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Pakistan Archaeology

Number 10 - 22 (1974 - 1986)

Edited
by
Ihsan H. Nadiem

Department of Archaeology and Museums
Ministry of Culture, Sports and Tourism
Government of Pakistan
Karachi

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Produced and Published

by

Ihsan H. Nadiem.

Deputy Director (Publications)

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FOREWORD

With the present issue, PAKISTAN ARCHAEOLOGY makes its reappearance after remaining in a dormant state for over thirteen years. This is indeed a long period of absence for a periodical which had to come out every year. Many reasons can be adduced for this but we will not bother the reader with the details for it is a sad story which better remain untold. Let us say that the reasons were beyond control of those concerned and close this chapter. We undertake, however, to make full amends and our first peace offering is in your hands. We hope it will go some way to win your favour. We bring to you in this issue a galaxy of scholars, with their learned papers, to shed light on different aspects of the cultural heritage of Pakistan. This will, to some extent, compensate for the period of stagnation of this Journal.

As we have missed thirteen issues, we have numbered this issue, No.10-22, just to have the feeling, although illusory, of catching up with the lost time. At least the count of the years will be correct, though the content is missing.

The last thirteen years have witnessed enormous work done by the Department of Archaeology and Museums in explorations, excavations, conservation and museology. We are planning to compile these reports covering the whole period and to publish them in a single Supplementary Issue in order to discharge our responsibility of transmitting this valuable information to the interested scholars and members of the public. This will also help us bring on record many new facts of our history which otherwise would remain buried in huge stacks of files or appear in scattered publications hard to get in one place.

Editing a professional Journal like this, with multi-dimensional contents, emanating from diverse disciplines, is not the job of an individual, but that of a fullfledged board of editors. This task becomes significantly difficult because years of accumulated material had to be sifted. With the limited time and resources available to us, we could not afford the services of a board of editors, and the Herculean labour had to be tackled by one individual. It is my pleasure to acknowledge the indebtedness of the Department of Archaeology and Museums, Pakistan, to Mr. Ihsan H. Nadiem, currently in charge of the Publi-

cation Branch, and Editor of the present issue of Pakistan Archaeology, for the devotion and diligence with which he has compiled and edited and produced this publication which is in your hands.

Sh. Khurshid Hasan

(Sh. Khurshid Hasan)
Director General

EDITORIAL

The potentially richest phase of the history of Pakistan - that of the advent of Islam in the South-Asian Subcontinent - has either been totally ignored by the archaeologists or, at the best, recognized by preserving some of the numerous monuments of outstanding beauty. In spite of the fact that this single event or series of events changed the whole course of history, markedly influenced cultural traits and gave a new concept to the arts and crafts of the region, the archaeologists remained busy mainly working in other fields. Except for one major excavation at Banbhore, not much work had been done in laying bare the early Muslim period in the Subcontinent. It is very encouraging that this important era has now attracted professional attention and is being explored in Pakistan very systematically.

The excavations at Mansurah, one of the earliest Muslim sites in Pakistan, are being carried out by the Department of Archaeology and Museums, Government of Pakistan. Abdul Aziz Farooq has given a very vivid picture of the excavation in its thirteenth season. While tackling successfully many a controversial problem he has also raised a few pertinent questions, hopefully to be answered in subsequent excavations, about the cultural sequence and the early history of the city site.

The other feat of breaking the barriers of knowledge in Islamic archaeology has been accomplished in Swat. The Italian Archaeological Mission, jointly working with the Department, have exposed the remains of a Ghaznavid period mosque at Raja Gira near Udegram. In this predominantly Buddhist area, the discovery is of immense value and a clear pointer towards the early spread of Islam and its civilization in the Northern Regions where it is still being followed most ardently. As the research project is still continuing with its digging, we have chosen to include the Preliminary Report on this discovery in the present issue of the Journal.

With the growing awareness of the value of antiquities and objects d'art, their clandestine acquisition, movement and disposal have taken on alarming dimensions. Many nations have made serious concerted efforts to formulate legislation to check the immoral pillage of cultural heritage. Shaikh Khurshid

Hasan, in his thought-provoking paper on "Protection of Movable Cultural Heritage", has very ably dealt with this subject. He takes note of the efforts being made by several countries, sometime through international organizations, to safeguard the cultural treasures, and emphasises the need and urgency of re-inforcing the security measures worked out by consensus.

After his initial researches on the subject of primitive astronomy in the Indus Civilization, published in *Centaurus* from Denmark in 1977, Dr. Syed M. Ashfaque announces the results of his further studies. His paper on "Constellations in the Harappan Seals" is rather startling in suggesting that although physically the Indus basin has exerted a centripetal force upon ethnic movements, it has also exercised a centrifugal force in spreading new concepts in science and scientific folk-lore. The accompanying charts of his paper are also of historic importance as they appear at one place for the first time, and may be useful to students of archaeo-astronomy.

Another contribution of much significance is the Excavation Report of the French Archaeological Mission. Working in collaboration with the Department of Archaeology, Government of Pakistan, they had startled the world some time back with the discovery of Mehrgarh (7000–3500 B.C.), a neolithic site in the Kachhi district in Baluchistan. They have now come up with another important discovery of Nausharo, hardly six kilometres from Mehrgarh. The limited excavation carried out at this site so far gives a comprehensive, though provisional, idea about the sequence which roughly fills the gap between the neolithic and chalcolithic occupations, thus serving as a bridge from Mehrgarh to Indus Civilization sites.

With the opening of Korakoram Highway, the archaeological survey of the Northern Regions has become practicable and the Pak-German Study Group were the first to avail of the opportunity. The results of these surveys have already attracted the world through other publications. In this issue we are including three papers, written respectively by Prof. Dr. Karl Jettmar, Nicholas Sims-Williams and Ma Yong. All the three scholars have given absorbing accounts of their studies. Ma Yong in his paper on epigraphical work has brought to light documentary evidence of the close relations existing between Pakistan and China over the centuries.

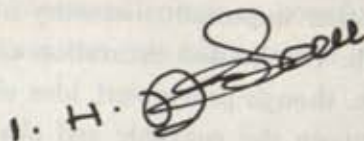
We do not find it appropriate to dilate here over the difficulties and trying conditions under which we are bringing out this Journal after a considerable gap of time. We would be most unfair, however, if we do not record the

indebtedness of Pakistan Archaeology to one single person, Shaikh Khurshid Hasan. He infused new life into this dormant publication and inspired us to embark on a well-nigh-impossible task. Ever-since he took over as Director General of Archaeology and Museums, he has very ably guided the affairs of the Department and, with his exceptionally ardent leadership, has helped us steer the way to the goal which is cherished by the scholarly community.

The editor is also thankful to his colleagues and staff in the Directorate General of Archaeology and Museums, especially in the Publications Branch. Syed Hakim Ali Shah Bokhari helped in seeing through proofs and also assisted in arranging some of the plates. Muhammad Habib Memon worked as Personal Assistant with the same zeal as in discharging other duties.

Our thanks are also due to Seemin Shafi and Shahid Hassan Khan of Messrs Business Centre, Karachi. They extended their full cooperation and unstinted assistance in seeing the Journal through the press and in maintaining quality.

In the end, we must admit that this issue is far from an ideal publication. The undersigned takes full responsibility for the shortcomings and blemishes while the credit is shared by all who helped in this undertaking.



(Ihsan H. Nadiem)

Editor

I

EXPLORATIONS AND EXCAVATIONS:

THESE ARE THE RESULTS OF THE RESEARCHES OF THE
COMMISSIONERS OF THE GENERAL LAND OFFICE, AND
THEY ARE THE BASIS OF THE POLICY OF THE
GOVERNMENT IN THE MATTER OF THE
LANDS OF THE CROWN.

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EXCAVATIONS AT MANSURAH

(13th Season)

by

Abdul Aziz Farooq*

74264

(Plates: I — XV)



INTRODUCTION

The ruins of Mansurah, the first capital of early Muslims in the South Asian Subcontinent, which flourished between 8th-13th centuries A.C., are situated about 12 miles** south-east of Shahdadpur in Sanghar District. In order to supplement the information already obtained at Banbhore, the site of Debal, in respect of early Muslim Culture, systematic excavation was started in January, 1966, under the direction of Dr. F.A. Khan, the then Director of Archaeology, Pakistan.

The Arab geographers and historians like Baladhuri, Yaqubi, Kudamah, Khurðadhbah, Astakhri, Ibn Howaqal and Muquadsî have narrated the Mansurah city at length and left a detailed account regarding its location, lay-out and architectural features. The city, says Al-Baladhuri¹, was founded

* The writer is indebted to Dr. F.A. Khan for his guidance during excavations and at the time of compiling this report.

** As the grid drawn at the site back in 1966 gives the measurements in Roman Units the same system has been followed in this report. Editor.

1. FUTUH AL-BULDAN, CAIRO 1319 AM pp 443, 449-450 REPRODUCED in "Arab Kingdom of Al-Mansurah" by M.H. Pathan (P-18).

by Amar Bin Muhammad Bin Qasim during the time of Hakm Bin Awnah Kalbi. It was the first Muslim stronghold in Sind/Hind, which remained the administrative seat of the governors during the rule of Ummayyad and Abbasid dynasties. It also continued as capital during the reign of Habbarid rulers for nearly two centuries. The literary sources describe that it was a fortified city with four gates namely, Babe Toran, Babe Bahar, Babe Sandan and Babe Multan.

The present ruins are spread over a vast area measuring about 9000' x 4500' and rise to a maximum height of 35' from the surrounding fields. The identification of Mansurah has been a matter of controversy and the so called explorers who visited the site gave conflicting views. A.F. Belasis, a civil servant, who carried out unconventional digging in 1854 termed it as "Pompeii of Sind." He was followed by Cousens in 1908 and then by others such as Richerdson, Cunningham and General Haig. On the basis of imperfect and restricted digging, the "enthusiasts" were of the view that the city of Mansurah was built on the remains of Brahmanabad.

In order to settle the question of origin of this controversial site, the Department of Archaeology initiated a long term excavation programme in 1966, which has continued till the end of current digging season with an interruption of seven years. The deep digging carried down to the water-level disproved the assertion of earlier excavators that Mansurah stood on the remains of Bahmnabad or Brahmanabad. The stratigraphical study and associated artifacts have indicated that Mansurah was built on a vacant and flat land which concealed much below the remains of pre-Muslim period and for that matter, its placement over Brahmanabad is completely erroneous.

The city of Mansurah, which was girdled by a burnt brick fortification wall, semi-circular bastions and gates, was well planned on grid system. It encompassed an area which is about four square miles. The city sectors were intersected by boulevards and interspaced with spaciouly built private and public buildings, all laid in brick with gypsum mortar.

A city, which was planned and founded on such a grand scale could hardly have been raised on a ruined settlement for practical reasons. For city planners, it is always much more feasible to draw up plans for a new city on a land which is free from all encumbrances, rather than interpose new constructions on an old and ruined alien site, especially when there was no dearth of land.

The deep diggings during the first phase of excavation which were taken down to the water level produced 25 stratified layers. The layers (1) to (10) represent Muslim period occupation, which on the basis of pottery study yielded four distinct building phases. The layers (11) to (17) consisted of river silt and sand but the layer (18) contained cultural material of a pre-Muslim settlement. Again layers (19) to (25) comprised a thick sandy deposit. The pre-Muslim occupation indicates no connection with the Muslim era as the river deposit, about 15' in thickness, separated the two main occupations, viz. Pre-Muslim and Muslim.

The excavation so far conducted has laid bare the remains of one of the four gateways described by the historians, a part of city wall studded with bastions, broad thoroughfares, residential-cum-commercial complexes and a Grand Mosque. The mosque, rectangular in plan, measures 150' north-south and 250' east-west with a 6½' thick boundary wall. The mosque had a roofed sanctuary measuring 150' x 72' and an open courtyard flanked by cloisters. The Mehrab, semi circular in plan, is 5'5" wide and 4'9" deep. The excavation has also brought to light a rich harvest of antiquities including two hoards of copper coins, shell and ivory ornaments, semi-precious stone beads and a rich collection of pottery, both plain and painted. Fragments of manuscripts written in "Naskh" were also found in the main prayer chamber.

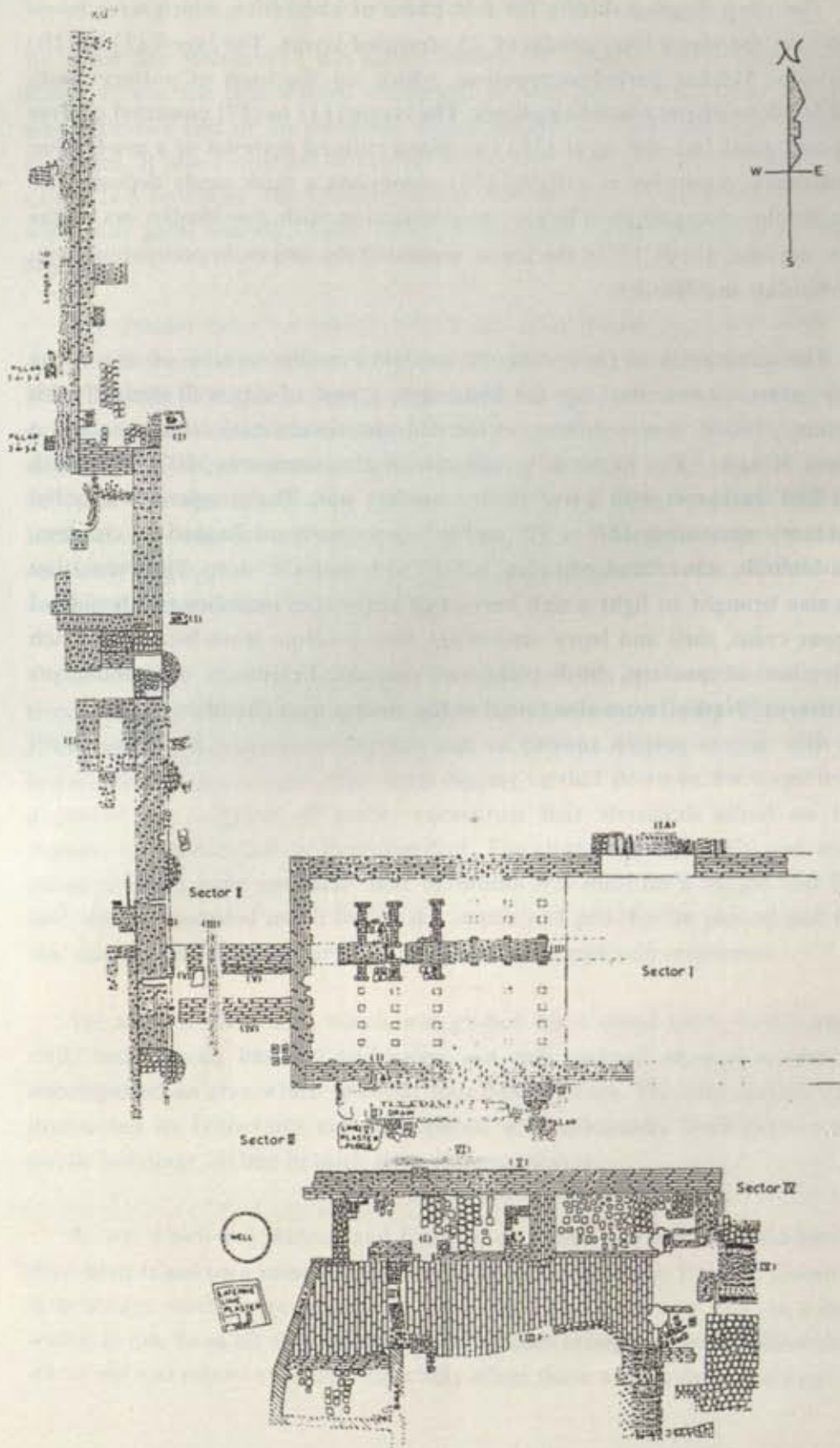


Fig: 1 Plan of Mosque and adjoining areas showing different periods.

CURRENT EXCAVATIONS

Mansurah excavations (13th season) were undertaken inside and around the Mosque Complex with a clear objective to reveal the principal buildings which are the adjuncts of Mosque built on the pattern of early period mosques of the Muslim world and, to lay bare the remains of earlier structures underneath the mosque complex. The vertical-cum-horizontal digging on the southern side of Mosque has brought to light impressive remains of a centrally oriented and symmetrical planned complex with a well-laid brick-on-edge ramp and a well-measured flight of steps, paved floor with rhythmical arrangement of brick rows, raised rectangular terrace on both northern and southern sides and solidly built massive pillars with recessed corners.

The digging operation in a broad street on the north-western side of the Mosque laid bare the eastern wing of a palatial house adequately provided with semicircular bastions. During the early Muslim period, all public buildings were centred around the principal mosque of the city. The same arrangement seems to have existed at Mansurah. In fact the mosque served as a strong forum for holding religious, political and social functions. Both the mosques at Basra and Kufa, which are the manifestation of the early Muslim architecture, had the Amir's residence attached to them. Similarly, the mosque unearthed at Mansurah, which depicts puritanical simplicity, seems to possess matching architectural details of the early mosques built in the "Land of Fertile Crescent."

The western street, with two distinct levels and exposed over a length of 200', has yielded lumps of iron associated with blacksmith furnaces. This incongruous activity in the close vicinity of Mansurah Mosque vitiated its sanctity. Apparently when the noble mosque had fallen into disuse, petty trade-crafts had sprung up in its neighbourhood. The western street on account of unsightly encroachments was reduced to a mere narrow lane littered with street-blocking hurdles put up by vendors. Thus, one of the principal streets of Mansurah city lost its character and was turned into a wilderness of shanty structures.

The excavation work restricted inside the prayer chamber has revealed variously phased building levels, and patches of a square-brick laid floor with traces of thick lime plaster. There is sufficient "insitu" evidence that even a small scale excavation on scientific lines has revealed the nature of intense building activity that lies concealed under the superimposed mosque complex.

The excavation results achieved so far clearly confirm the contemporaneity of the traditional urbanization pattern of the early Muslims in respect of bracketing together the "Jami" with "suq", "Madrassah" and "Dar ul-Imarah." The discovery of monumental and fortified buildings in close range to the southern and north-western sides of the great mosque, a large assemblage of relics and the presence of the process of iron smelting bespeak of the urban character of Muslim World cities, which was quite alien to the natives. The area around the mosque emerged enterprising for the merchants, as the mosque being the religious and secular centre, influenced the location of commercial community. The presence of large quantity of iron ingots along-with brick lined and lime plastered furnaces full of ashy substance and specks of charcoal bear an eloquent testimony to its being an open market place which is reminiscent of early Muslim town planning.

SUMMARY OF THE RESULTS

During the present excavation operation, a substantial area came under excavator's spade. The results thus achieved are summarized below:

- 1) A number of iron-smith shops were cleared during the preceding excavation opposite the Mehrab in the Western street. The current digging has corroborated the results achieved earlier regarding the unification of commercial areas with the religious buildings.
- 2) The excavation has exposed the remains of a State Assembly and the eastern wing of "Dar-ul-Imarah."
- 3) The presence of the furnaces with iron ingots suggests the existence of an iron smelting industry in close vicinity of the mosque.
- 4) The use of gypsum – lime composition, as binding mortar is reminiscent of its application by the Muslim world building specialists.
- 5) The builders of Mansurah were sanitary conscious and for that purpose inducted elaborate drainage system for the disposal of refuse matter.
- 6) A tentative chronology of Mansurah mosque and the adjoining areas has been formulated. Its confirmation or revision would be determined by controlled work during the ensuing excavation seasons.

TENTATIVE CHRONOLOGY

SECTOR - I. MOSQUE AREA

Period - I	Pillar bases in the prayer chamber and step-cum brick skirting in the northern street.
Period-IA	Earlier skirting below period I in the northern street.
Period-II	Massive brick wall running EW with supporting projections.
Period-IIA	Scanty part of a structure.
Period-III	Massively built brick formation bearing weight of structures of Period II & I.
Period-IV	Represents small section of a brick-covered drain.
Period-V	Lime-plastered floor penetrating beneath structural remains of Periods I & II.

SECTOR-II WESTERN STREET COMPLEX

Period-I	Structural remains built on top of Period II and blacksmith furnances littered in western street.
Period-II	Fortified house and the adjoining structures.
Period-III	Covered drain running NS.
Period-IV	Massively built wall associated with a floor paved with bricks measuring $17\frac{1}{2}'' \times 17\frac{1}{2}''$.

- Period—V Solidly built wall with mud-brick foundation, and carrying on its back badly damaged portion of Period II wall of mosque area with supporting projections.
- Period—VI Lime plastered floor penetrating under the heavy weight of a wall of Period IV.

