensively developed. Comparative analysis of vessel forms from Sarai Khola and Kot Diji highlights the intricate trade and cultural networks characteristic of early Harappan societies. These sites provide evidence that the urban Harappan civilisation was founded upon the advanced craft technologies and trade systems of the Kot Dijian culture and other contemporary regional groups. The findings indicate that the Kot Dijian phase played a significant role in shaping broader regional interactions within the Indus Valley.

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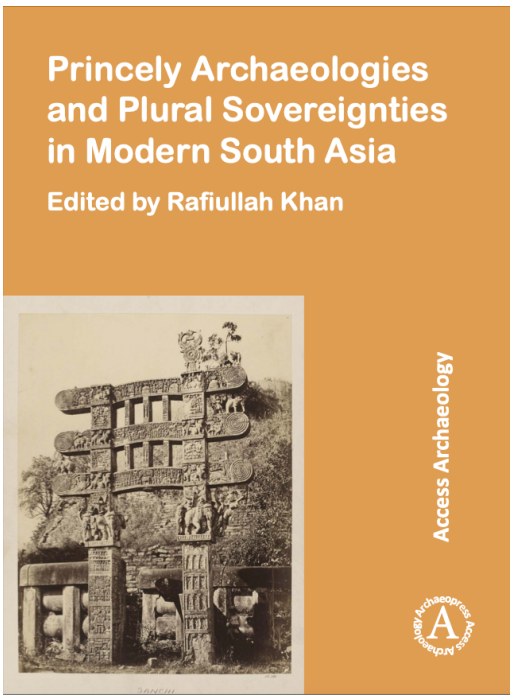
Review: Rafiullah Khan ed. (2025)
***Princely Archaeologies and Plural Sovereignties in Modern South Asia*. Archaeopress, Oxford**

Luca M. Olivieri



The scientific output on South Asia in the fields of archaeology and ancient history is colossal. Especially in the last 15 years, the number of publications (whether books, articles, or conference proceedings—so many!) has increased exponentially. Until around 2000 it used to be the researcher's job, and a point of honor, to keep up to date by frequenting libraries, especially the 'new arrivals' sections, ordering books from catalogs received by mail, keeping handwritten lists of works to order, and subscribing to the most important journals... It was a meticulous, careful task, on which the scholar's entire work and prestige depended. There was nothing worse than being caught out by a colleague in writing, or—worse still—during a public discussion, for not having cited this or that publication out of ignorance. The journals to be consulted could be counted on the fingers of two hands, new books appeared at a rate of two or three a year, sometimes less, sometimes none. What was written and published was intended to be valid for years and years, and scholars often waited decades before publishing their data, because they were always attentive to revisions, revisions of revisions, corrections of revisions... Always with the idea of writing something 'definitive'. Today, it's the opposite. Every month, at least 10 works of some importance to the discipline are published, and every year at least an half a dozen books are published, designed more as 'instant books', with partial data and interpretative models thrown into the air like the Albionian arrows in Shakespeare's Battle of Agincourt. Not to mention the new journals: at least two or three new journals a year from the most remote corners of the globe with increasingly long and obscure titles. All indexed: you exist because you are certified. You are certified, therefore you are valid (regardless of what you write!). Barrage fire, paper artillery (not

paper: digital bites!) obscuring the clear sky of science and knowledge. Background noise rather than harmonies of thought. "Sorry, I didn't see it!", "You didn't send it to me," "Was it online?" These are now the excuses of researchers, who have become deaf to the excessive noise of the artillery.

It is impossible to keep up with these offensives launched in waves to the cry of "Publish or perish!", with ever new waves of conscripts: after the officers (the various grades of professors) come the fresh troops, who are enlisted more and more frequently. There is no PhD student who does not already have her/his 'revolutionary' publication published or planned, where rather than new things, it is preferred to 'deconstruct' those of those who have now passed away...