SECTOR-III: SOUTHERN STREET – NORTHERN FACE

- Period—I Upper part of southern wall of the mosque.
- Period—IA Period IA represents the lower part of the southern wall of the mosque and, the structural remains resting against its south-western corner.
- Period—II Open household drain in the southern street.
- Period—III Brick Pillars below the household drain.
- Period—IV Structural remains below the foundation of southern wall of the mosque.
- Period—V Lime plastered floor penetrating under Period IV structures.
- Period—VI Vault-wagon roofed drain.

SOUTHERN STREET – SOUTHERN FACE

Period V contemporary with Period V of Sector II. Heavily built wall with supporting projections and resting on mud-brick foundation.

SECTOR—IV : PUBLIC BUILDINGS COMPLEX

Period—I	Brick pillars, paved floors, and scanty remains on top of northern pillar.
Period—II	Doorways, with iron nails "insitu."
Period—III	Brick laid pavement and the raised terrace.
Period—IV	Main passageway and other associated structures.

EXCAVATIONS IN MOSQUE AREA

The area under excavation has been divided into four sectors and designated as sector I, II, III & IV to facilitate the compilation of results. The architectural features of different sectors are detailed in their respective context.

SECTOR I:

The rectangular mosque complex measuring 250' x 150', (150x90 cubits) with flat roofed sanctuary on Qibla side and cloisters on other three wings was a veritable grand hall of columns (Plate I, a). It contained entrance passage on three sides to provide easy and free access. The prayer chamber consists of thirteen aisles, each of which has five rows of columns with twelve pillars in each row. The wooden beams and rafters of flat roof rested on brick based wooden columns. The wooden tie beams at the roof level which took the thrust of the roof have since long disintegrated.

As stated above, the flat timber roof lay on wooden columns which were fixed on square brick pillars tied with each other by massive brick tie-links (Plate I, b). This ingenious engineering device held tight together the columns which carried the heavy load of roof. The tielinks are $2\frac{1}{2}'$ in width and their link measures 6' to $6\frac{1}{4}'$ long. Large scale digging inside the prayer chamber has revealed that the column bases alongwith their links were laid, on the readily existing early period structural remains, wherever found convenient. The pillars are placed variously. Most of them are not in the same alignment. The deviation is not due to lack of skill on the part of builders but was the result of carelessness.

The digging to a depth of six feet from the paved floor of prayer chamber has brought to light a square tile-paved floor (Plate II,a) and variously placed, one above the other, distinct building phases (Plate II,b). In order to give a reasonable height to the prayer chamber from the street level, the area was filled with sweet earth brought from the river side. The thick alluvial deposit provided base for the aisles.

The excavation work undertaken in square AQ xxx/24, situated between pillars 2 & 14 and square AQ xxx/25, covers the space between pillars 14 & 26. The digging in the former square has revealed five building levels going down to a depth of 6' from the mosque floor which is intact along the 'qibla' wall. The period is represented by the pillar bases in the prayer chamber and steps-cum-skirting (Plate III, a) in the northern street. The period IA is differentiated by earlier skirting below period I in the northern street. The period II is well marked by a massive brick wall (Plate III, b) running EW with supporting projections. The period IIA represents a scanty part of some undefined structure. The period III is a massively built brick formation bearing the weight of structures of periods II & I.

The period IV represents a small section of brick covered drain. The period V is associated with a lime plastered floor (Plate IV, a), which is penetrating beneath the structural remains of periods I & II.

The last level (building period I) is represented by 4'5" square pillars. An early period, IA, brick skirting was found in the northern street. The debris layer in-between the two skirtings I & IA denotes the time scale.

BUILDING PERIOD II:

The clearance and fresh excavation work inside the prayer chamber, on its northern side, has revealed an 86' long wall of period II, oriented east-west. The 5½' broad wall is faced on both sides with beam-supporting projections at an almost equidistant space of 8'8". The southern side projections measure 2¾', those on the opposite side measure 3'8". This solidly built wall has two openings, one 5½' wide is on the western side, which was later blocked by the mosque pillar base 15, the other opening 5'10" in width, is out side the prayer chamber. The wall, which antedates the construction of the mosque, belongs to period II. The wall was cut for the lay-out of a covered drain in the western street, at a point where it lies buried under the 5'7" wide wall of the fortified house.

The period II wall on its eastern extension lies under the unexcavated open court-yard of the great mosque. The contemporary building remains of the supporting projections have yet to be located. So far excavation work has not revealed any sign of remains which could be its part on its northern side where digging has covered an enormous area measuring 18'5". Such a vast area could not have been spanned by a single beam and, therefore, the possibility of any structure of period II is ruled out. The wall of building period II was raised on the remnants of an early period wall, which exists under the 'qibla' wall in the western street.

BUILDING PERIOD IIA

The top of building level II, at places, served as base for raising foundation pillars of the mosque. The period IIA, presents part of a scanty structure and does not convey any sensible plan.

As the mosque pillars are not raised from a uniform level, the assertion of pre-existence of earlier remains of Period III is fully reinforced. Further, the top space of early period wall left on both sides of foundation-tie-links and pillars bases vary in extent; the wall no doubt existed before the construction of the mosque complex. The lower part of pillar No. 14 does not go straight. Its lower courses taper down so as to be rested on the restricted top space of a previously existing wall. In short, the evidence, regarding the existence of wall running in NS direction before the construction of mosque pillars, is well attested by the difference in construction work. The pillar 2 comprising 29 courses attains an height of 7'. The pillar 15 was directly constructed on the top of an early wall which provided it with a ready made foundation. The pillar 27 was not included in the plan of the mosque and the early period wall of period II running EW was used to serve its foundation.

BUILDING LEVEL III

The building level III which comprised of a wall running in NS direction provided itself as an "off-set", for the foundation of brick links which were raised leaving one foot space on either side of the pre-existing wall. Curiously enough, this phenomenon has been observed all over the area which has come under digging operation.

The presence of a brick-on-edge formation measuring $1'3\frac{1}{2}''$ EW and $1\frac{1}{4}$ in width, in front of the passage of an early wall of period II running in EW direction with supporting projections is of some interest as it may have been used as an access to the $5\frac{1}{2}'$ passageway in the wall.

BUILDING LEVEL IV

The building level IV is associated with a partially exposed drain with wagon vaulted top course. It sharply slopes down northward and measures $7\frac{1}{2}'$ in length.

The excavation work in Sq. AQxxx/25, covering space between pillars 14 & 26 was carried from the top of the paved floor of prayer chamber to the depth of $7'4''$. It will be simply a repetition to describe the structural features of rest of the pillars and their tie-links, as similar constructional conditions prevailed in the adjoining squares. The pillar 26 consisting of 21 courses attained an height of $5'1''$. An isolated brick structure lying in EW direction was unearthed at a depth of $5\frac{3}{4}'$ from the top of the brick paved floor. Measuring $6'4''$ in length, it is built in brick-bats which are set in mud mortar. It is neither bonded with a pillar nor any other structure. Its presence at this depth alongwith other structures remains unearthed in the neighbouring square on its western side provided an indication that the Mansurah Mosque discovered in 1977, was built on the cultural remains of a preceding period. The phenomenon that how the early Muslim era occupations, if they were so, ended one after the other has yet to be identified diligently.

The excavation work in Sq AQxxx/24 & 25 showed up a floor laid out with square tiles measuring $17\frac{1}{2}'' \times 17\frac{1}{2}''$ and set in a thick layer of lime plaster. The paved floor forms part of an early wall of period III on top of which rests the wall with projections of period II. The eastern extension of the floor ends against a wall of the same period, over which presently rests the western boundary wall of the Great Mosque. The floor at a depth of $5\frac{1}{2}'$, from the top of the brick paved floor of the sanctuary, corresponds to the depth of a floor discovered beyond the western wall of the mosque.

The tiles are set with a layer of lime mortar. A thick layer of the same composition unearthed in fallen condition seems to have been dislodged from a neighbouring building of period V, which was of some proportions. Some of the fragments showed signs of red paint. Similar red painted lime plaster has been recovered from other areas.

NORTHERN CLOISTER OF MOSQUE

A $2\frac{1}{2}'$ wide wall separated the "sehan" from the "lewan" or the prayer chamber. The cloisters on sides were added later. The digging in square AQxxx/11 & 17 has revealed double cloisters erected against the $2\frac{1}{2}'$ wide wall separating the court-yard from the prayer chamber. The northern cloister, accessible through a flight of steps from the street level is designated A and, the other on its southern side is labelled B.

CLOISTER "A"

The cloister, which seems to have been extended up to the eastern boundary wall of the mosque has been partially exposed. Its southern wall has been traced up to a length of $31'10''$ beyond which it is found penetrating towards east under the unexcavated area. This cloister is $9\frac{1}{4}'$ in width with two square pillars of $4'5'' \times 4'5''$ built at equidistant of $7'$ in alignment to the first row of pillars in the prayer chamber. The southern wall of the cloister extending parallel to that of the enclosing wall of the mosque is $2\frac{1}{2}'$ wide and consists of 3 brick courses which attain an height of $9''$. The inner side is paved with brickbats. The floor is laid on an alluvial filling so as to give it the same level as that of the doorway of the mosque. The mosque cloisters provided additional space for multi purpose, such as additional space during the Friday congregations; meeting forum for religious discourses and "Madersah" for the teaching of Holy Quran, "fiqa" and other disciplines of the Islamic Order.

The cloister pillars are in alignment with the first row pillars of the prayer chamber and were put up for supporting the wooden columns for roofing.

CLOISTER "B"

The cloister B is $8\frac{1}{2}'$ in width and is identical in plan as that of cloister A. The southern wall of cloister A which is $2\frac{1}{2}'$ in width, separates them. The Southern wall of this cloister is of the corresponding width of the partition wall and comprises three courses with a surviving height of $7''$. The interior of the cloister was paved with brick-bats, whose traces were found during the course of excavation.

SECTOR II – WESTERN STREET COMPLEX

The excavation work in the western street, from the northern edge of the brick lined well, exposed in SW corner of the mosque area, extended northward as far as 350' in the street which measures 900' as far as its junction with the 150' broad "shahrah". In this extensive area, working operations have brought to light the eastern wing of a palatial house strengthened with semi-circular bastions; massively built eastern wall of a house; brick-on-edge pavement running in NS direction; heaps of iron lumps associated with blacksmith furnaces; bases of pillars and thin walls extending in the street but making no intelligible plans. The street, which was cleared up to a length of 200', showed two distinct levels corresponding to the two levels established in the northern street of the mosque.

The excavation work which was also undertaken in squares APxxviii/6, 7, 8, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23, 24, 25, AQxxviii/3, 4, 5, 8, 9, 10, 11, 14, 15, 16, 20, 21, AQxxix/21, APxxix/1, 6 and ARxxix/16 & 17, revealed structural remains of periods I to IV (Plate IV, b) detailed as below:-

Period-I	Structural remains built on top of period II and, blacksmith furnaces littered in western street.
Period-II	Fortified house and the adjoining structures.
Period-III	Covered drain running NS.
Period-IV	Massively built wall associated with a floor paved with bricks measuring $17\frac{1}{2}'' \times 17\frac{1}{2}''$.
Period-V	Solidly built wall, with mud brick foundation, and carrying on its back damaged portion of Period II wall of mosque area with supporting projections.
Period-IV	Lime plastered floor penetrating under the heavy weight of a wall of Period IV.

FORTIFIED ENCLOSURE WALL (PERIOD II)

In the Islamic state order, as the caliph or the ruler combined both the temporal and religious functions, the Dar-ul-Amil, Ruler's house; Dar-ul-Imarah, Assembly house; Dar-ul-Quzat, Chief Justice's court; and the Secretariat building, as unearthed at Kufa and Basra, formed part of the mosque complex. Since the governor used to lead the prayers, he was expected not to pass through the congregational gatherings, but entered the mosque quietly through a postern adjoining the mihrab. Dar-ul-Amil, as such became the essential part of a mosque complex throughout the Muslim World. The fortified enclosure exposed on the western side of the mosque area appears to be the eastern wing of Dar-ul-Imarah.

The fortress like character of a strongly built outer wall of a house with semi-circular bastions (Plate V, a) built at intervals, provided a defensive system at the time of hostilities whenever a city was subjected to foreign invasion. Such a defence arrangement also exists in House 2, where the semi-circular watch towers are built only at four corners for the security of the inmates.

The eastern wall of the fortified building extends southward for a distance of $150\frac{1}{2}'$ and is provided with four semi-circular bastions placed parallel to the western wall of the mosque. This wall, with a width of $5'7''$ appears to be contemporaneous with the mosque complex. The wall is made up of re-used bricks material which was collected from the pre-existing structures. The wall rests on an off-set of $6''$ for bearing its weight.

The fortified wall, which runs in NS direction takes a westernly turn up to a length of $1\frac{3}{4}'$ and then again lengthens out towards southern side with a thickness of $5'7''$. In its length a vertical joint appears at a point where an early wall of period IV is seen penetrating under its bottom course. The break apparently denotes two separate structures, but actually it developed when the builders of period II used the early wall as a ready made foundation and erected the fortified wall on top of it with a view to minimize the expenditure. Such is a common phenomenon all over the excavated area, which attests to the declining economy during the last phases of the once flourishing city of Mansurah. The wall consists of 27 courses, which give it a height of $5'9\frac{1}{2}''$. In order to drain out the water from the interior of the house, four drains were provided in its running length. Out of them, two were plastered with a thick layer of lime to make them water-tight. Their openings vary from $9''$ to $1'$.

The drains carried out heavy load of refuse matter. The disposal system of rain water has yet to be ascertained, but apparently it was carried by the wagon vaulted drain laid in the western street.

The irregularities in laying out at different intervals the semi-circular bastions is not clear. The distance between them varies, but their semi-circular dimension from axis to axis point is 18'2" in all cases.

The distance between bastions 1 & 2 is 27¾', increases to 33'3" between 2 & 3. The separating distance between 3 & 4 is exceedingly disproportionate when compared to the distance between 1 & 2. It measures 50'3". There should have been symmetry in laying the bastions, but contrary to the established principles of creating harmony in architectural details, the layout is the bewilderment of symmetrical conception.

BASTION-1

The north-eastern bastion 1 (Plate V, b) was examined down to its 24 courses which still go deeper. Since the superstructure has disappeared, it could not be determined whether the bastions were provided with slits for the use of arrow shooters. At some stage brickbats had been employed for raising its height and mud was employed as mortar for that purpose. On its top irregular platform of brickbats of a later period was encountered against its eastern edge with large number of iron lumps and pockets of ashes.

The platform may have been used by an ironsmith for smelting iron in a furnace which has been found in its immediate neighbourhood. A lime plastered drain with opening of 9½" was encountered close to the southern axis of the bastion, where its end was covered with bricks so as to stop the splashing of water. This technique was adopted to keep the street dry and clean at a time when the normal volume of water exceeded the flow of drain water.

BASTION-2

The bastion number 2 (Plate VI, a), identical in constructional plan to that of the north-eastern one, consisted of 21 brick courses with surviving height of 4½'. The courses still penetrate deeper below the second street level. A furnace containing charcoal and ashes is located at its outer edge in the street like the one built against bastion number 1. The present street level corresponds to the brick-on-edge skirting of Period I surviving in both the northern and southern streets.

BASTION-3

The bastion 3, built opposite the north-western corner of the mosque, preserves 21 brick courses with surviving height of 4'7". The digging work was suspended at the second street level where appeared the early brick skirting of the mosque erected in the northern street. The intervening debris deleniates the two period skirting, which in fact agrees well with the street level in the western street. The alignment of 5'7" wide fortified wall from the southern axis of bastion 3 (Plate VI, b), takes turn towards west up to 1½' and then extends in north-south direction disturbing the alignment of the wall. A large storage vessel found "insitu" and embeded against the western face of the wall indicated the presence of an occupational level.

The period IV wall with projections at equidistant on both sides found in the prayer chamber and penetrating well beyond the "qibla" wall was used as foundation to raise the wall between bastions 3 & 4. The brick joint separating the two sides of the wall was the result of refined good workmanship and not due to different building periods.

The top of the wall of building period IV has been utilized, after enhancing its height to a reasonable level through filling of debris for operating it as a working platform. A large number of iron lumps and heaps of ashes were found from here during the previous excavation.

BASTION-4

The bastion 4, partially exposed, was found super-imposed by a room of Period I measuring 9½' x 9'. In its neighbourhood, a number of structures of the late period have been exposed earlier. Fresh scraping and the cleaning operation has revealed the paving of a brickbat-floor in a square room. Another floor of brickbats was unearthed resting against the eastern facade of the wall where lay as ashy deposit. Here the floor level corresponds with the street level II.

The southern section of the eastern wall of the fortified house penetrates under the unexplored south-western sector of the mosque area. The possibility with regard to the presence of another bastion at the corner point on the southern end cannot be ruled out.

The structural plan of the fortified house has yet to be fully worked out. Excavation work carried out so far has only revealed its eastern wing. The excavation work in a limited area on the western side of the 5'7" wide eastern wall has revealed the presence of massively built structural adjuncts which presently provide no definite building plan.

FRAGMENTRY WALLS

In this disturbed area a number of fragmentry walls of period I have been brought to light in Sq. AQxxx/20. A 14'4" long and 3'4" wide wall running in NS direction is in close proximity to the western edge of the eastern wall. It contains 28 courses and attains a height of 5'4". The wall takes turn on its southern end towards west up to 1'7" and, then a vertical break separates it from another wall which extends in EW direction up to a distance of 1¾'. It then takes a turn towards north up to a length of 10'. The walls cleared in this square are not bonded with each other. They indicate different sub-building phases. Another wall proceeding in EW direction revealed itself at the end of 14'4" long wall on its northern side. Traced up to a distance of 11'2", it consists of 19 courses giving a height of 3'11" and a width of 5'1".

Another parallel wall 9'3" apart, has been uncovered partly in Sq AQ/xxx/20. Its width varies and for that matter cannot be bracketed in the same period. The wall which is running in EW direction and traced up to 9' consists of 12 courses with a surviving height of 2'4". A break is visible on its western end, but joins with another wall of the same width and is traced up to 11¾'.

In this sub-sector the overlapping of structural remains suggests that the area was subjected to intensive building activity. All the constructions were hastily finished after the abandonment of the palatial house for unknown reasons, otherwise there was no point to build all the walls in the immediate neighbourhood of the mansion with semi-circular bastions. Such indiscriminate constructions were put up during the last period, which for all purposes witnessed the demise of Mansurah.

MASSIVELY BUILT HOUSE

A 53½' long massively built wall with a width of 8'8" in NS alignment belongs to a separate house in the vicinity of the fortified house. Instead of strengthening this building with semi-circular bastions, the builders preferred to provide it with massively built boundary walls. Its solidity, may well have

provided a firm foundation for a second storey. The unearthing of drains in the adjoining house confirms the assertion that the city contained double storey buildings.

The long wall may well have been the frontage of the building as it faced the street from where the inmates had an easy access to the house. A gap of $7\frac{1}{2}'$ occurred in the wall after $34'9''$, which was blocked in the subsequent period. The debris between the massively built wall and the single course structure denotes the time scale.

A partially exposed brick-on-edge pavement with rounded corner (Plate VII, a) $15'$ away from the western edge of the wall may have been part of the main entrance, the position of which has yet to be determined.

A $3'10''$ wide wall built against the western edge of a $8'8''$ wide wall was traced up to $20'7''$. Against its western end another wall running in NS direction was found which measures $4'3''$. Again another wall was found resting against the northern face of a $4\frac{1}{2}'$ long wall. All the three walls are not bonded and for that matter appear to be the sub-phases of the latest period.

A $20'7''$ long wall comprising 15 courses has survived with a height of $3'11''$. Another wall measuring $4'3'' \times 3'9''$ was built to block a doorway in between $20'$ and $10\frac{1}{4}'$ long walls. A wall built against the northern edge of a rectangular shaped wall was found penetrating under the un-excavated area and presumably joined with a pillar found on the southern edge of the brick paved area with round edge.

BRICK-ON-EDGE PAVEMENT

The $78'$ long brick-on-edge pavement (Plate VII, b) skirted with $1'5''$ wide wall on its eastern side and, corresponding width of brick-on-edge border on its western face was unearthed on the western side of the street. The remaining part of pavement was found concealed northward under the unexcavated area and, its relative position with other structural remains will be cleared when digging is extended on its northern and western sides. The pavement is $7'$ broad and, set in lime plaster as in the ramp of the complex. The pavement surface is uneven due to heavy wear and tear of a long period of constant use.

The pavement as placed on the western side of the street may have been either used by the pedestrians or served as a passage leading to some palatial house. The two square shaped pillars measuring 3'4" x 3'4" were erected 7½' apart in square APxxviii/22. These were raised on the pavement and presumably formed part of an entrance in the later period. A 3' wide narrow passage pierced in the width of 3'4" wall built against the 1'5" bordered wall in the street probably had a link with the 7½' open entrance. This assertion is based on the clear break which exists between the walls constructed in the later period against the eastern side of the pavement.