All this to say one very simple thing. This book, edited by Rafiullah Khan (Associate Professor, TIAC, Quaid-i-Azam University, Islamabad), does not belong to the category of Albionian arrows, but—if you'll forgive the comparison—to that of humanity's fundamental inventions: the Paleolithic biface. Anyone who wants to know something about the management of archaeological assets in the so-called Native States in the pre-partition Subcontinent should throw away everything else and keep this book. This book has everything: it is comprehensive, reasonably conspicuous, rationally organized, full of precious and extremely relevant information, it is free, and can be downloaded from the internet without restrictions (i.e., it is "open access" as they say today). Disclaimer: I would have said the same thing even if I hadn't contributed to the book. If anyone objects that it deals with a subject too specialized to be a 'fundamental book,' there are several responses. One level, which is fashionable today, is that it is a book that truly deconstructs outdated models: the archaeology of the British Raj was indeed a legacy of European Orientalists, but only in terms of structure, since the meaning of history and knowledge (especially knowledge!) were already powerfully present in the intellectual history of the Subcontinent. Behind every Prinsep, Stein, Bühler, Lüders (and Führer) (note that the majority of philologists in the service of the British Raj were of the German school, just as the artillery generals at the courts of Asia came from the Napoleon army), there were pandits, Brahmins, and *maulana*s.

This is one level of truth: even before many of these foreign "*savants*" there were personalities of the caliber of Bhagwan Lal (who did not know English, and yet...) and Pandurang Gopal Padhye, and many other obscure or well-known figures. A digression: I am a fairly well-known archaeologist in Pakistan, but I have always said and written that before me, in addition to my teachers such as Domenico Faccenna, there were not only the F.A. Khans and the Danis, but above all the native archaeologists, humble researchers or simple workers such as Zamani, Fazal Mahmad, or the valiant Aktar Munir (whose obituary we published in the *Journal of Asian Civilizations*), who had seen before me, understood before me, many of the things and discoveries that today go under my name…

Given this, *Princely Archaeologies and Plural Sovereignties in Modern South Asia* presents an alternative perspective. That said, with one important counter-statement: there is no doubt that the agnostic and philological method of study, the very concept of 'the past', and therefore in practice the archaeology of things, the perception of 'ruins' as vestiges, traces, instruments of knowledge as well as objects of study, all this is, taken as a whole, the great contribution that European scholars have exported from the very philosophical heart of Europe. This had succeeded—amid wars and revolutions, after the overthrow of the Ancien Régimes—in shaping a modern sense of the ancient world on which we all still depend. The British India 'Ancient Monuments Preservation Act' of 1904, although motivated by protectionist needs, was in fact the first legal instrument to explicitly include "any object of archaeological importance" in the cultural heritage.

Another level of interpretation to understand the shaping of Indian archaeology, and the role of Native States, is the historical one. Perhaps not everyone, even today in Pakistan (or in India, despite the current narrative), knows that this monolithic British Raj was not so monolithic after all. I am not referring here to political stability, although the numerous series of reforms and scandals and bankruptcies, and more reforms, would speak volumes about how chaotic, approximate, and sometimes incompetent the colonial administration was (the British one as well as the French, the Belgian and Italian ones, for that matter!).

Of course, back then "trains ran on time," but apart from that... Yes, there were giants amongst them (Deane, Caroe, and many more) and military heroes, the "Lords of the Marches" of Aurel Stein, but overall, one should also consider the average level of military or civil servants, who set out from remote villages in the moors or mining suburbs in the north, crushed by the Motherland elitism, petty bourgeois or proletarians with no special skills other than their ambition, brushing the coal dust from their shoulders and becoming—to paraphrase Kipling— "men who wanted to be kings".

Of course, they then suffered from '*Mal d'India*' (or 'Indian Nostalgia') when they returned to their homeland, continuing to cook with curry and wear their waistcoats while stoking the fire in their poor two-bedroom cum kitchen houses: *India capta ferum victōrem cepit.* This also applies to many of us, including me. My family were small landowners, former proletarians who have come to the city. I would queue at the post office like everyone else, but in Asia I am a different man. All my life I have tried to be in Pakistan the man I aspired to be, and I hope I have succeeded, at least in part.

I return to the question: I am talking here about geographical solidity. Look at a map of British India and you will see that the parts administered directly by the British Raj were like the spots on the fur of a snow leopard: the optical impression of the white background stands out from the rest. India was Indian well

before the Partition (the term India comes from Proto-Indo-Iranian *sínd^{h}uš i.e. 'river', the Indus being 'the River' *par excellence*).

Compare these two images in the next page: in one we find India as the British Dreamland, the other is the harsh reality of the actual administrative capillarity. Nor could the partition have been quick and sudden if it had not been for the rapid emptying of many drawers in different cupboards without bothering to close the door.