It appears that the area was developed as a commercial centre during the last phase of the city and, used by the iron smiths as is evident by the presence of brick lined furnaces and, the recovery of large quantity of iron ingots. A small room probably used as a shop was carved out against the eastern edge of the pavement, in Sq APxxviii/23, with rows of square tiles measuring 1'x 1' used in its floor. The floor has sunk due to debris pressure and climatic conditions. A pillar of irregular shape was raised in alignment with a square pillar on southern end. The entire length of the street, so far excavated, has yielded lump upon lump of iron ingots. Their heavy concentration occurred against the eastern facade of the fortified house and, the massively built house. The furnaces, with an average width of 6" to 8", were bricklined and brick-edged for holding the melted metal.

Two distinct levels were established in the western street which extends in NS direction. During the last occupation level, shanty structures blocked the streetway. Prior to this disorderly confusion the street level of the mosque was raised which comprised of a thick alluvial deposit free of any cultural material.

A hoard of three hundred corroded copper coins was found buried under a doorway placed in the street of the last period. The coins are in the process of chemical treatment. Their decipherment is expected to shed light with regard to the rulers of Mansurah.

WAGON VAULTED DRAIN – PERIOD—III

The wagon vaulted street drain (Plate VIII, a) flowing in NS direction is related to building period III. It bears an eloquent testimony to the engineering skill of the pioneer planners of metropolitan city of Mansurah. The drain is 8" deep and is sufficiently wide for the carriage of storm water and

the daily disused water from individual houses. Its channel was brick-lined, lime plastered, and top was covered with flat bricks over which was laid the wagon vaulted covering. The thickly lime plastered interior made the drain water-tight and checked the escape of foul smell. These sanitary measures were considered essential which otherwise would have endangered the safety and preservation of public and residential buildings.

The bricks on channel-top had been chiselled longitudinally in a manner so as to fit with each other. This measure was adopted to water-tight the drain top. Though the drain has been cleared for a length of 94'4", its starting point, end and the man-holes at different points are yet to be cleared. It is yet equally unknown which way the drain course takes frequent turns when passing through different city sectors before it finally drops in the river bed. All excavated drains appear to run their way eastward through the southern street of the mosque complex which may have been the convenient and nearest point for the disposal of sewage in the river.

SQUARE TILE FLOOR – PERIOD-IV

A square brick tile floor (Plate VIII, b) was encountered in the western street against the mosque wall at a depth of 5'4". The 17½" x 17½" square brick tiles, had been set with great care so as to provide a smooth working space. The floor is associated with the structural remains of period IV. In a subsequent period, its surface at places was repaved with bricks of different sizes.

After the construction of the covered drain, the square tile floor fell into disuse. Subsequently it was covered with a thick layer of alluvial soil for raising the street level of the mosque.

SOLIDLY BUILT WALL: PERIOD-V

The further excavation and cleaning of brick work in the western street revealed a solidly built wall which rests on a mud brick foundation (Plate IX, a) which was later superimposed by a period II wall with projections.

LIME PLASTERED FLOOR—PERIOD-IV

A lime plastered floor was exposed at a depth of 9'11½" from the mosque floor level. A floor of similar lime composition has also been cleared at the

same depth in the southern street. The floor runs under a massively built wall of period IV.

SECTOR III: SOUTHERN STREET – NORTHERN FACE

A tentative chronology of the structural remains in the southern street has been established on the basis of structures exposed during the preceding excavation. The area has been scraped and cleaned with a view to clear the relative position of differently placed structural remains. A careful appraisal has helped to establish the following building periods.

Periods-I.	Upper part of southern wall of the mosque.
Period-IA.	Period IA represents the lower part of the southern wall of the mosque and the structural remains resting against the south-western corner.
Period-II.	Open household drain exposed in the southern street.
Period-III.	Brick pillars below the household drain.
Period-IV.	Structural remains below the foundation of southern wall of the mosque.
Period-V.	Lime plastered floor penetrating under period IV structure.
Period-VI.	Period IV structures. Wagon vaulted drain.

The structural remains in the southern street had been exposed previously without any meaningful chronological order. Fresh detailed clearance has revealed six building phases (Plate IX, b) compressed in a depth of 12¼' below the floor level of the prayer chamber. The southern wall of the mosque seems to have been repaired during the last days of the noble city, as a distinct difference is observable in the workmanship of the original and the repaired parts. The reconstruction depicts fine workmanship, whereas, the original lacks refineness. The first lay-out of the wall is seen resting on the remnants of building period IV (Plate X, a) which fact indicates that the builders of the

mosque used freely the pre-existing structural remains wherever found for laying the foundation of mosque components.

BUILDING PHASE II

The building phase II represents a surface drain (Plate X, b) which has been traced up to a length of 14'4". Unfortunately the drain has been rudely cut and damaged during the course of previous excavation. Its continuity eastward remains to be exposed. The household drain, like the other drains unearthed in this area, emptied its contents in a larger covered drain flowing nearby which itself deposited its matter in the river channel, which was then flowing not very far off from the existing ruins.

BUILDING PHASE III

The two rectangular pillars of burnt bricks, measuring 4'4", and 7' apart, forming part of building phase III, were superimposed by the surface drain of period II. The debris deposit in between the two phases delineate them.

BUILDING PHASE IV

Part of a wall of building phase IV has been used as foundation for raising the southern boundary wall of the mosque. The period IV wall has been traced up to a length of 3'10", and the rest of it running east and westwards respectively lies buried under the unexcavated area. Its eight brick courses attain a height of only 1¼'.

BUILDING PHASE V

Some patches of a lime plastered floor of period V has been found previously at a depth of 10' 10", from the floor level of prayer chamber. An identical plastered floor has also been encountered in the western street beyond the "qibla" wall.

BUILDING PHASE VI

The wagon vaulted drain of period VA (Plate XI, a) flowing in EW direction extends eastward like the household drain and the covered drain found in the State Assembly building. The eastward flow-direction of all the drains strengthens the assertion that a river channel flowed in close proximity to

the present ruins. The drain measures 15¾'. It is definitely earlier than the wagon vaulted drain of period III found in sector II of the western street.

SECTOR IV – PUBLIC BUILDING COMPLEX

The clearance of a brick-lined and about 12' diameter well almost at the junction of western and southern streets with attached platforms, net-work of surface disposal drains and over 6' wide wall, with harmonious use of burnt bricks employed in flooring of the area buildings traced during the previous season necessitated the continuation of excavation work with a view to unfold the character of the wall and its associated structures. The work was carried out in a trench covering squares ASxxx/5, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, ASxxxi/1, 6, 11, 16, and AS xxix/20, on the southern and south-western side of the mosque. An elegant stately building for public use in the neighbourhood of the mosque saw the day light. Most Probably it is the State Assembly. The imposing building which is an independent unit, comprises an audience hall, two brick paved elevated terraces, well preserved brick-on-edge ramp used as the main passageway, an impressive flight of steps and a guard room attached to the left side of the entrance. During subsequent periods, the original architectural components appear to have been modified extensively with the erection of partition walls and the insertion of new doorways.

Four building periods designated as I to IV, have been recognized. These correspond to the occupation levels cleared in sector II of the western street. Part of the complex is built on the remains of a massive wall with supporting projections of period V, which is oriented EW and has mud-brick foundation. The wall runs parallel to the southern wall of the mosque. The periods are as under:-

Period-I	Brick pillars, paved floors and scanty remains on top of northern pillar.
Period-II	Doorway with iron nails "instituted".
Period-III	Brick laid pavement and the raised terraces.
Period-IV	Main passageway and other associated structures.

MAIN PASSAGEWAY – BUILDING PERIOD IV

The use of eastern entrance continued (Plate XI, b) till the demise of the city. Its original width of 13'9" was first reduced to 11' in Period III and, then to 9' during Period II. This entrance with a 2½' wide skirting (Plate XII, a) on either side meant to contain the brick-on-edge flooring, ascends gradually from the ground level and attains a height of 1¾' to permit an easy access to the complex. A gypsum or lime composition, mixed with hemp, had been used as the brick binding mortar which checked the strenuous exertion of traffic. The use of gypsum as the binding agent was extensively used by the early Muslim builders at Kufa and Wasit. Its use did not remain restricted to the Muslim Middle East, but its use was spread by the Muslim conquerors into the distant lands which came under their way.

The ramp pierced through the centre of 10½' thick eastern outer wall, after dividing it into almost equal halves of 14'2" on either side. An EW oriented covered drain, exposed under the brick paved floor of a terrace, has an opening of 8". Curiously, it emptied itself in an open drain, which carried the sewage to the river front. This assertion is based on the gradual gradient of the drain course which runs eastwardly. The river bed was the easiest disposal point. No other city environ could hold the disposed water. The boundary wall constructed with reused bricks and comprising 41 courses attains an height of 8'. Its inner facing, which formed part of a constructional complex, bears traces of lime plaster.

A 5½' wide space in between the brick paved floor of the audience hall and the terminal point of the ramp, was found littered with decayed wooden remains and multi pronged iron nails, suggesting the fixture of a wooden gate. The wood being an organic material, has since long perished leaving its decomposed bits mixed up with the debris. The door threshold reinforces the presence of the main gate.

PILLARS

The two square based (Plate XII, b) pillars 10¾' apart, with recessed corners forming irregular "W" shape were unearthed in the audience hall at a distance of 17¾' from the terminus of the brick-on-edge ramp. Both the pillars, built in brickbats and set in mud mortar, vary in height. The heavy accumulation of debris around the pillars indicates that these were of solid brick masonry and on top carried the weight of the roof.

In order to ascertain the depth of the heavily built pillars, the southern one has been excavated to its lower-most course. It was found to have rested firmly on solid foundation to ensure its capacity to bear the load of the roofing. Its base consists of five brick courses and above are angled corners which are in strict conformity to the design of corners of walls of the complex. Its twenty two (22) courses attain an height of 5¼'.

It is well confirmed that during the occupation periods II & III, the Public Buildings area was subjected to intensive construction activity and for that matter shanty structures were raised on the debris of Period IV lying against the eastern edge of the pillar. Similarly weak structure was added against the eastern face of northern pillar and in that way the width of the main entrance was reduced to 9'. This clumsily built structure consists of 15 courses which rise to a height of 3'.

The northern pillar which is 9¾' from the northern enclosure wall of the complex, shows signs of extensive additions which were put up against its eastern edge. Its eastern face is similar to that of the southern pillar in square ASxxx/10. Its disposition suffered damage on the building of another pillar on the debris which rested on it during subsequent periods in quick successions. It is difficult to determine the time scale that lapsed between the various building activity due to the non-availability of associated objects. A poorly built wall against its eastern edge comprising 12 courses has survived to a height of 2¼'. This might be the foundation of a rectangular pillar measuring 6½' x 4¾', built in NNW to SSE direction. The pillar, finally assumed a rectangular shape when orientated NS with 6½' x 4½' sides. The main spacious entrance, subsequently filed with debris was again reduced to a width of 9'.

COVERED DRAINS

The Mansurah city builders were skilled engineers. They provided the township with a well planned under ground sewerage system. The disposal channel of the western street drain carries over it a wagon vaulted brick covering designed to make it air-tight. This ingenuity bears evidence to the consummate skill of the building authors who were anxious to provide the citizens with a healthy atmosphere. The 8" to 10" deep drain with brick lined sides to support the channel top course was plastered with a thick layer of lime in order to plug the cavities and for that matter to facilitate the easy flow of disposed matter.

A covered drain found at a depth of 7', from the top of the eastern boundary wall of the Public Building Complex, has been traced for a length of 12'. It is west-east bound; its eastern end disappears under the terrace floor. Its opening is 8". It emptied itself in an open channel which drained out its sewage in a low lying area, possibly the river, which then flowed by the eastern side of the city. Strangely enough, no man-hole, for conducting clearing and cleaning operations has been found so far. The enigma would be solved sooner or later.

FLIGHT OF STEPS

Apart from the main eastern entrance, a flight of steps, (Plates XIII, a & XIII, b) with thirteen treads, was provided in the south-east corner of the Public Building Complex. It seems to have been for up-stair use of the privileged state functionaries. All the treads, except those in the bottom step, had been either superimposed by the structural remains of later periods, or damaged under the heavy weight of debris and to a large extent on account of human vandalism. The bottom step, measures $8\frac{1}{2}'$ in length, and $1'4''$ in width. The variation in the height of treads from $4''$ to $7''$, is due to the difference of the quantity of mortar used when the bricks were laid. The brick treads have been laid on edge to provide strong and adequate surface for constant operational purposes. In order to contain the broad steps, retaining walls stood on both sides. The alignment of the eastern wall measuring $8\frac{3}{4}' \times 2'4''$, and skirting the steps, is in NS direction. It comprises 3 brick courses with a height of $9''$. The western wall, bordering the steps, has a gentle curve and, presently penetrates under a 3' wide baulk, which has yet to be removed. A landing, $4\frac{1}{2}'$ in width and having the same length as that of the steps, provided a breath taking space after ascending nine steps. Presently, treads 7, 8 and 9 are in damaged condition and dislodged under the heavy weight of fallen debris. The treads, from 1 to 6 which had served as foundation for raising structures during the subsequent periods are partially damaged. A structure measuring $9\frac{1}{2}'$ from east to west and, taking a easterly turn was built on top of the steps. It has 21 brick courses which rise to a height of $4'2''$, with a width of $3\frac{1}{4}'$.

A brick-on-edge pavement survives at the terminal point of the steps where seemingly once stood the lofty portal. But this assertion has got to be reinforced by evidence. The ramp descended to the southern street of the mosque, where as the inside steps led to the upper floor of the Public Building Complex.

The length of the complex is 96' from east to west, and its width is 48'. It is paved with brick-on-edge in the same style of ramp and the flight of steps described above. The paved area appears to have been set apart for the state functions. But when the floor out-lived its utility, its surface was covered with brick of various sizes (Plate XIV, a) over which a fresh floor was laid. The size of the bricks employed during the period III building activity was 17" x 10½" x 2½". The axis of the floor is north-east.

RAISED TERRACES – BUILDING PERIOD-III

The terraces built in front of the steps that led to upper storey and on the right side of the main entrance was paved in strict conformity to that of the pavement of the complex. In length, from east to west it measured 35¼' with 14½' width and, was bordered with a 1¼' broad wall running through-out the length of the terrace. It appears that the area ear-marked for the laying of this terrace was filled up with sweet earth over the under-ground drain and other stray structures in the NE corner of the terrace for a uniform height before laying the pavement. If meant as a "Dar-ul-Awam", purposeful additions were incorporated for seating the nobility at an elevated place facing the general audience seated at a lower tier. On the other hand, if this terrace was intended to be used as a teaching forum, obviously this part of the Public Building Complex was a "maktab" meant for the dissemination of traditional teachings.

There is another 27' long terrace adjacent to the western side of the steps. In the absence of its southern enclosing wall, the terrace width has yet to be established. A wall with recessed corners appeared in square ASxxx/14 in alignment of the western wall of the northern terrace. The corners have been damaged but the western wall of the southern terrace is intact. The two brick step-treads built on paved floor, seem to have been added in building period II. Such steps are not traceable in the northern terrace. The treads are raised on the pavement which is found penetrating under the steps and, therefore, are assigned to the building period II. The treads measure 4½' in length, 10' in width. Both the treads were subsequently covered by a 6'2" long wall running in EW direction. Traces of ashes and charcoal on the floor suggest a localized fire phenomenon as signs of burning occur restrictedly.

It seems probable that during building period II, the original lay out of the complex was changed into a residential sector. The opening of a doorway measuring 4'7", has in its threshold a row of six iron nails originally fixed in

a wooden frame at an equidistance of $3\frac{1}{2}$ ". A hook, fixed for holding the door frame has been preserved "insitu". (Plate XIV, b). Samples of decayed wood subjected to chemical analysis, would reveal the kind of wood used for wood work. At a later stage two rooms were added on the northern side adjacent to a small room, while providing partition wall and doorways. The room marked A is paved with square brick tiles measuring $1' \times 1'$, and set in rows in north south direction. (Plate XV). The southern wall of the room is pierced with a doorway of $2\frac{1}{2}'$ width. The measurement of the room is $18'7"$ from east to west. Its southern wall consists of 11 courses which attain a height of $2'8"$ with a width of $1'5"$. The $12'3"$ wide room is interconnected with Room B by a flight of two steps. Its floor is covered with a $3"$ thick layer of ashes and charcoal, in a restricted space and peters out westward to Room B. A number of pots were found embeded on its floor. Its roof-covering, resting on wooden beams and rafters, made of reed mats, was plastered over by a thick layer of clay. The mat surface had been deeply impressed on the wet clay. The burnt clay fragments with mat markings have been unearthed in various rooms. During building period I, a pillar measuring $2'10" \times 2'10"$ was raised on the floor. The building period I witnessed a haphazard construction activity which greatly impaired the symmetry of the area. A number of pits were dug against the western edge of the flight of steps for the disposal of garbage. Numerous bits of walling were erected here and there without any planning and useful purpose. But contrary to this haphazard building craze, the building period I, prior to the desertion of the city, reveals in House IV & IVA, an intelligible plan.

A number of baulk on the southern side of the complex have yet to be removed. They restrict any useful discussion in regard to the identification of the partially excavated buildings of the great public complex. Excavation work in square ASxxx/19 has shown up a $5'$ wide wall running SSW to NNE direction with $7\frac{1}{4}'$ opening, which during period I was blocked and, there a door frame was fixed. This is well attested by the embedded iron nails in two rows, each containing nine pieces. The nails were fixed $3"$ apart in some wood work which has perished. There is another row containing, one foot apart, five nails. The wall raised against the eastern edge of the entrance and extending as far as the flight of steps with thirteen trades was raised with a mixture of brickbats and complete bricks measuring $17" \times 10\frac{1}{2} \times 2\frac{1}{2}"$ and $16" \times 10" \times 2"$. The vertical joint separating the two structures is well marked.

Another wide, massively built, wall has been discovered in square ASxxx/18. It is reasonably well established that the structures erected in the public

complex are characterized by their massive width which varies in thickness from 5' to 6½'. The thickness of the walls invariably supported the first floor building components. Advantageously, the thick walls check-mated the burning effects of sun rays in summers and provided a comfortable and cool atmosphere inside the rooms.

Digging operation in square ASxxx/14, revealed four corresponding levels as in other parts of the complex. The over-all picture in the great Public Building Complex is that of intensive constructional activity.

STRATIFICATION

The vertical excavation has revealed five occupation levels. The cultural layers in all sections are almost identical in contents except the destruction layer (1), which sealed off the structural remains when finally the city of Mansurah fell to decay. The deep digging of 1966 (1st phase), revealed the Muslim occupation up to layer (10), which was based on the classification of ceramics recovered from the relevant layers. A brief account of layers as worked out in square ASxxx/10 is summarized below:-

The section showed five layers, numbered (1) to (5). Layer (1), composed of loose brownish soil mixed with brickbats has revealed structural remains of the last building period. The concentration of brickbats is particularly thick 9" to 11", in the western section where fell the crumbling blocks of massive structures.

Layer (2), which ushered in building period II, is characterized by the composition of brownish soil with brickbats.

Layer (3), is identical in contents with the previous layer, except its colour and accumulation of brickbats at the bottom of the layer.

Layer (4), is a mixed formation of brownish soil, brickbats and potsherds.

Layer (5), 11" in thickness, which accumulated on the brick paved floor, is free of cultural material. Similar deposit has been observed in Square ASxxx/9.

SALIENT FEATURES OF BUILDING PERIODS I TO VI

The land of Sind has hot and arid climate. The soil absorbs much of heat during the daytime and releases it at night fall. The change produces temperature extremes. The climatic conditions, ever-since the dawn of civilization in the Indus Valley, have controlled the building activities. The hot spells have always necessitated living in the air oriented spacious houses like the one, called IVA, uncovered along the right side of 150' wide street. The house consists of two units which are centred round an open court-yard. The rooms, being of different sizes are inter-connected by doorways and passages. The roofs were flat.

The city of Mansurah was divided into different sectors which were subdivided into blocks. Each sector had been divided by streets and lanes which bifurcated each other at right angles. Some of the streets contained brick-on-edge pathways. The Mansurah architecture is simple but utilitarian in character. The planners used the local material for all constructional projects. The over all city building plan seems to have been preconceived. All public buildings were probably grouped together. The private sectors were closely interwoven so as to avoid any wastage of land. The entire lay-out was orderly and well set. The planners provided the city with brick built defences and gateways.

In the mosque area, its first building period is well marked. It has revealed free re-use of construction material of an earlier period. The mosque complex has revealed two building periods which are associated with brick lined and brick-edged street entrances at two levels one above the other. The workmanship of the earlier entrance is somewhat finer in quality than the later period ramp-cum-entrance. The first period buildings grouped around the mosque, show a definite oriented planning as is evident from the Houses designated as III, IV and IVA.

The House IVA complex, which comprised of shops and dwellings is a well defined unit containing two separate houses. Both the houses vary in size and style of construction which factors presumably controlled the requirement of the inmates.

The two houses designated A & B, are not only complete in their plan, but also in their respective individuality. The frontage of both the houses opens in a sub-street leading off from the eastern street. The entrances are

pierced in their southern enclosure wall which faces the street. Both have a common partition wall.

The House A consists of a set of three rooms of rectangular shape, a "covered" verandah, an open court-yard and two rooms built on either side of the main entrance.

The House B is comparatively a small dwelling consisting of four rooms with a partition wall in-between them. Its frontage is $10\frac{1}{2}'$ with a depth of $24\frac{3}{4}'$. It has a series of shops on its northern and eastern sides. The interior of this residential-cum-shopping centre is strewn with the burnt remains of wooden beams and rafters. The big blaze responsible for its destruction seems to be the last act, human or natural, enacted in this residential quarter of Mansurah.

The digging at north-eastern sector has revealed the remains of irregularly planned brickbat built houses. It is now well established that period I in the mosque area is devoid of any architectural merit, but in other areas, the houses were well planned and reasonably built in some style, though using previously used building material.

The period II is conspicuously marked by the construction work of the fortified mansion; a massively built house and the mosque complex. The mosque square brick pillars carried wooden columns on which rested the flat roof. The structural workmanship is comparatively rough in quality than that of the early period. The semicircular bastions which are the dominating features of some of the buildings were provided equidistantly. The free use of lime mortar compound remained in use throughout for constructional requirements. The household open drains discharged their filthy contents into the covered drains. The drainage work consumed all types of brick materials, freshly baked bricks plus the old ones of previous periods.

The inhabitants of period II used lime mortar for the laying of brick-on-edge pavement over 78' in length in the western street. The square tiles 14" and 12" were used commonly.

The period III is, mainly characterized by the uncovering of a wagon vaulted drain built in lime mortar. The Mansurah city underground drainage system was one of its chief glories. The period IV is distinguished on account of its massively constructed wall with supporting projections on its both sides.

On the projections rested the heavy load of timber beams which supported the roof.

The period V reveals a very distinctive and peculiar device of using sun dried bricks in the foundation courses with thick layers of sand in between them. The same phenomenon occurred under an earlier period wall, which was superimposed by the southern wall of the mosque complex.

The period VI is associated with a lime plastered floor, uncovered at a depth of 10'4" from the paved floor of prayer chamber and almost at the same depth in the southern street. This level represents the earliest human occupational evidence so far exposed in this sector.

POTTERY & FINDS

The study of pottery and small finds requiring a detailed assessment will be in hand sooner or later.

The painted pottery depicts geometric, floral, bird and animal motifs. Amongst the animals, the most prominent is the camel. It is single and double humped. Deer is painted with high neck. Other figural representations are of ducks and frisking lamb. The luster and alkaline glazed ware occurs limitedly. The stamped types show concentric circle and dots appropriately displayed.

CONCLUSION.

A tentative chronology of the excavated remains has been established with a view to confirm it or correct it; excavation should continue inside and around the Mosque Complex for a couple of seasons.

The excavation of the fortified house should be accelerated in order to lay bare its plan and architectural details.

Further excavations, if undertaken, inside the mosque complex would be greatly rewarded by the fresh light which its underlying depths would reveal in due course.

Finally, the entire exposed structural remains should be conserved on scientific lines to prolong their life.

EXCAVATIONS AT HAJI SHAH MORR

by

Dr. Muhammad Sharif

(Plates: XVI – XXXI)

INTRODUCTION

Gandhara, from the historical and cultural point of view, is one of the most important regions of Pakistan. It is endowed by nature with incomparable scenery of snow capped hills, green valleys robed in flowers and sparkling waters. It is a centre of great archaeological interest and rich in cultural remains.

The region has witnessed the arrival of a number of major powers. Worth mentioning among them are the Iranians, Greeks, Scytho-Parthians, Kushanas, Shahis etc. At the end of the Mauryan period (324 – 185 B.C.), Buddhism appears to have spread in the region but could not wash completely the original beliefs and traditions of the local inhabitants. The Kushana period, especially in the 2nd century A.C., marked the culmination of Buddhism in Gandhara.

The Buddhist art of Gandhara of this period depicts various Iranian, Hellenistic, and Central Asian representations which show interesting combination of the foreign and local ideas and traditions. The advent of Buddhism was of particular importance in Gandhara for the devotees of this religion who made this region holy within three hundred years of the death of Buddha. As

such, pilgrims from Tibet and China came here to see the holy places and relics attributed to the former lives of Buddha or the events of his last appearance.

On a report of vandalism in the form of un-authorized diggings in search of priceless objects of Gandharan sculptures at Haji Shah Morr, it was decided to take up salvage operations, save and retrieve whatever had been left by the

Robber Diggers on top priority basis (Pl — XVI, a). For the same, the excavations on this "Sangharama" has been on a strictly limited scale confined to lay bare the plans of the building by driving trenches along side their walls while leaving the rest of the ground undisturbed. As a result of this the finds of minor antiquities have been few and even the plans themselves are not to be regarded as definitely complete, since there may still be a few features, particularly the remains of small, isolated structures, which have not yet been exposed.

LOCATION

The remains are located about two kilometres east-south-east of Mansar camp and less than a kilometre due south of G.T. Road and almost equidistant in the north-west of village Haji Shah along the metalled road to Attock. It is hardly three kilometres south-east of river Indus. Due to the meeting of roads from Attock with the G.T. Road, the place is more distinctly known as Haji Shah Morr and the remains are about a kilometre in the south-west of this junction (Fig — 2). The site is more popularly known as "Buttan" — place of idols or stone sculptures — in the nearby village of Haji Shah.

The general topography of the area can be described as low hills in the south-south-west extending almost east-west with a distinct wide depression revealing a wide open valley of the river Indus in the north. The hills are generally devoid of vegetation. The slopes have been brought under terrace cultivation. The low broad valley of the river Indus in the north presents a scene of fertile, lush green fields.

It is easy to understand how attractive this site must have been to members of the Buddhist "Sangha", eager to enjoy the advantages of its dominating position with its wide expanse of view, its calm seclusion, and above all, its cool and dustless air. There could have been only one drawback, that of the difficulty in easy water supply but this factor never deterred the Buddhists

from establishing themselves in remote and sometimes almost inaccessible places. Doubtless, they required no great quantity of water for their daily needs and for this they could depend on a spring which debouches close at the foot hills in the west and a streamlet in the north-east of the Establishment.

In order to facilitate recording and control digging operation, a grid of 5 metres in square was laid on the site. These squares were numbered alphabetically viz. A, B, C, from north to south and were assigned Roman numerals from west to east. The north-west corner peg in each square was considered more appropriate for reference and recording purposes.

In order to locate the Stupa and Monastery area, establish the chronological sequence, study the building periods and nature of structure, examine and cross-examined the results of digging operation, two long trenches extending across almost in the middle of the site were laid. The area under these trenches sloped towards periphery.

In the subsequent period, area under excavations was enlarged horizontally to uncover the lay-out plan of the Stupa Complexes and the attached monastery. The monuments now brought to light derive an exceptional interest from their ideal location. Their plan will be clear from Fig-2. They comprise a monastery of moderate dimensions and by its side two stupa courts on the north-west and in the east were numbered alphabetically A and B respectively in order of their uncovered partial plan. The monastery, which is designed almost on the same lines as the ones at Mohra-Moradu and Jaulian at Taxila, contains an open quadrangle surrounded by cells, besides an ordination hall, refectory and other chambers.

SUMMARY OF RESULTS

Digging operation, limited in nature has revealed the partial lay-out plan of two Stupa Court complexes and the attached monastery.

The entire plan of Stupa Complex-A in the north-west was uncovered with the structural remains of three Stupa basis almost square in form. Except the square basis or drum, the entire upper complex of all the stupas in court A or B were found destroyed. No trace of any relic chamber was found in the drum or plinth.

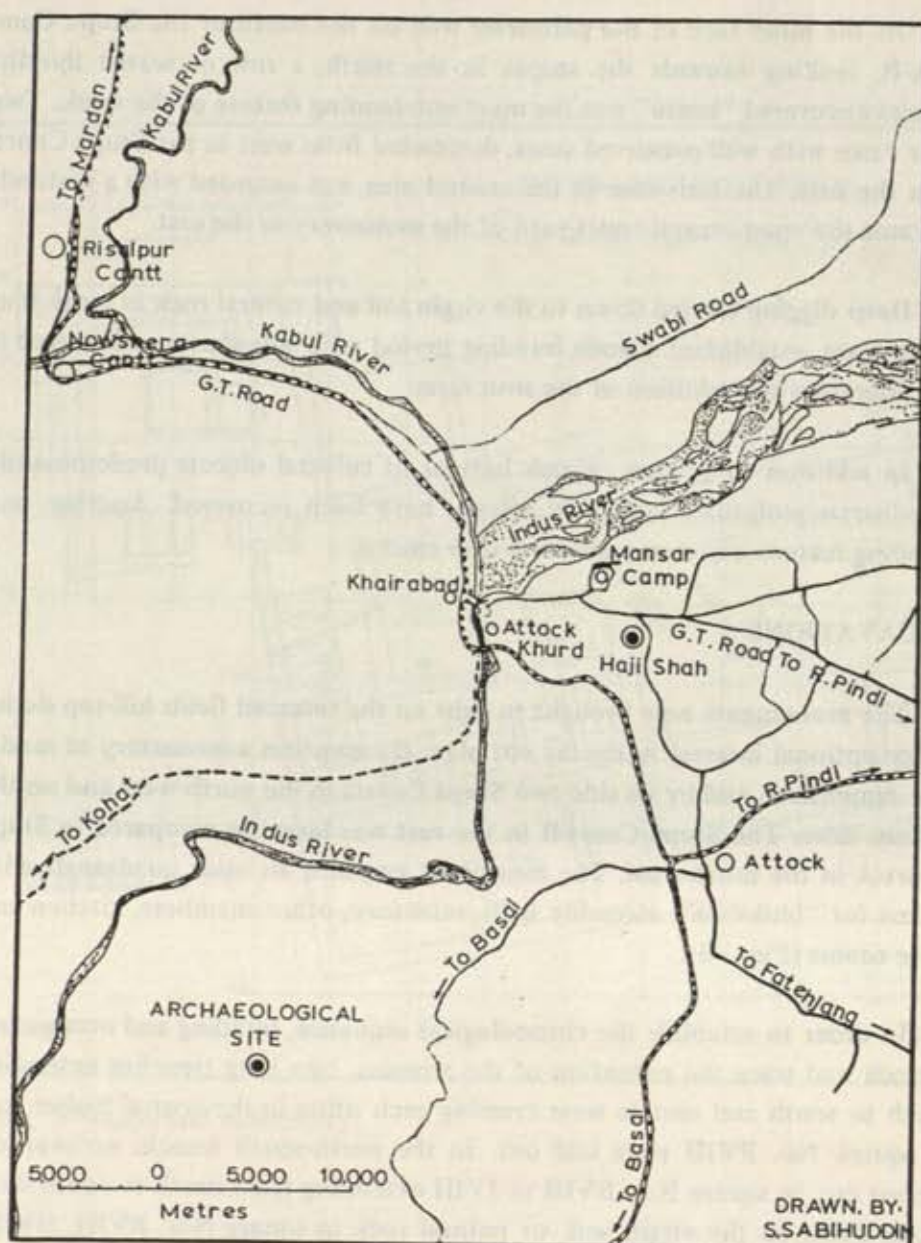


Fig. 2 Location Map of Haji Shah Morr.

On the inner face of the perimeter wall on the north of the Stupa Complex-B, looking towards the stupas in the south, a row of seated Buddha figures uncovered "insitu" was the most outstanding feature of the work. Two stair cases with well-preserved steps, descended from west to the Stupa Court-B in the east. The stair case in the central area was recorded with a vestibule towards the open central court-yard of the monastery in the east.

Deep digging carried down to the virgin soil and natural rock in more than one square, established a main building period with sub-phases as observed in the alteration and addition of the structures.

In addition to pottery, a rich harvest of cultural objects predominantly Gandharan sculptures largely in stucco, have been recovered. Another outstanding feature was stone imitation over stucco.

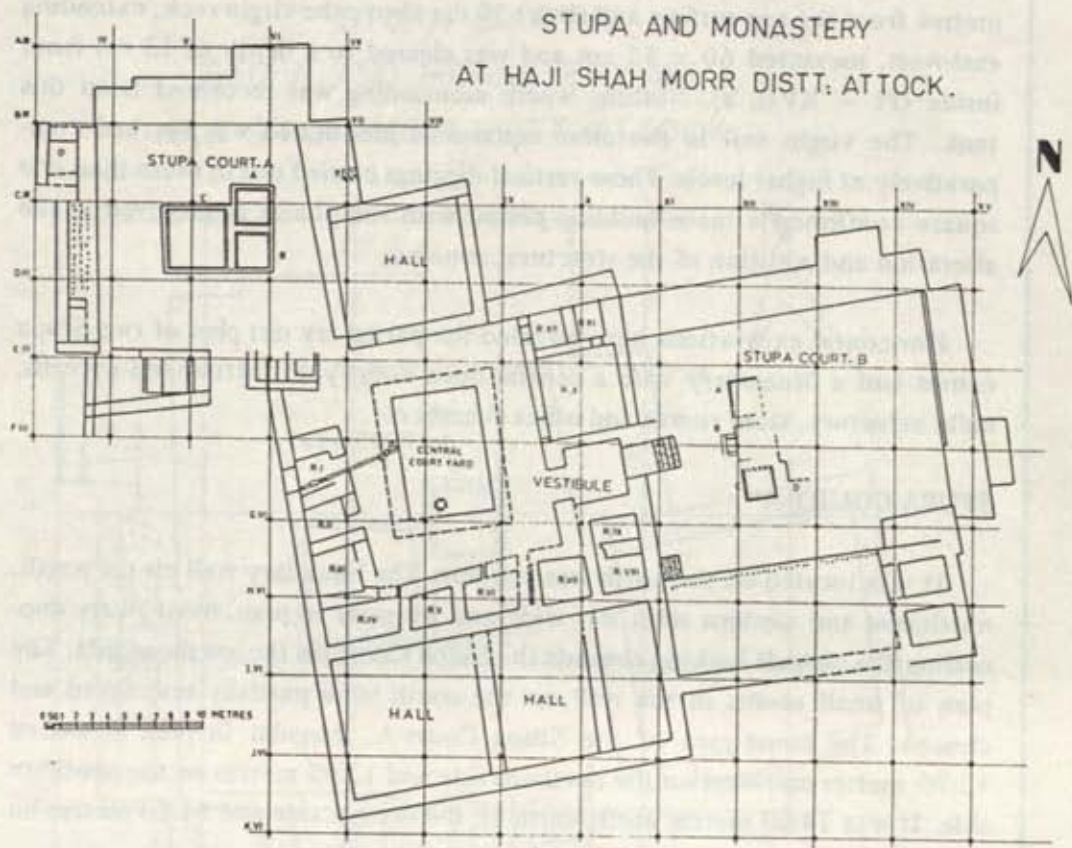
EXCAVATIONS

The monuments now brought to light on the terraced fields hill-top derive an exceptional interest in the lay out plan. It comprises a monastery of moderate dimensions and by its side two Stupa Courts in the north-west and on the eastern sides. The Stupa Court-B in the east was larger as compared to Stupa Court-A in the north-west. The monastery contains an open quadrangle with rooms for "bhikshus", assembly halls, refectory, other chambers, kitchen and store rooms (Fig - 3).

In order to establish the chronological sequence, building and occupation periods and trace the extension of the remains, two long trenches extending north to south and east to west crossing each other in the central higher area in square No. FVIII were laid out. In the north-south trench, excavations carried out in square Nos. BVIII to JVIII extending from north to south were taken down to the virgin soil, or natural rock in square Nos. BVIII, DVIII, EVIII, and FVIII. Whereas, in the west to east long trench, diggings confined to square Nos. FI, FIV to FX & FXIV from west to east were taken down to the natural rock or virgin soil in square Nos. FI to FIV and FXIV during the first short season of excavations.

Both the long trenches extending north-south and east-west crossed each other in square No. FVIII. The area under this square was comparatively higher as compared to others. The excavation in this square taken down to the virgin soil reached at a depth of 1.45 metres from the top, revealed a stone

STUPA AND MONASTERY
AT HAJI SHAH MORR DISTT: ATTOCK.



DRAWN BY: SS DIN

Fig: 3 Stupa and Monastery.

lined votive tank and structural remains of two stone walls projecting out of the baulks extending west to east in the south and north to south in the east (Pl – XVI, b). The stone lined Votive tank recovered at a depth of 1.25 metres from the top surface and about 20 cm above the virgin rock, extending east-west, measured 60 x 55 cm and was cleared to a depth of 13 cm from inside (Pl – XVII, a). Nothing worth mentioning was recovered from this tank. The virgin soil in the other squares as mentioned was reached comparatively at higher levels. These vertical diggings carried out in more than one square confirmed a main building period with sub-phases as observed in the alteration and addition of the structural remains.

Horizontal excavations have revealed the partial lay out plan of two Stupa courts and a Monastery with a central open court-yard surrounded by cells, halls, refectory, store rooms and other chambers.

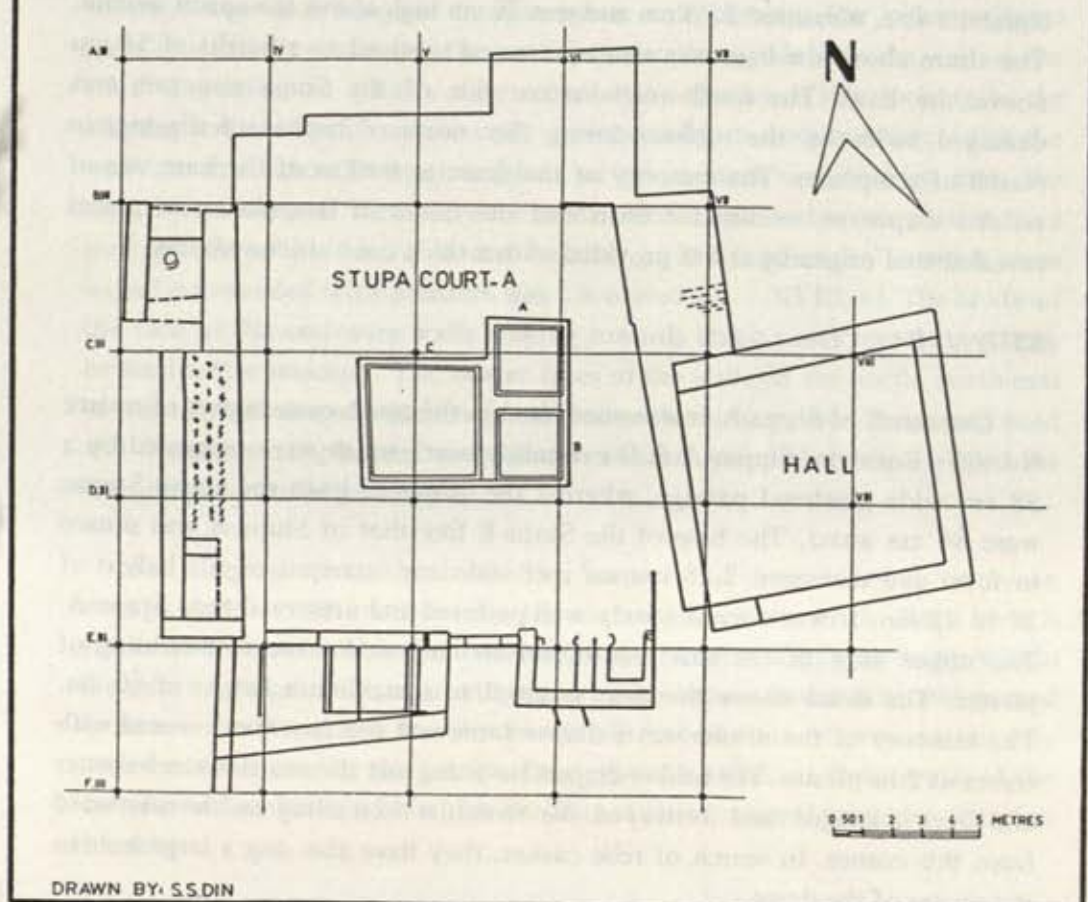
STUPA COURT-A

It was located on the north-western side. The boundary wall on the north, north-east and western sides was wide and irregular in plan, most likely concealing the chapels looking towards the Stupa Court on the southern side. The plan of small rooms in the wall on the south were partially uncovered and cleared. The court-yard of the Stupa Court-A, irregular in plan measured 12.70 metres east-west on the northern side and 13.95 metres on the southern side. It was 14.60 metres north-south on the eastern side and 14.10 metres on the western side revealing the irregular plan (Fig – 4).