Fig. 1 - "Letts's bird's eye view of the approaches to India" [https://www.loc.gov/item/2006636637/], World Digital Library.

Archaeology in India, therefore, was indeed the institutionalized archaeology of the colonial government, but to a large extent it was also the archaeology of the native states or practiced by them. So, in this case, the parameter must be, if not completely reversed, at least adequately balanced, and the credit for understanding this goes to the editor and creator of this book. If this is the case, it is clear that neither the history of discoveries nor the intellectual history behind them and generated by them can be understood without looking at these Native States as subjects, as key players in understanding what is now a discipline in its own right:

the history of Indian archaeology, a sociological, political, and anthropological history in the deepest sense of the term, social.

The book presents a vision that highlights, on the one hand, interstate interactions and, on the other, those between British India and the Native States of India. This is an aspect that Rafiullah Khan demonstrates in the last chapter (Chapter 13: *The Loss of Innocence: Princely Archaeologies vis-à-vis South Asian Historiography*), based on both the data reported in Parts I-II of the book and new sources. This has led the editor to define this history as the "connected" history of archaeological work in South Asia.

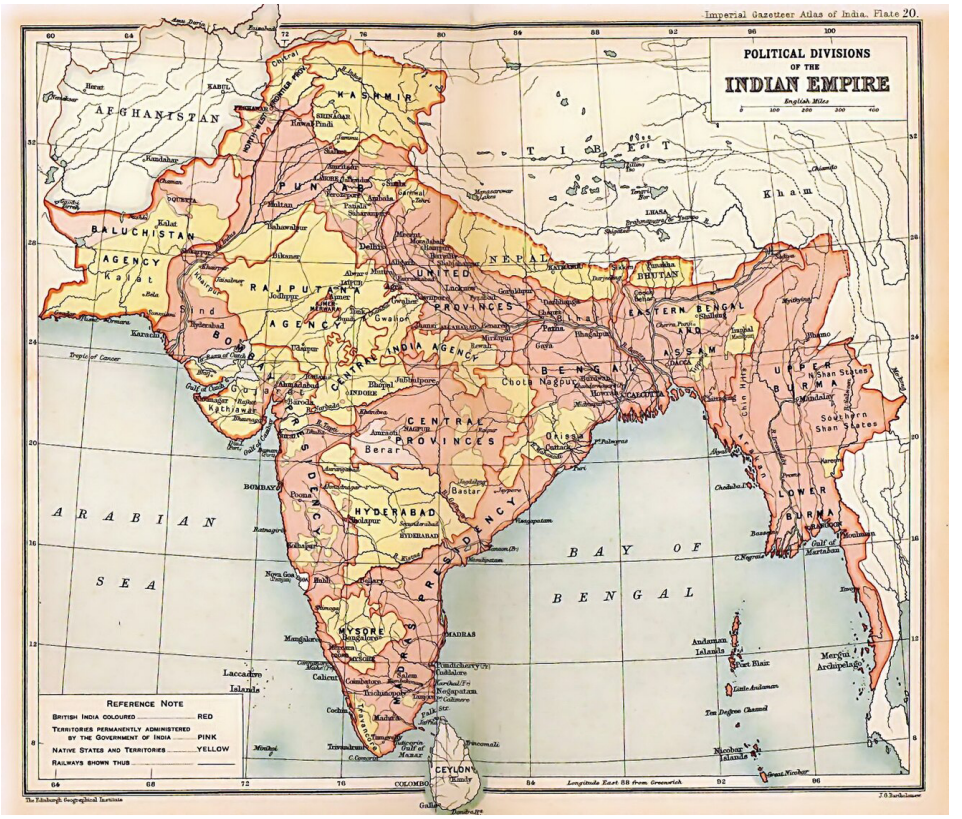


Fig. 2 – Map of British India and Native States; Edinburgh Geographical Institute; J. G. Bartholomew and Sons. - Oxford University Press, 1909. https://commons.wikimedia.org/w/index.php?curid=7381045

I would stretch the argument a little and call it the invisible backbone, the endoskeleton of everything that our colleagues (including myself) have done, been able to do, and will be able to do in the past and present. So take this book and put it at the top of your reading list, and happy studying!

Post Script
The book can be downloaded here:
https://www.archaeopress.com/Archaeopress/Products/9781805831495

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