Almost in the central area of the Stupa Court, but more inclined towards east, the remains of three Stupas numbered alphabetically A, B & C were uncovered, badly disturbed and dug out by the Robber diggers (Pl – XVII, b). Two Stupas A & B extending north-south on the eastern side were comparatively smaller than Stupa-C. The Stupa-A was uncovered in the south-eastern side of square BV and extended towards square CV in the south. The Stupa-B was exposed in square CV, while the Stupa-C located due west of Stupas A & B was partly uncovered in square Nos. CIV & CV.

All the three Stupas A, B & C were separated by a passage varying in width from 50 to 60 cm. An apron of well-dressed stone slabs, varying from 20 to 27 cm wide, was provided all round the three Stupas. The short opening separating each of the three Stupas was provided with a thick coat of lime plastered floor. The traces of plaster at places clearly lead to the conclusion

STUPA COURT-A
STUPA AND MONASTERY AT
HAJI SHAH MORR DISTT. ATTOCK.



4. : Stupa Court A.

that all the three Stupas were also originally plastered with a thick coat of lime.

STUPA - A

It was uncovered in the south-eastern part of square No. BV extending to the north-eastern part of square No. CV in the south. The base of the Stupa square is size, measured 2.28 cm and was 20 cm high above the apron around. The drum above the base was also square and survived to a height of 55 cm above the base. The north-north-eastern side of the Stupa structure was damaged badly by the robbers during the course of haphazard diggings in search of sculptures. The masonry of the drum as well as of the base was of refined diaper or semi-ashlar form and the traces of lime-plaster at places revealed that originally it was provided with a thick coat of lime-plaster.

STUPA - B

Due south of Stupa-A, it was uncovered in the south-eastern part of square No. CV. Both the Stupas A & B extending north-south were separated by a 58 cm wide plastered passage, whereas the drums of both the above Stupas were 84 cm apart. The base of the Stupa-B like that of Stupa-A was square in form and measured 2.28 cm on each side and survived to the height of 18 to 22 cm. It was comparatively well pastered and preserved than Stupa-A. The upper edge of the base was round and revealed a round moulding of plaster. The drum above the base survived to a maximum height of 60 cm. The masonry of the drums was a diaper form and the face was covered with traces of lime plaster. The robber-diggers have dug out the south-eastern corner and have damaged and destroyed the structure extending north-west ward from this corner. In search of relic casket, they have also dug a large hole in the centre of the drum.

STUPA - C

It was un-earthed in the eastern half of square No. CIV and extended eastward to the western half of square No. CV, located west of Stupas A & B. It was nearly one and a half time larger in size than Stupas A & B. Similar to other Stupas in the court, the base, square in form, measured 3.83 metres on each side. Both the drums of Stupas A, B & C were 76 cm apart. As the drum of Stupa-C was badly destroyed by the robber-diggers so it was not possible to record its proper dimensions. It survived to a height of 60 cm above the

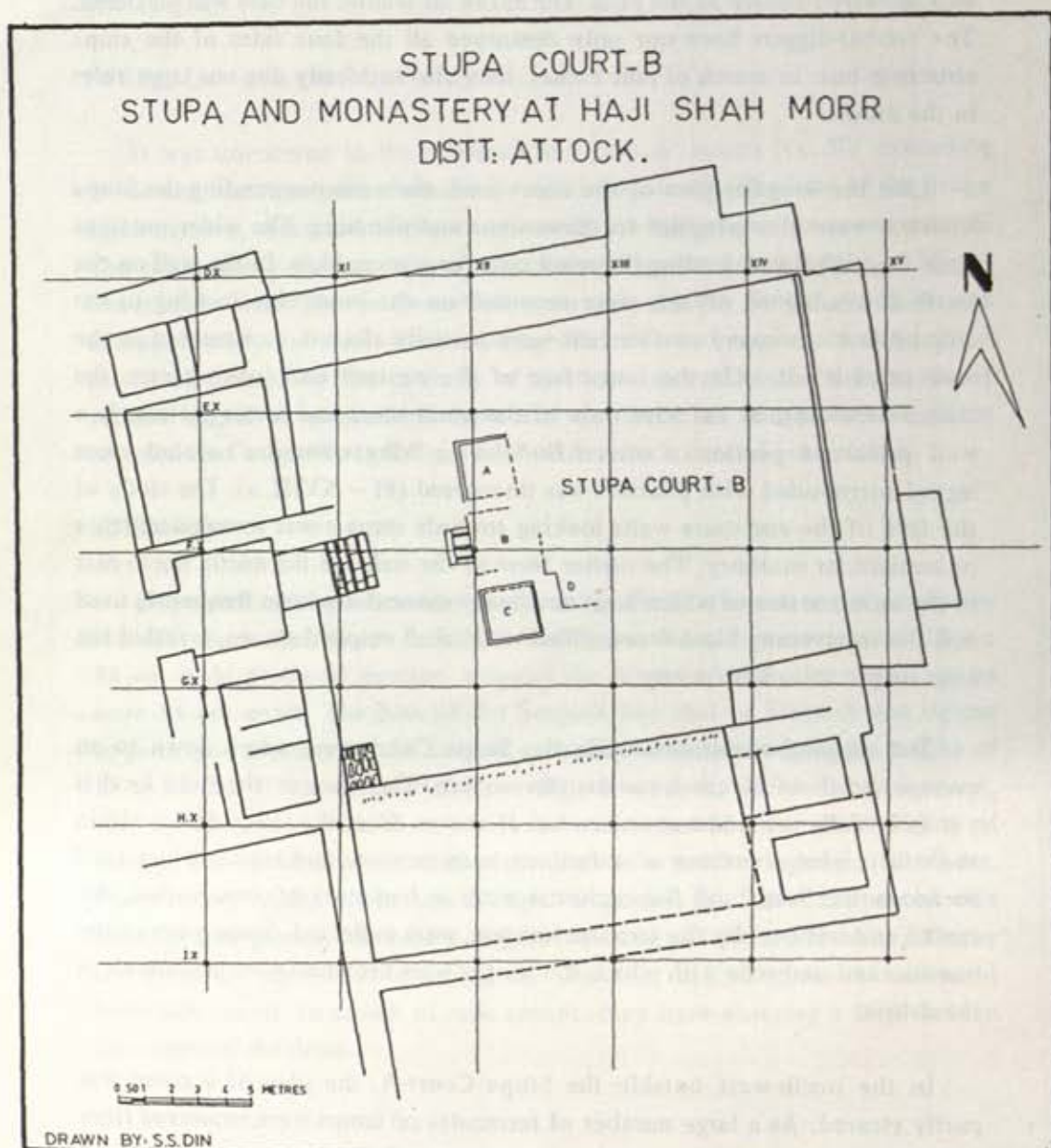
base. However, like other smaller Stupas A & B adjacent to it, this Stupa-C also appeared square in the plan. The apron all around the base was plastered. The robber-diggers have not only destroyed all the four sides of the stupa structure but, in search of relic casket, have also ruthlessly dug out large holes in the drum.

Like the irregular plan of the court-yard, the walls surrounding the Stupa Court-A were also irregular in dimensions and planning. The wider portions were most likely concealing the small cells for placing idols. In the wall on the south a number of off-sets were recorded on the inner side looking to the stupa court. As many as five cells were partially cleared, constructed in the wall on this side. On the inner face of the western wall looking east, the stucco mouldings at the base were of the usual torus and scotia pattern. In a well preserved portion a stucco Buddha in "dhyana-mudra" seated cross legged surrounded with pilasters was uncovered (Pl - XVIII, a). The study of the face of the enclosure walls looking towards stupa court revealed a diaper or semi-ashlar masonry. The outter faces of the walls on the north, north-east in the construction of which large and heavy stones have been frequently used and the intervening blanks were filled with small chipped stones, revealed the large diaper form of masonry.

The digging operations inside the Stupa Court were taken down to an average depth of 80 cm from the top surface. The floor or the floor level is yet to be fully reached and uncovered. However, from the fallen debris within the court, a large number of sculptures both in stone and stucco which used to adorn the Stupa and the enclosure walls in bad state of preservation, discarded and left over by the treasure hunters, were collected. Some parts of the harmika and umbrella with which the Stupas were crowned were also found in the debris.

In the north-west outside the Stupa Court-A, the plan of a room was partly cleared. As a large number of terracotta oil lamps were recovered from within the room, it appeared that it served as a store room. A large pottery storage jar embedded in the bed rock was also uncovered on the floor.

On the south-eastern side, divided by a common partition wall, the plan of a Hall extending almost east-west measuring 8.20 x 7.50 metres was partially exposed. The width of the walls of the Hall varied from 70 cm to 90 cm. A doorway opening on the western end of the wall in the south remained under study.



5. : Stupa Court-B.

STUPA COURT – B

It was located on the eastern side of the establishment. The excavations, largely restricted along the enclosure walls, revealed the partial lay out plan of the stupa court and the location of the stupas in it (Pl – XVIII, b). The courtyard extending west to east measured 19.40 x 16.10 metres, from inside. The enclosure walls on the northern and eastern side were comparatively thick and most likely concealed the plan of small chapels for placing idols of worship. The enclosure wall in the west divided the stupa complex from the attached monastery connected through a vestibule and well preserved stairs built in stones with steps lowering down to the stupa court (Pl – XIX, a). The enclosure wall in the south was partially uncovered and cleared. A small structure measuring 4.65 metres east to west and 2.10 metres north to south, located in the south-eastern corner of the Stupa Court remained under examination for true identification. The plan of two small rooms and a hall was partially uncovered in the south-east and in the south respectively (Fig – 5).

The diggings in the north-western corner inside the Stupa Court, revealed a row of seated Buddhas in stucco within well defined corinthian pilasters over the inner face of the enclosure wall looking south towards the stupa court. Over this row of seated Buddhas, a massive figure of a lion with traces of human feet on it, revealed the second tier (Pl – XIX, b). The base was adorned with the usual moulding in stucco of torus and scotia pattern. A close view of a panel revealed a fully draped haloed Buddha seated cross-legged in "dhyana-mudra" (Pl – XX, a). When complete, it may have been a sculpture of an out-standing character. Another prominent feature was a group of stucco sculptures recovered from the south-western corner of the Stupa Court. The group consisted of stucco heads of Buddha and Bodhisattvas (Pl – XX, b). The head of the Buddha was well marked with an "Ushnisa" over the wavy hair. The head of a Bodhisattva noted with wavy hair tied with a band gave a sublime look (Pl – XXI, a).

Inside the stupa court, on the western side, the remains of four stupas were partially exposed and numbered alphabetically for the purposes of recording. Three stupas A, B & C were located extending north to south, while the remains of the fourth stupa-D were partially uncovered east of stupa-C. All the three stupas A, B & C, almost square in form, measured 2 x 2 metres. The stupa-B in the centre of stupa-A and C was provided with steps on the western side. All the three stupas were divided apart with a common passage varying from 55 cm. to 57 cm in width. The passage as well as the stupa bases

were plastered with a thick coat of lime. The structure of stupa-D was partially uncovered to the east of stupa-C. It also appeared to be square in form.

As described earlier, the base of stupa-D was adorned with the customary moulding in stucco of torus and scotia form. Above the base, the face of the plinth was relieved with a series of seated Buddhas in "dhyana-mudra" under the trefoil arches divided by the corinthian pilasters (Pl - XXI, b). From the debris in the Stupa Court came a number of stucco reliefs, fragment of crowning umbrellas, bases and capitals of the corinthian pilasters which had once adorned the super-structure (Pl - XXII, a). Further excavations in the area will reveal the complete plan of the stupas in the court-yard.

The access to the Stupa Court from the attached Monastery in the west was provided through a vestibule and well arranged stair consisting of four steps built with stone blocks (Pl - XIX, a). The steps of the stair extending north-south measured 1.90 metres in length. These steps, almost uniform in height of 21 cm, varied in width from 27 cm to 30 cm. The remains of another stair built in stone, uncovered in the south western corner of the Stupa Court, consisted of three steps (Pl - XXII, b). As above, it was also 1.90 metres north-south in length. All the three steps in height varied from 15 cm to 21 cm. Outside the Stupa Court, in the south-eastern side, the plan of two rooms was partially uncovered. The rooms, comparatively small, were divided by a common partition wall extending east-west. Both the rooms, extending east-west, measured 3.10 x 2.20 metres and 3.10 x 2.14 metres in the north and south respectively. The partition wall as well as the enclosure walls varied in width from 96 cm to 1.02 metre.

MONASTERY

Passing from the vestibule of Stupa Court-B, from east towards west into the interior of the Monastery, one finds himself in a spacious court with rooms and cells for the "bhikhus". In the middle of the court is a depression less than a foot deep well marked with stone structure on all the four sides. The inner edge of the structure was regular, whereas the outer edge was rammed with beaten earth. The structure of the court-yard, extending north-south, measured 7.51 x 5.50 metres. On the southern side of the open court-yard a stone lined votive tank was recovered at a depth of 1.25 metres from the top surface. The tank extending east-west, measured 60 x 55 cm and was cleared to a depth of 13 cm from inside. Nothing worth mentioning was recovered from the tank. On the western side of the inner court-yard, a stone

lined covered-drain for the outflow of the water was running west-ward through a passage to the outside of the monastery. In addition, to the central open court-yard, the monastery consisted of rooms, cells, refectory, assembly and halls (Fig - 6).

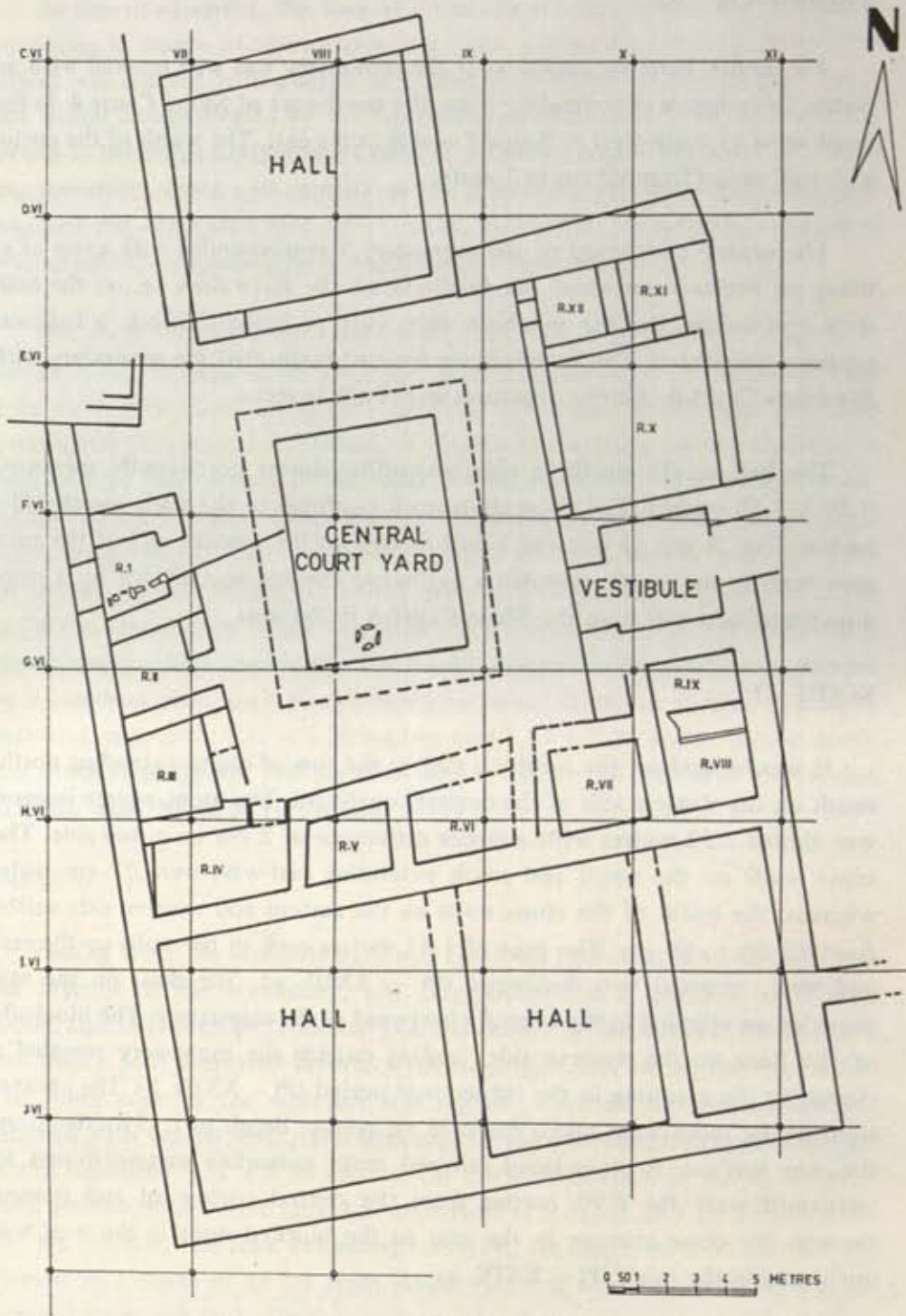
The entire building complex of the monastery was well marked with an outer boundary wall extending from the south-east of Stupa Court-A in the north-west to south-west of Stupa Court-B in the east. The width of the enclosure wall varied from 90 cm to 1 metre.

The central court-yard of the monastery was surrounded with a row of as many as twelve rooms and the vestibule on the three sides i.e. on the east, west and south. On the northern side, east of Stupa Court-A, a hall was partially uncovered. The vestibule on the east connected the monastery with the Stupa Court-B. All the structures were built in stone.

The hall on the northern side, extending almost north-south, measured 8.20 x 7.50 metres. The excavation work confined to the walls revealed the partial plan. A gap of one and a half metres on the western end of the east-west wall in the south, revealed a doorway. The hall was divided by a common partition wall from the Stupa Court-A in the west.

ROOM - I

It was located on the northern end in the row of rooms extending north-south on the western side of the central court-yard. The room, square in plan, was almost 2.32 metres with a minor difference of 2 cm on either side. The stone walls on the north and south extending east-west were 77 cm wide, whereas, the width of the stone walls on the eastern and western side varied from 88 cm to 96 cm. The gaps of 1.41 metres each in the walls on the east and west, revealed two doorways (Pl - XXIII, a). The door on the east provided an opening to the central court-yard of the monastery. The blockade of the door on the western side, leading outside the monastery revealed a change in the planning in the subsequent period (Pl - XXIII, b). The excavations in the room were taken down to an average depth of 1.15 metres from the top surface. A stone-lined covered drain extending east-north-east to west-south-west for 6.90 metres from the central court-yard and passing through the door opening in the east to the blocked door in the west was uncovered in the room (Pl - XXIV, a).



DRAWN BY: S.S.DIN

Fig: 6 Monastery.

ROOM – II

A common partition wall in the north, divided it from Room-I. The east-west length in the room, on the northern side was 2.42 metres and on the southern side it enhanced to 3.30 metres. Similarly, the north-south width on the eastern side was 2.50 metres and it also enhanced to 2.75 metres in the west, revealing the irregular plan of the room. A gap of 1.56 metres in the wall on the east, revealed a doorway opening towards the central court-yard. The diggings in the room were carried down to a depth of 1.10 metres in the north and were confined to 25 cm in the south from the top surface. The area in this square on the top surface was sloping from north-north-east to south-south-west.

ROOM – III

The plan of Room-III, adjacent to the south of Room-II was divided by a 76 cm wide common partition wall. The room extending almost north-south, measured 2.75 x 2.40 metres from inside. An opening of 1.40 metres width revealed a doorway in the wall on the east and provided an access to the central court-yard. The diggings in the room were taken down to an average depth of 80 cm from the top surface. In a portion of the room, the traces of a floor level were recorded with a number of potsherds and stones.

ROOM – IV

It was located on the southern end in the row of rooms extending north-south on the western side of the central court-yard. The room extending east-west, relatively measured 4.60 x 2.40 metres. A well recorded break of 1.38 metres in the masonry on the eastern end of the stone wall extending west to east on the northern side of the room, revealed a doorway towards the central court-yard in the north. This doorway was blocked in the later period. At the depth of 72 cm from the top surface, a floor level was partially uncovered on the eastern side in the room (Pl – XXIV, b). A 90 cm wide stone wall in the south divided the row of rooms extending east-west from the three large halls in the south and joined the western wall of the Stupa Court-B in the east.



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ROOM-V

It was located on the eastern side of Room-IV and was divided by a common partition wall of 75 cm wide. The measurements taken from inside, revealed the irregular plan of the room. It was 2.78 metres on the northern side and these measurements enhanced to 2.82 metres in the south. On the western side, the room was 2.41 metres and was again enhanced to 2.55 metres in the east. The excavations in the room were taken down to an average depth of 40 cm from the top surface and a floor level was partially uncovered.

ROOM - VI

The plan of the Room-VI, on the east of Room-V, was partially uncovered with damaged walls on the east and north-east. The room from inside measured 3.65 metres long from east to west. It was 2.30 metres wide in the west and increased to 2.50 metres on the eastern side. A gap of 1.10 metres in the wall on the north revealed a doorway opening towards the central courtyard.

ROOM - VII

It was located east of Room-VI. As the western part of the stone wall extending east to west on the northern side and the larger northern half of north-south wall on the western side were damaged, so it was not possible to record the exact measurement of the room. However, as it was extending east-west, it measured 3.40 metres and 2.70 metres on the southern and eastern sides respectively. The diggings were carried to an average depth of 75 cm from the top surface.

ROOM - VIII

Located in the south-eastern corner of the monastery, it was uncovered east of Room-VII and south-west of Stupa Court-B. It was separated from Room-VII by a 80 cm wide common partition wall. The room extending east-west measured 2.88 x 2.35 metres and the excavations were taken down to a depth of 65 cm from the top surface.

ROOM - IX

It was comparatively smaller and extending east-west measured 3.10 x 1.60 metres. It was divided by one metre wide common partition stone wall from Room-VIII in the south. The diggings in the room were taken down to a metres depth from the top surface. Nothing worth mentioning was recovered from the room.

VESTIBULE

In the north of Room-IX the plan of the vestibule connecting the monastery with the Stupa Court-B was uncovered. It was 3.65 metres from north to south while the east-west width varied from 3.52 metres in the south to 3.10 metres on the north. The opening in the west towards the monastery area was 2.20 metres and in the east, the damaged structure revealed an opening of 1.71 metres.

ROOM - X

On the northern side of the vestibule, the plan of a spacious room was uncovered. The room extending north to south on the western side was 5.02 metres and 4.80 metres in the east. Its width from east to west on the northern side was 5 metres and 4.90 metres in the south. A gap of 1.40 cm revealed a doorway in the stone wall on the west providing an access to the central court-yard of the monastery. Another comparatively small opening of 70 cm width revealed another doorway on the eastern end of the stone wall extending west to east on the northern side. The excavations in the room were taken down to a depth of 1.10 metres from the top surface.

ROOM XI-XII

In the north of the spacious Room-X, the plan of comparatively two small rooms were numbered XI & XII in the east and west respectively. Both the rooms were divided by a 70 cm wide common partition stone wall. Room-XI extending north to south was 2.30 x 1.95 metres with a variation of 5 cm to 10 cm due to ill-planning. A gap of 70 cm in the wall on the south revealed a doorway and it provided an opening to the spacious Room-X. The excavation in the room was taken down to a depth of one metre.

Room-XVII on the western side, also extending east to west, measured 2.30 x 1.99 metres with slight variation as a result of irregular plan. A gap of 94 cm in the wall on the west revealed a door and it opened to the central court-yard of the monastery. The diggings in the room were taken down to a depth of 65 cm from the top surface.

In addition to the central court-yard surrounded with row of rooms, the excavations on the southern side along the stone walls revealed the partial plan of three large halls. The hall on the western side, square in plan measured 9 x 9 metres from inside. The hall in the east extending north to south was 9.10 x 5.95 metres. The third hall located further east, also extending north-south, was 9.18 x 3.65 metres. Further excavations will be required to be done to determine the purpose and function of these halls in the Buddhist establishment uncovered on the site.

In the evolution of the Buddhist "Sangharama" taken in the third, fourth and fifth centuries, when the image had become as constant and ubiquitous a feature as the stupa itself. In the Sangharama of later period, the living-quarters had come to be completely separated from the courts of public worship, how the chief cult stupa was placed in a quadrangle of its own, with range of image-chapels, in place of the older living cells on all four sides of its own, apart from a single small private chapel and some cult images, the monastic quadrangle was reserved exclusively for the living quarters of the monks and how, finally, the hall of assembly, refectory and kitchen came to be grouped together outside this quadrangle in a position where they would be likely to interfere either with the meditation of the monks or the devotions of lay-worshippers in the public courts.

MASONRY

In the construction of the buildings two chief varieties of masonry are readily distinguishable. One of these is a large coarse diaper which marks the transitional stage between diaper and semi-ashlar and is characterised by the use of relatively large stones, sometimes roughly squared, to fill the interstices between the bigger boulders. It was in vogue in the second century A.C. and occurs in numerous buildings at Dharmarajika, Jaulian, Khader, Mohra-Maradu, Kalawan at Taxila and the recently re-discovered stupa and monastery at Hasan Abdal. At Haji Shah Morr, this type of masonry can be seen from the outter face of the walls enclosing both the Stupa Courts A & B in the north-west and east respectively (Pl - XXV, a). The other variety is the

diaper, or to be more precise, small diaper which is of common occurrence in the Gandhara region (Pl — XXV, b). Here, at Haji Shah Morr, it is used in the construction of the monastery and other attached buildings. In both varieties the hard local limestone quarried on the hill in the close vicinity in the south and south-west was used for the larger blocks as well as for the infilling of small chips, and in both varieties the core of wall was composed of loose rubble. Mud served as a binding material in place of lime-mortar, the surfaces of the walls were protected by a coating of plaster made of lime. In the decoration of stupas, kanjur stone, let in-between the limestone blocks, is used for the mouldings and pilasters, harmikha and umbrellas. In many parts of the buildings the foundations of the walls rest on the natural rock.

FINDS

Among the finds, a good number of Gandharan sculptures, largely in stucco, were most out-standing. The figures of Bodhisattva were decked with ornaments on their neck, torso and arms. Their head was adorned sometimes with a turban, sometimes simply with a bejewelled chignon. Out of the prized finds were a beautiful bejewelled bust of Bodhi-sattva (Pl — XXVI, a), haloed seated Buddha in "dhyana-mudra" dressed robe within the corinthian pilasters (Pl — XXV, b), head of a Satyr bearing moustaches and beard (Pl — XXVII, a), head of a Bodhi-sattva wears ear-rings and elaborate head-dress of fan, tail-like, with candle on the crest in front (Pl — XXVII, b), another head of a Bodhi-sattva wearing an elaborate head-dress, bow band within rosette flowers in front under a damaged crest (Pl — XXVIII, a), a large frieze in schist depicting haloed standing Buddha accompanied by Vajra Pani revealing the scene of Dipankara jataka (Pl — XXVIII, b), another part of a panel depicting a standing bejewelled and well dressed couple on the right, a child riding over a lion with another child holding the tail of the lion on the corinthian pilaster and a standing female devotee holding hand in adoration in the left (Pl — XXIX, a). It also included decorated and carved stone umbrellas and architectural pieces of the stupas.

Other finds consisted of metal objects, both of iron and copper, shell bangle, stone and terra-cotta beads, terra-cotta oil lamps, and figurine and a few copper coins. In the iron objects nails, hooks and hubbed wheel of the cart are worth mentioning (Pl — XXIX, b). The copper objects consisted of bowls and a spatula with flattened shaft and 'nandi-pada' handle (Pl — XXX, a). Spatulas were employed for a variety of surgical purposes particularly for the mixing and spreading of ointments etc. The typical Graeco-Roman spatula

had a leaf-shaped or oval blade at one end and the bulb at the other. In local type, the bulb is replaced sometimes by the "nandi-pada" executed in flat beaten metal. A number of these instruments have been found in Sirkap, at Dharamrajika Stupa and other later period sites. They may have been used for purposes other than surgical.

Pottery was of utilitarian rather than ceremonial types. It was wheel-turned, generally red in colour, with some sherds of grey and black ware, fine in fabric. Some of the forms included medium sized plain red ware jar, tapering sides and flat base (Pl - XXX, b), dull red ware bowls with slightly incurved feature-less rim (Pl - XXXI), grey ware bowl with some inscribed letters, beakers and water pitcher. It was largely without any painting or decoration. Almost all the types and forms of pottery recovered on the site were typically of the late Buddhist period and were comparable to many other sites in the Gandhara region.

CONCLUSIONS

There is no doubt that the excavations at Haji Shah Morr have enabled us to get a deeper insight into the ways and manners of the donors who ordered, and of the artists who decorated, these stupas. Now, this familiar acquaintance with bygone people is after all the chief aim of archaeological research. Yet we must not forget that in those data lies the main contribution which this stucco decoration can make to the advancement of our studies.

With respect to the identification of those decorative images, which are unquestionably Buddhist idols, the new examples from Haji Shah Morr do not seem to help very much our previous iconographical knowledge. Over and over again, we have only been able to recognize Buddhas and Bodhi-sattvas, Vajra Pani, Devas, Yakshas, and in these generic denominations we have not succeeded in super-adding any proper name. Upon the whole, therefore, the excavations at Haji Shah Morr do not bring any substantial addition to the pantheon of the Gandhara school, we can only say that they provide some stepping-stones for future discoveries.

EXCAVATIONS AT
RAJA GIRA, SWAT
A PRELIMINARY REPORT

by

Umberto Scerrato

(PLATES XXXII-XXXIV)

The appearance of Islam, an important event in the long, fascinating political and cultural history of the Swat valley, in N.W.F.P., has again become a topic of interest. The Italian archaeological Mission, in its thirtieth year of activity, and in agreement with the Pakistan Department of Archaeology, recently launched into a new piece of archaeological research. The work was carried out by the team for research into the archaeology and history of Islamic art led by Prof. Scerrato of Rome University with the collaboration of Dr. Francesco Noci and Mr. Nicola Olivieri, and with the participation of Mr. Aftab Ahmed Khan of the Department of Archaeology & Museums, Pakistan.

The Mission are at work to unearth a mosque dating back to the Ghaznavid period, situated on the slopes of Mount Raja Gira, near the village of Udegram. This is within sight of the river Swat, and was, according to tradition, the seat of the last Hindu ruler of the region. The area of Udegram was the site of the ancient Ora, conquered by Alexander the Great it was one of the important centres in the region, where the rich Buddhist art for which Swat is rightly famous, once flourished. Until now archaeology revealed generously enormous wealth of monuments and Buddhist sculptures. At present it has discovered at Barikot a pre-Islamic city, one of the most important ones in Swat and probably the other city wiped out by Alexander the Great, corresponding to the ancient Bazira. At the same time, a vast outline of prehistoric

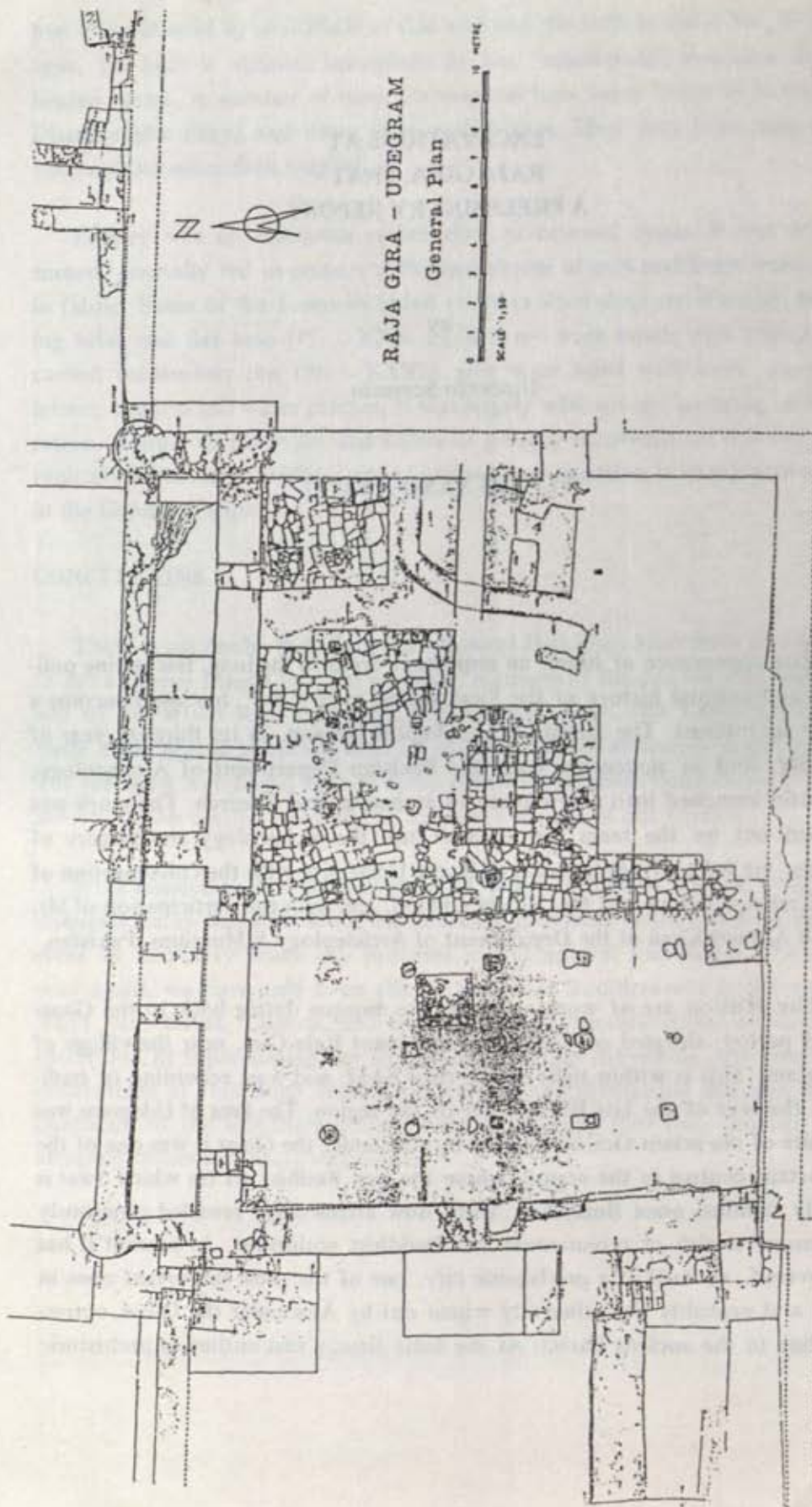


Fig: 7 General Plan.

and protohistoric antiquities is being sketched; but such a fundamental phase as the advent of Islam in Swat was still bound up with oral traditions and lacked historical and archaeological support.

The Italian archaeological Mission had for some time been carrying out research into the various expressions of Islamic art in the area to fill up this gap, and in particular had been involved in drawing up an inventory of the wooden mosques in the Swat and neighbouring areas. Though largely ignored, and of a period that is not so remote, their great interest lies in the fact that they not only serve for documentation but are of considerable beauty. They are now running the serious risk of being lost, as a burst of religious fervour is leading to the rebuilding of these mosques with the destruction of the fine wooden carvings adorning them, indiscriminately replaced with rough concrete and crude metal sheeting.

As we have said, historical sources provide no evidence about the rise of Islam in the Swat valley. There is an oral tradition alone, still deeply-rooted and very much alive, to attribute to Mahmud, the great Ghaznavid sultan, the conquest of the fortress surmounting Mount Raja Gira. This was enough to break down the resistance of the former inhabitants, the idol-worshipping Dardi, thus marking the rise of Islam in the Swat valley. According to the religious tradition, the fortress held by the last Hindu sovereign was conquered by the hero and martyr Pir Khushhal Ghazi Baba, the religious leader of the Ghaznavid army to whom Mahmud had entrusted command after having had a dream. The tale that Inayat-ur-Rahman came upon recounts how Raja Gira's beautiful daughter, Munja Devi, fell in love with Pir Khushhal and set about helping ensure the success of his conquest. However, the hero fell in battle, his body reduced to a bleeding mass of wounds in the final victorious attack. His tomb, in a shady 'ziyarat' at the foot of the mount where he performed his great deeds, is still an object of veneration today.

The tales of events dating between the 11th and 12th centuries recounted in the *Rajatarangini*, "The river of the kings", the famous historical work written by the Kashmiri Kalhana in the mid-twelfth century, offered the first clues as to the rise of Islam in the mountainous regions of north-west Pakistan which include Swat. Then the Italian Mission, between 1958 and 1960, gathered from excavations of the so-called Castle of Raja Gira undoubted traces of an Muslim occupation around the 13th century in the form of a few fragments of pottery and some coins.

The discovery of this mosque and the inscription now show beyond any shadow of doubt that the rise of Islam in Swat began in the Ghaznavid period, in the first half of the 11th century. This Islamization was, however, to be concluded only at the end of the 16th century when the Yusufzays came on the scene.

The starting point for the work was offered by an inscription in Arabic found on the slopes of Mount Raja Gira in 1984 and reported by the then Curator of the Swat Museum, Mr. Nazir Khan. Apparently the inscription was lying near a group of ruins where the present writer had suspected the existence of a mosque as early as 1959, and some recent clandestine excavations had made this even clearer.

The inscription in Arabic attests to the foundation of a mosque in the year 440 of the Hijra, that is, 1048-49 A.D., an extremely critical period for the "Ghaznavid Empire". In fact, 440 H was the year in which no fewer than four sovereigns came in rapid succession to the throne of Ghazna, the last of these a surviving son of Mahmud, Abd ar-Rashid. Building was got under way by an Amir Anush Tegin, who was probably one of the Ghaznavid generals active at the time who bore his name, though we are still not able to identify him with certainty.

We know of only one other, older Arabic inscription in the N.W.F.P., the one in the Tochi Valley, much further south. It is dated 243 of the Hijra, 847 A.D., and is now kept in the Peshawar Museum. But the Raja Gira inscription supplies evidence of the oldest mosque founded in north Pakistan, and as we can reasonably suppose that the mosque we are now uncovering is the same one referred to in the inscription, the monument assumes fundamental importance. It can, in fact, be described as the third known mosque in Pakistan, in order of time, after those of Banbhore and Mansurah in Sind excavated by the Archaeological Department, as well as being the oldest dated mosque known in north Pakistan.

The ruins are situated on a large stretch of partly artificial terracing half-way up Mount Raja Gira and about a hundred metres below the so-called Castle. Here, in 1956 and 1960, the Italian archaeological Mission had uncovered a phase of Muslim occupation.

The first stage of the work on the central part of the ruins has almost completely uncovered a hypostyle mosque of rectangular plan measuring 28 ms. x 21 ms. The remains of the building, reaching a considerable height in parts, are in slabs and blocks of schist, in a late variety of the so-called Gandhara masonry typical of the area. The building of the basic structure of the mosque appears to have been uninterrupted, though levels of a later period of occupation can be detected in some less regularly built structures, mostly to be attributed to a time when the building had lost its original function.

It is worth noting that the qibla wall shows the typical mihrab with a square plan characteristic of mosque architecture in the eastern area up to the pre-Seljuk period. This confirms the dating of the complex as that of the Ghaznavid period.

While belonging to the broad category of the hypostyle kind, the mosque shows some very peculiar features.

The lay-out was, at least originally, characterised by an entrance on the east side, opposite the qibla side though not in line with the mihrab, and a second entrance on the west side.

The most striking feature is the very limited dimensions of the courtyard, just a space equivalent to the width of two aisles, practically in the middle of the building. This space is taken up almost entirely by an ablution bath.

This feature, according to the present knowledge, is unusual especially in this period.

The mosque must have been entirely covered by a flat roof resting on five series of supports running from north to south, and eight from east to west. The roof-supports, columns or pillars that must have been of wood and have now disappeared, were set on stone bases many of which remain.

The division between the actual "prayer hall" and the rest of the covered area is well defined by the difference in levels of the two areas, as well as by a different type of flooring: the former area, a step higher, in beaten earth, and the latter, corresponding in function to the courtyard, in slabs of schist. We should suppose that this second area was originally exposed to the weather,

open to the sky, and only subsequently fully supplied with pillars and a roof, except for the central part, where, as we have said, the ablution bath is now placed. This part of the roofing may have been taken because of the extremely bad exposure conditions of the mosque on the shaded side of Raja Gira, particularly for rainy weather of the region during spring and winter time, but at the moment we don't have any archaeological proof.

Other noteworthy features are a Ziyada on the northern side, overlooking the valley, containing three oblong hujras, one of which has a large window, and the handling of the facade which is articulated with three cylindrical-tower buttresses. While this use of towered buttresses fits in with the tradition of Hindu-Shahi architecture typical of the area, at the same time it gives the mosque the look of a ribat, and this is very appropriate for a religious building rising on the then new frontier of Islam, effectively symbolising its power.

Excavation of the mosque is not yet complete; there still remains the south-east quadrant hidden beneath great layers of fallen material and sediment. Moreover, the east and west sides of the terrace are worth exploring, and would certainly help to understand the position of the mosque within the urban context of Raja Gira, and what type of buildings it was connected with.

To safeguard this important building we took steps to consolidate and restore the structures that were in the most precarious conditions; laying a basis for a more organic operation.

These discoveries have, therefore, great importance for historical documentation; they cast a vivid light on events during the first stages of the Islamization of Swat that had, as we have seen, lacked any degree of certainty. Historico-literary sources had had nothing to say on the matter, and until now there had been no appropriate archaeological investigation.

EXCAVATIONS
AT
MEHRGARH – NAUSHARO

by
J.F. Jarrige

(Plates: XXXV – XLVII)

The twelfth season of work at Mehrgarh-Nausharo, district Kachhi, Baluchistan, was conducted from the beginning of December, 1985, until the end of February, 1986 by the French Archaeological Mission in collaboration with the Department of Archaeology & Museums, Government of Pakistan. In addition to the representative of the Pakistan Government, Mr. Bahadur Khan, Assistant Curator, Archaeological Museum, Taxila, the field staff included:

J.F. Jarrige, C.N.R.S., Director of Project

C. Jarrige, C.N.R.S., Archaeologist

G. Quivron, C.N.R.S., Archaeologist

A. Samzun, Archaeologist

M. Lechevallier, C.N.R.S., Archaeologist

L. Wengler, Quaternarist

M.L. Inizan, C.N.R.S., lithic technology

M. Plantec, restoration and drawing

P. Sellier, Anthropologist

1. INTRODUCTION

In the archaeological area of Mehrgarh itself no excavations were conducted in the course of the twelfth season, but L. Wengler, from the laboratory of Quaternary Studies of Bordeaux, has continued and extended field studies of the sedimentological processes of the Bolan basin in relation with the archaeological remains of Mehrgarh. This work which involved a complete restudy of the sections, natural or archaeological, in the MR. 3 area has produced very important results*.

From Wengler's provisional conclusions, it appears that the process of terrace formation already seen in the section cut by the Bolan river in sector MR. 3 is more complex than it was thought first. Between the aceramic mound (IA) and the deposit of IB which accumulated on the slope of this IA mound, there has been obviously a major episode of erosion which took away the early terrace, to-day preserved only beneath the aceramic mound. This fact supports the assumption that the span of time of the neolithic sequence at Mehrgarh is much longer than it was thought some years ago and our dating at about 7000 B.C. for the aceramic (supported by even earlier radio-carbon dates) is probably a rather conservative estimation.

Another important aspect of the work done by L. Wengler is the study of the general geology of the quaternary period in the Bolan basin which leads him to the discovery of a few clusters of flakes and of a limited number of tools which on typological basis can be related to the mid-paleolithic era. (Fig. 26) These pieces, including a few Levallois flakes, were found among the pebbles forming the glacia overlooking the alluvial basin of the Bolan river**. In spite of the fact that the surface of the glacia has been disturbed by erosion, these lithic pieces represent so far the earliest archaeological remains found in the Bolan basin and the whole Kachhi plain.

2. EXCAVATIONS AT NAUSHARO***

The main aim of the field season was to assess the stratigraphical sequence of an archaeological mound, 1.5 km south of the modern village of Nausharo whose landlord, Mir Sultan Qaim Khan Shahwani, was kind enough to provide us with all facilities for conducting our work.

* The results have been summarized in a separate preliminary report.

** A typological study of these tools can be found in the preliminary report of L. Wengler.

*** The reference to Nausharo was first time made in the preliminary report during the first season at Mehrgarh in 1975 when the presence of mature Harappan sherds was reported by the French Archaeological Mission in Pakistan! Editor.

The mound of Nausharo is, as the crow flies, at about 1.5 km east of the archaeological area of Sibri where small-scale excavations were conducted in the course of the seventh and eighth seasons (1980-81 & 1981-82). The site, 6 km south of sector MR. 1 (Mehrgarh, Periods VII and VIII), forms a mound whose top is 9.35 m above the surrounding fields.

The first task was to map the site systematically and to set up the grid-plan of the excavations. The archaeological remains visible above the modern surface have been included in a grid-plan of 200 m x 200 m (Fig. 8). The mound is to-day divided in two parts, the northern one which culminates at 9.35 m above the modern plain is almost circular and the southern one has an elongated ovoidal shape with a west-east orientation.

The configuration of the mound is not due to natural erosion but results from the encroachments of farmers. This explains the very steep slopes (declivity of about 23%) of the mound which is abruptly circumscribed by cultivated fields. As we shall see later on, excavations in sector NS.G, which marks the limit of the northern slope and the surrounding fields, have already given evidence of at least 2 m of superimposed mud-brick buildings below the modern surface of the fields. This fact shows clearly that the limits of the mound as they appear to-day above the fields provide us with no information on what could have been the actual size of the settlements which existed in the past in this area, they just represent a core of mud-brick buildings whose density was strong enough to resist to the levelling down activities of the farmers. Some sectors of the site have also been used as a graveyard (NS. R, U, in the grid-plan, Fig. 8).

Excavations were undertaken in four sectors of the grid-plan in order to get the most comprehensive idea of the stratigraphy of the site and of the internal organization of the settlement in the course of a few weeks of field-work. On the northern slope of the mound we had noticed the presence of many sherds in the style of the pottery found at Mehrgarh in period VII (Faiz Mohammad Gray ware, Bracketed ware, Quetta ware, wet-ware, etc.) which were mixed with mature Harappan potsherds. Such Mehrgarh-Period VII sherds were almost totally absent in the other areas of the site. It seemed, therefore, very important to try to understand the exact relation of these remains connected with period VII at Mehrgarh with the mature Harappan material strewn all over the site. For this purpose an excavation was undertaken in sector NS. G where the highest concentration of this obviously early finds had been noticed on surface. Another problem in this sector was

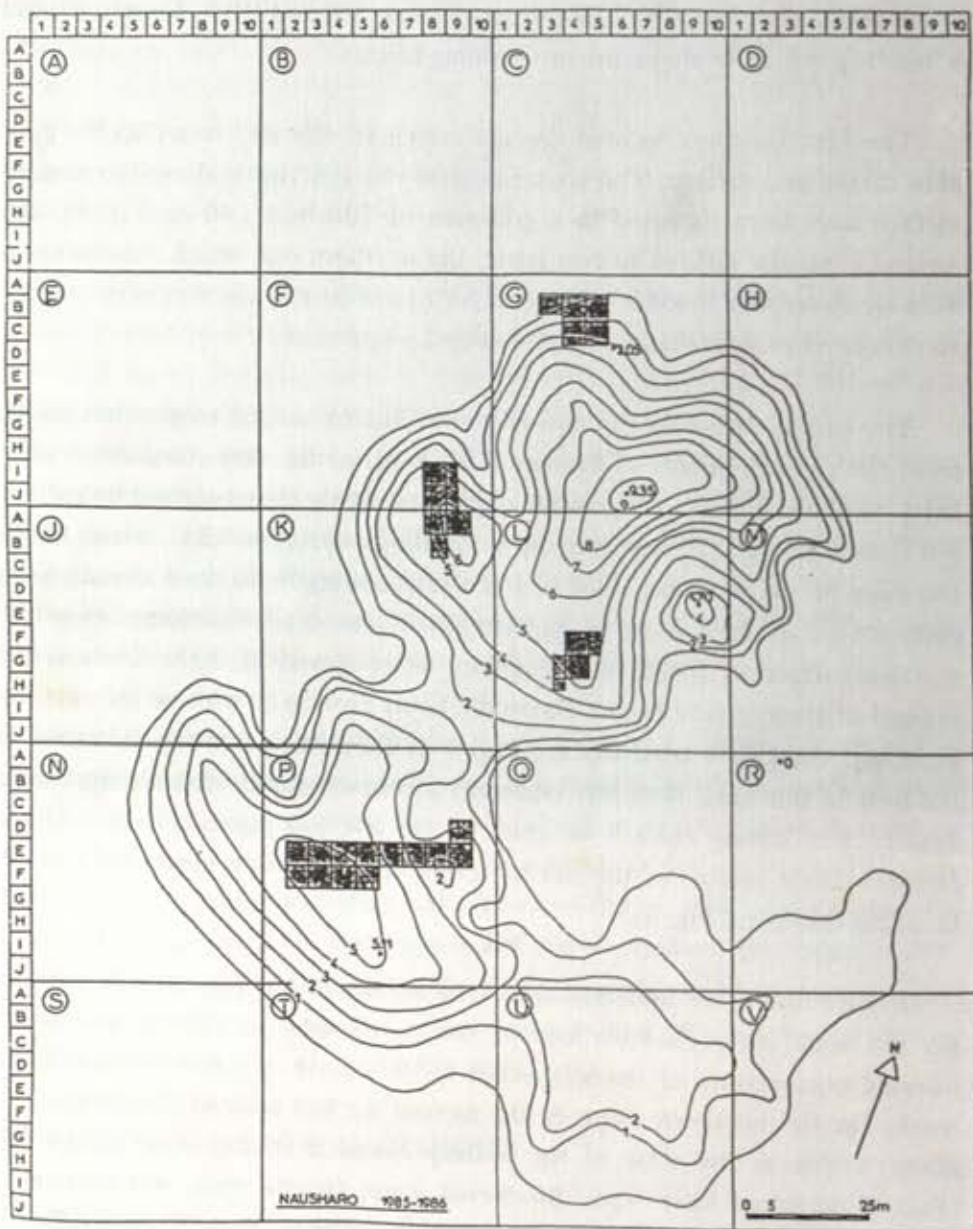


Fig: 8 Topographical plan of Nausharo : within black the squares where excavations have been conducted.

related to the presence of several fragments of carinated bowls in a gray ware typical of the Iron Age levels of Pirak.

Two other excavations were undertaken in the northern part of the mound in sector NS. F/K and in sector NS. L in areas which on surface have yielded mature Harappan sherds. The aim was to get an idea of the internal stratigraphy of the mature Indus Civilization settlement and of its architectural organization. The same purpose was also behind the excavation undertaken on a large scale on the eastern slope of the southern part of the site, in sector NS. P, where we had also noticed the occurrence among the surface material of many fragments of truncated bowls and of pedestalled bowls typical of the pottery found in the southern funerary complex of Mehrgarh, period VIII and also at Sibri. Such sherds are particularly frequent in sectors NS. U, NS. V where due to a graveyard excavations are impossible, but they were also present in NS.P where we could hope to be able to assess their stratigraphical position in relation to the mature Harappan material found in this area.

From the surface finds in the lower part of NS.G, related to period VII at Mehrgarh to the surface finds related to Mehrgarh/Sibri Period VIII in sector NS.P, with in-between a considerable amount of mature Indus civilisation deposits, we could expect to bring an important contribution to the general sequence of the Bolan/Kachhi region and by extension of the Indus system.

In this report one will also find a short note on a chance discovery made on the eve of our departure from Mehrgarh to Karachi. On the edge of the *Kacha* road to Sanni, 300 Yards after the fork for Nausharo, a grader widening the road had cut through three graves containing pots in the style of Mehrgarh, Period VIII.

Since this report has been completed only a few weeks after the end of first excavation ever made at Nausharo, its conclusions are still very limited and provisional, as it has been the case when we began working in area MR.1 at Mehrgarh. For instance, the density of structures still preserved below the modern surface of the plain (altitude zero in reference to a point set in sector NS.R) cannot be assumed as it is shown by the fact that the natural soil had not yet been reached when excavations in sectors NS.G and NS.P were stopped about 2 metres below the altitude of the zero point, due to lack of time. The periods which are used in this report are, therefore, provisional and are likely to be modified when the stratigraphy will be under-

stood on a larger scale. Periodization as usual has been built on the ceramic sequence, but this ceramic sequence cannot yet be fixed in detail before ongoing pottery studies are more advanced. So, in a provisional way, the sequence of the site has been divided in Period IA (Mehrgarh VIIA,B), Period IB (Mehrgarh VIIC, Lal Shah, Amri IIB), Period II (Amri IIIA), and Period III (Amri IIIB). Period III has probably to be divided in 3 subphases A, B and C.

1. EXCAVATIONS IN SECTOR NS.G: by A. Samzun (Fig. 9 & 10)

For this first season campaign, the aims were to tentatively localize the different periods, and to check if there was no earlier phase than Indus. Few years ago, while surveying Nausharo, it had been noticed that in northern part of the site, there were sherds which appeared to belong to a period other than Indus phase, and could be compared to those evidenced in Mehrgarh (but in a very eroded part of the site) and especially in the Kilns area of Lal Shah. This period was called MR VIIC.

It was decided to lay out a stratigraphic trench in this area (called NS.G), in order to check if the sherds noticed on the surface of the mound confirmed the idea of an earlier occupation. We started the excavation half-way down the slope of a mound situated north to the site.

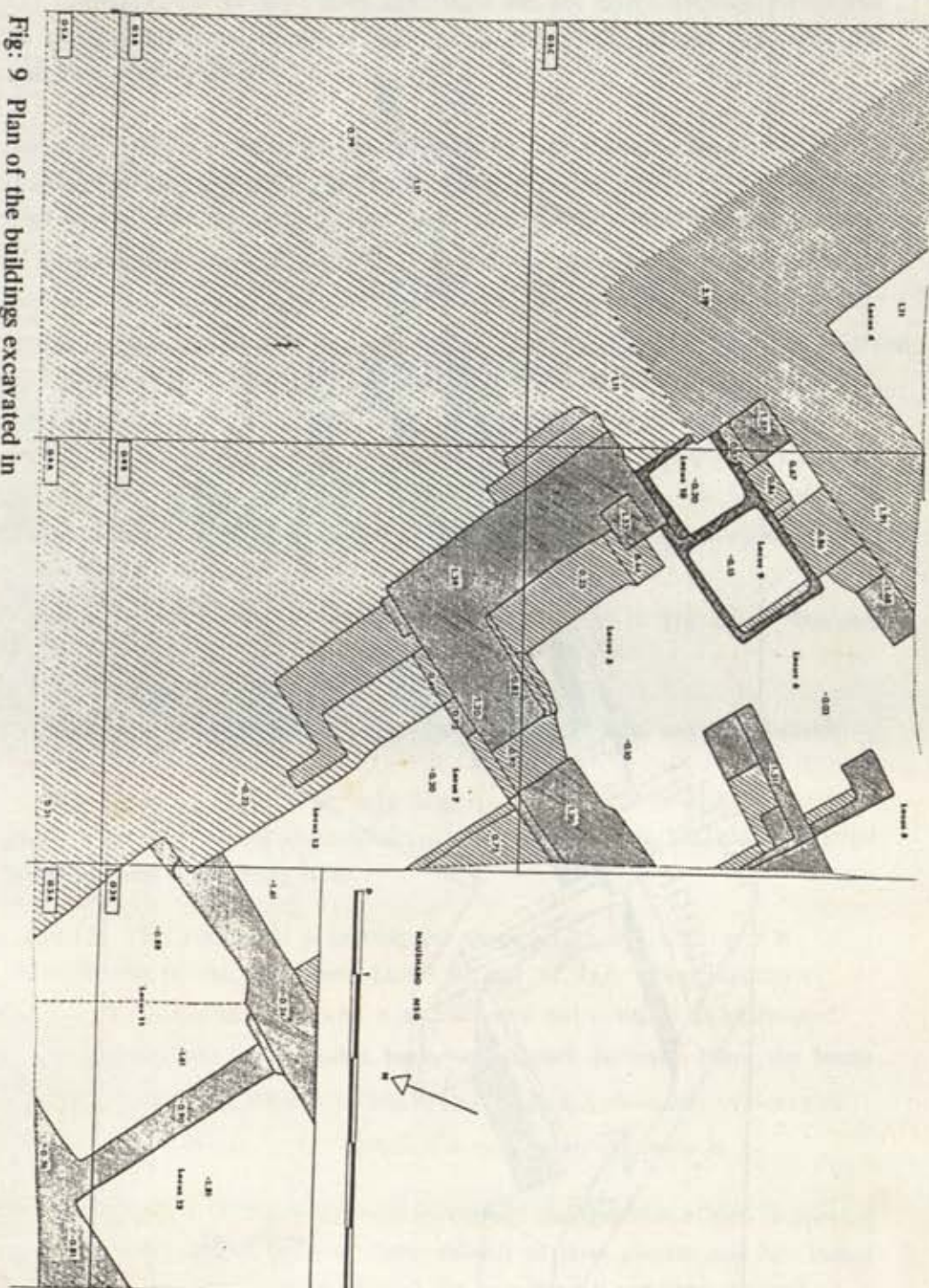
The squares 3A/B, 4A/B/C, 5B/C were opened (100 sq.m, some of them only partially excavated) following the slopes of the mound; digging to 5.50 m, without yet reaching the virgin soil. So far two phases have been evidenced: one corresponding to MR VII A-B (NS IA), and the other to the period MR VIIC (NS IB).

NS IA period has been clearly evidenced in the trench G 3A/3B which is perpendicular to the trench G 4/5C (corresponding to NS IB). We have not yet got a real period of transition, since NS IA phase starts right below the present surface ground.

1. Trench G 3A/3B:

A trench, G 3A/3B measuring 5 m x 3.5 m. was laid. The limited excavation of this earliest archaeological level has not been completely achieved during this season: we evidenced 2 architectural layers (5 and 4) for which we got 3 loci (level 5) and a part of a wall (level 4) as well as a platform reused in period NS IB.

Fig. 9 Plan of the buildings excavated in Sector NS. G. (Period IA and IB).



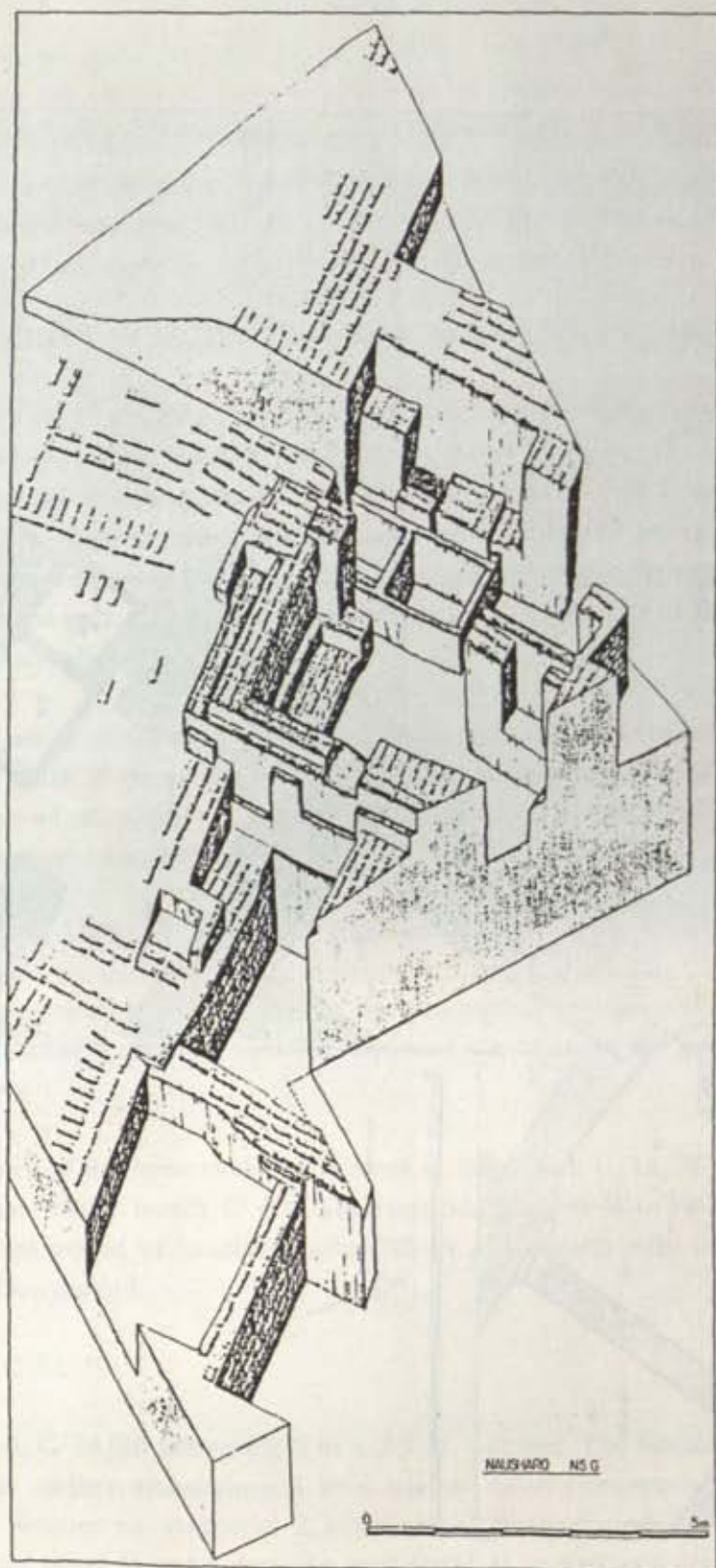


Fig: 10 Isometric view of excavated remains
in Sector NS. G. Period I.

Level 5:

Locus 11, 12, 13 have been unearthed but not completely excavated due to the limitation on extent of the trench. Moreover, we did not reach the real base of the walls.

Locus II: We can estimate approximatively its surface, since only the northern corner is missing (dimensions of the room: 2.67 x 2.50 m; surface: 6.67 sq. m). This room is isolated from locus 12 by a wall made of 2 rows of bricks (length: 2.92m, thickness: 0, 35m): this wall is perpendicular to another which separates Locus 11 and 13 which is as large as 4 rows of bricks, and has a light recess with only 3 rows of bricks: this wall is partly re-inforced by a small buttress consisting of one brick; it has been built against the platform and its top is higher than the wall of rooms 11-12. We only uncovered 7 courses of bricks of these walls, getting to the level 5A only in the western half of this room, since we did not excavate the other part to reduce the surface of the sondage G 3A/3B. This room is almost square-shaped.

Locus 12: We excavated near the north-western part of this locus, but due to the limitation we do not exactly know its actual size.

The walls are about 1 metre in height, though the base not yet reached.

The filling of these 2 locus is rather homogeneous, level 5A consists of ashes, a lot of charcoal and important areas of fireplaces, while the material found in them is generally rich.

Locus 13: This room has a rectangular shape (3.35 x 1.43m) and is perpendicular to the other two, Locus 11 and 12. It is constituted by a platform in the eastern part and a parallel wall not completely excavated. The function of this room must have been rather different from the locus 11 and 12, since its fill is quite bricky, and does not show any evidence of fireplaces. Nevertheless, we recovered few complete pots inside it.

The platform: it is still difficult to explain the function of this important platform which seems to have been rebuilt at later phases and has varied height, in locus 13 it is 1.83m, though the base has not yet been reached.

Level 5B:

The same rooms (11, 12, 13) seem to have been re-occupied in level 5B. In the locus 11, we uncovered 3 large bricks of reddish colour, burnt by the fire: they lie parallel to the western wall of locus 11 at a distance of 10 cm. Just beside the bricks, against the same wall, a large grinding stone has been recovered. The fill was quite ashy and many charcoals were collected.

Level 4:

The only remnant from this occupation level was a wall or northern corner of a platform. It seemed heavily eroded and has only an height equaling one brick. This occupation level has been found 0.22m under the present ground level.

Material from levels 5 and 4:

Artifacts were discovered in this trench G 3A/3B in larger number than those in the trench G 4/5 B/C. The potsherds were numerous but quite homogeneous in character, many of them in complete shapes. The figurines of animals and human beings (Pl. XL.b) are quite numerous (especially, if we compare this to later level of sector NSG), as well as "rattles" often fragmentary, but few of them were found complete, bangles and spatulas consisting of rectangular shaped sherd with average measurement of 8 - 9 cm x 4 x 1.2 cm. Except one complete needle. Only pieces of metal have been found here. A large quantity of fauna, seeds and charcoal was collected from this trench.

2. Trench G 4A/B/C, 5B/C : period NS IB:

The work in this trench led us to excavate impressive architectural remains (level 3: L. 4,5,6,7,8), included in the platform (eastern part) (Pl. XXXV.a). Moreover, just above this occupation, we unearthed parts of walls and rooms (L. 1, 2, 3) which correspond to level 2. Above this layer, there was no evidence of architectural remains (level 1); In squares G 4/5B, a deep pit, with numerous potsherds of various periods (NS G IB, Harappan phase, and Pirak late phase), gives evidence of later occupations which almost completely disappeared due to cultivation and erosion on the mound.

Level 3:

This is the most important level as far as the architectural remains are concerned; a part of the complex (platform and L.7) is built upon the previous level (level 5). The different structures are described starting from L.4 to L.7.

Locus 4: We excavated this room only partially as with the uncovering of the northern corner we could managed to dig to the depth of 0.80m, due to its narrow surface. L.4 includes 2 perpendicular walls (also partially exposed): western wall, 8 rows of large bricks and eastern wall which rather includes a large platform. (During this campaign the eastern part has not been completely unearthed). Few potsherds and a human figurine have been uncovered in L.4.

Locus 6, 9 and 10: This room is of particular interest because we recovered, at the base of the walls an important occupation level. This room is isolated from L.4 by the large wall made of 8 rows of bricks; its base has been found at an altitude of 9.20 m, which gives it a maximum height of 2.11 m. This wall has been reinforced by 2 buttresses, 2 metres apart, and built at different heights: the one on the north-eastern side is situated at the recess of the wall and begins at 0.34 m from the top of it, while the second one (partly in the section of the trench) is 0.23 m lower than the top of the wall. They have about the same thickness (5 bricks large). Built at a lower level, was uncovered another reinforcement made of 7 bricks (3 bricks horizontally laid and 4 perpendicular) and 2 bricks 0.10 m apart against the north-eastern buttress. This leaves a small recess which has been used as fireplace. A lot of charcoals, seeds, dung of goats have been collected. North-eastern part of L.6 is partly included in the platform which makes a little recess and which is perpendicular to the wall of L.4/6. North-west wall dividing the 2 rooms (5 and 6) has a large doorway, and is partly made with a buttress of north-western wall of L.5.

Western buttressed wall of L.6 separates it from L.8, which we did not properly unearthed because of the limitation of the dig. Moreover, a large double-built fireplace (L.9 and 10) was found inside L.6.

Locus 9 (dimensions: 1.32 m x 1.24 m; depth: 0.72 m.): The fireplace here has been built against the re-inforced wall and below the small recess with ashy fill its walls, 1 brick large, had been coated with mud plaster on the

inside (turned reddish in colour because of the fire) and outside.

A central wall divides L.9 and 10, L.9 being a bit larger. Moreover, western wall of L.9 was reinforced at its base by another row of bricks.

Locus 10 (dimensions : 0.82m x 0.78m; depth: 0.77m): One of the walls of the room (north-west) was also reinforced by a row of bricks. In these 2 structures, we collected a great deal of charcoals, but also many pieces of branches, even few tools in wood, seeds, dung of goats, as well as a piece of rope. Part of a figurine, potsherds, few cakes and burnt stones have also been found.

Just above this occupation level, a circular container made of unbaked clay (diameter: 0.40, depth: 0.29m) in which many charcoals have been collected. Moreover, we uncovered 2 fireplaces (1-2) where a large number of burnt stones as well as fauna and potsherds have been noticed.

Locus 5: This locus has almost been entirely delimited and only the western corner is missing. It is isolated from L.6 by 2 buttressed walls of respective length of 1.10m and 1.50m separated by a large doorway, 2.20m long. The walls were not so well preserved, because of the slope and the erosion of the mound. Northern wall of L.5 is quite thick (5 rows of bricks) and has been partly built on the platform. It has been reinforced at its base by a course of bricks, at lower level, by another wall with 3 rows of bricks at its end (against L.10) there is a thick buttress; there is a perpendicular wall (north-west wall of L.5) which has a thickness of 3 or 4 rows of bricks; it is divided at a lower level, approximately in the middle. There is also a small passage (0.60m large).

The 2 opposite walls cut by the doorway are not exactly in the same alignment, thus the western part of the room is slightly narrower than the eastern part. The western wall has 2 internal buttresses a part of which, forming a recess, has been reinforced at its base. In the locus 5, a *tanoor* and a large fireplace have been evidenced. The *tanoor* (NS G 86.71) located in eastern part of the room, is of small size (0.50m in diameter, and 0.25m deep). Its walls were made of coarse clay having turned red with the fire; inside, the fill was very ashy. A number of charcoal and a few seeds were collected from here. In southern part of L.5 an oval-shaped fireplace has been uncovered, approx. 0.75m in diameter, 0.20m thick, where burnt stones have

been noticed in abundance. A lot of charcoals, seeds, dungs of goats have been collected from here.

Locus 7: This small room (1.4m x 1.20m) is isolated from L.5 by the thick wall with a passage : on the side of L.7, this wall has been reinforced by 3 buttresses built lower than the top of the walls. These buttresses are only in single course of large bricks and are partly included with the other reinforcement at the base of the wall. This wall (particularly, close to the passage) had mud clay of black colour, quite burnished by the fire of the fireplaces of this structure.

At the base of this wall, we uncovered the top of the large platform belonging both to NS IA and B periods. On an average, the height of the walls of L.7 is 1.60m.

Finds from locus 4, 5, 6, 7, 8 :

The fill in these rooms was generally quite bricky and artifactual remains were not found in any significant number during the excavation of the rooms, but close to the base of the walls, soil became red and grey and we recovered a good deal of ashy layers. Moreover, finds such as fauna, seeds, potsherds, figurines then came in abundance (Pl. XLA). A few jars and plates were found complete or near complete, in L.5 and 6.

In L.4, an human figurine has been collected; in L.6 animal figurines (bovids), and in L.5, one human and one animal figurine have been recovered while from L.7 came one human figurine (head and neck) and a nice stone bead (red-pinkish stone).

The pottery obviously belongs to NS IB, as far as this occupation is concerned, and apart from a single sherd typical of Faiz-Mohammad grey ware found in L.5 (probably slightly under the occupation level 3), ceramic is quite homogenous.

Level 2: Just above level 3, we evidenced another architectural layer for which we got 3 locus (L. 1, 2, 3).

L. 1: We only unearthed 3 walls (rather narrow: 2 bricks large): the room has a rectangular shape (2.10m x 1.10m) walls are preserved upto a height of 0.82m.

L.2: It is made of 3 walls, southern wall is thick (4 rows large) and divides L.2 and 3 (which is only preserved upto 3 courses of bricks). The 3rd wall (on the north) is only made of 2 rows of bricks and is not quite parallel to the southern wall: this wall is preserved to a height of 1.50m.

Material culture: artifactual remains were not found in great quantity: few potsherds, 2 human figurines and pieces of copper/bronze formed the only treasure.

Level 1: We did not encounter any architectural remains to a depth of about one metre: nevertheless, the artifacts found here were rather homogeneous and belong to NS IB. The pit, about 2 metres deep in the northern part of trench (particularly square NS 4/5 B) gave the evidence of a later occupation. There were no structures, but only a large pit with a lot of artifactual remains belonging to different periods was found (NS IB, Indus phase and even Pirak III among the sherds). Few human and animal figurines, few denticulated bangles in shank – typical of Pirak occupation, cowries, as well as numerous fragments of metal were also recovered.

The Platform: The very large platform has not yet been completely exposed. It stretches over the whole eastern part, and few walls (levels 3, 2, 1) are built or included to it. Its actual height is not known, since we did not research its base in L.13.

POTTERY OF SECTOR NS.G.

(Fig. 14, Pl. XXXIXA)

1) Sector NS IA: As far as this phase is concerned, we find evidence of ceramic which is quite similar to that collected from periods VIIA-B in Mehrgarh; it has been found in large quantity in the trench G 3A/B. We also found, in abundance, wet ware as well as Faiz Mohammad Grey ware (among them, we noticed motifs of fish, leaves, wavy lines, etc.). There are also two examples of "cut ware" already known in Mehrgarh.

Pots, Jars, open mouthed, such as bowls often carinated, dishes and plates as well as wine goblets have also been recovered. We evidenced few dishes almost complete, with red bright slip with geometrical motifs (sigma or wavy lines). Moreover, we got a great quantity of miniature vases (mostly

pots), plain or painted with geometric motifs.

2) Sector NS IB: There is only a limited quantity of ceramic, which has been uncovered, as far as this phase is concerned. As the pottery collected during the course of excavation of L.4, 5, 6, 7, 8 was rather rare; we got more potsherds at the base of the architectural remains. This pottery shows a great similarity with that collected at Lal-Shah, in the kilns area. We got thick rims (1 cm) red slipped or not, jars of wet ware, with rouletted design close to the rim; the most characteristic motifs consist of brackets designs on buff ware (often associated with large pots), wavy lined close to the rim (very common on large dishes red-slipped or not). Wet ware is also rather common. We recovered only very few potters' marks. A few examples of string marked ware as well as incised waved lines were also encountered.

3) The pit area: The ceramic found here is quite mixed as we got the evidence of at least 3 phases from NS IB to Pirak III. A few grey ware potsherds were found in addition to fragments of vases with red bright slip with *pipal* leaves typical of Indus phase, a lot of sherds of grey ware and "band ware".

Surface artifacts:

An exceptional seal (Pl. XXXIX B) has been found on the surface, which obviously belongs to NS IB: it is a compartmented seal in copper or bronze with a representation of a bull.

2. EXCAVATIONS IN SECTOR NS.P: by J.F. Jarrige

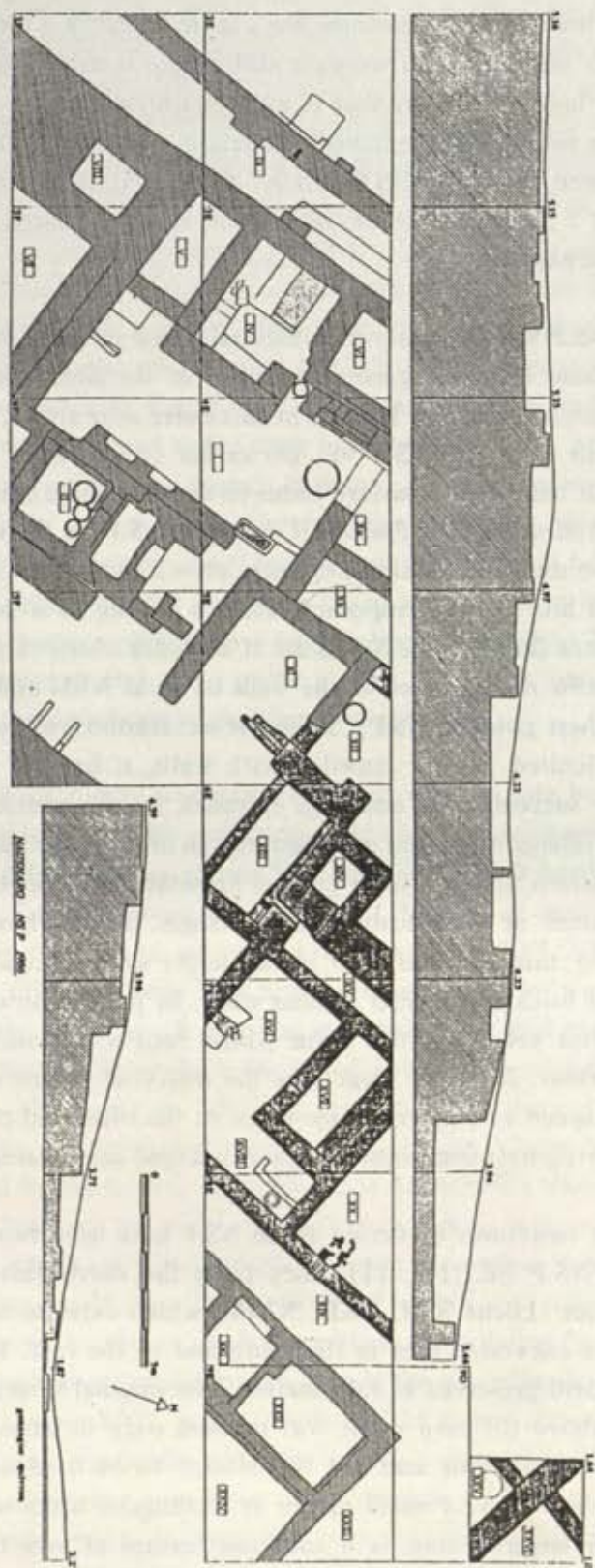
The purpose of the excavations in this sector was to put in evidence the sequence of occupation in the southern part of the site, from its top (5.88 m above the zero point) to its base. We decided to undertake a trench as large as possible from the top of what can be termed as the southern mound in order to reach, step by step, the natural soil. We selected the eastern slope of the southern mound, in sector NS.P of the grid-plan for many traces of walls forming rather regular plans were visible on the surface, specially after rains. Several of these walls were following the slope and we could assume that architectural remains would be relatively well preserved and would help us in establishing an important architectural sequence in an area which according to surface evidence could be related to a mature Indus civilization phase.

Surface indicators in this sector were, as we said it, traces of mud-brick walls, mature Harappan potsherds forming a rather thick carpet along with thousands of broken terracotta cakes. Other surface finds included the classical terracotta objects of the Indus Civilization sites, bangles, fragments of carts, shell-like spoons with suspension holes, top-shaped objects, tubular beads, and several copper fragments and broken shell bangles, but there was nowhere any significant concentration of wasters, slags or overfired sherds or terracotta objects in spite of the thick ashy layers visible in the section made by the slope.

The excavations were conducted in 13 squares (5m x 5m) of the grid-plan, (Fig. 11), for a total surface of 325 square metres. The work started from the top of the southern mound, 5.88m above the zero point. In this upper area, as well as on the slopes, several sherds which could be related to the pottery typical of the southern funerary complex of Mehrgarh, Period VIII, and of Sibri, had also been located mixed with mature Harappan sherds. By large successive steps several complexes of buildings belonging to different architectural phases were exposed till the excavations had to be stopped for lack of time and space some 2 metres below the zero point, set in sector NS.R at an altitude corresponding to about the level of the modern plain. By this system of big steps, we have been able to put in evidence an accumulation of 7.78 metres of archaeological deposits which can be divided first in two main periods. In square NS.P 9D, the architectural remains (between the zero point and -2m) (Pl. XXXVII B) represent Period II in the general sequence of the site. The other remains, above the zero point, form an accumulation of 5 metres of deposits, pertaining to Period III which, according to architectural stages in this sector and other areas of the site and to the evolution of the pottery can be provisionally divided in three subphases A, B and C.

The earliest remains in sector NS.P have been exposed in square NS.P 9D and they are limited for the time being to three walls forming the angles of four rooms. On the first floor (-0, 44m) a big jar decorated by a register of peacocks, radiating leaf-patterns and a *pipal* tree, was resting on its mouth, the base of the jar which is missing, has obviously been cut out when the structures were levelled down. Excavation in this locus XXV was stopped and it is only on the other side of its northern wall, in the angle of locus XXVI, that excavation went down to a depth of 2 metres below the zero point which corresponds to the altitude of the top of the walls. Fragments of big jars (Pl. XLII A) decorated with *pipal* pattern, of sturdy dish-on-stands, of perfora-

Fig. 11 General Plan of the excavations in sector NS. P (Period II and III).



ted jars and a broken vase in greenish onyx were found in a space which was too small to go below though we were still unable to reach the base of the wall. This fact indicates clearly that in an area which is in the centre of the site, there is no substantial pre-Indus occupation, a situation contrasting with what can be seen in sector NS.G where, from well above the zero point down to about 2 metres below the zero point, remains related to Mehrgarh, Period VII, were exposed.

In square NS.P 9D, this early architectural phase of the Indus civilization occupation (Period II in the general sequence of the site) was, after having been levelled down, sealed by 1 metre of successive ashy strata, on the top of which were built in square NS.P 9E, the earlier structures of the following period III which belong to a mature Indus civilisation phase comparable with Amri IIIB. The structures of Period III in sector NS.P. as elsewhere at Nau-sharo have to be divided in many subphases, even if on the general plan many buildings which are not contemporary seem to belong to a same complex, though the various floors of the rooms are at altitudes which vary for almost 5 metres (from 0.96 m the bases of the walls of locus XXII and XXIV up to 5.85 m the highest point in NS.P). Since the excavation was conducted step by step on a limited surface crowded with walls, it has not been easy to understand the succession of buildings episodes. In the course of time the plans of the buildings have been modified but, in most of the cases, according to the same pattern and the same general orientation. It has been mostly a continuous process of modifications and changes. Rooms have been made wider by raising thinner walls over earlier larger ones or made smaller by adding a row of bricks on former thinner walls. In the course of this excavation, we have not yet found one locus whose four walls would rest on the same building floor. It is also clear that the different rooms were filled up or modified at speed varying from one place to the other and this resulted in differences of levels between rooms or spaces occupied simultaneously.

The earliest structures of Period III in NS.P have been found in squares NS.P. 9E and NS.P 8E. (Fig. 11). They form the north-western part of a multiroomed unit (Locus XXI, XXII, XXIV) which extends mostly outside the limits of the excavated area to the south and to the east. The maximum height of wall still preserved is 1.45 metres. The original floor, a little more than 1 metre above the zero point was reached only in locus XXI, a small square room without door and not big enough to be used as habitational unit. The existence of very small square or rectangular units with no visible access, between larger rooms, is a common feature of architecture of the

Indus period at Nausharo. The fill of this locus (XXI) is an accumulation of broken terracotta cakes, ashes and sherds till 1.70m above the zero point when we reach an occupational floor in locus XXII and locus XXIV, both rooms having been modified. In locus XXII a new row of bricks is added against the northern and western walls. In locus XXIV, the western wall is made wider by the adjunction of a supplementary row of bricks. Floors are covered by remains of domestic activities. Semi-circular patches of brown burnt earth contained important concentrations of charred cereal seeds and much goat dung. In a layer of ashes many bones and terracotta cakes were collected. The majority of the cakes (including 10 complete specimens) have an oval shape and bear finger marks. Broken jars and complete goblets and miniature pots were found in the three loci. In locus XXII, 3 flint blades, one arrow head in copper, one spatula in bone, 3 fragments of shell bangles, a broken bangle in gypsum were found among terracotta objects (bangles, 2 top-shaped objects, one biconical bead or spindle whirl and tubular beads). In locus XXIV, only one flint blade was found near a broken blade in copper, but many other stone objects have been collected, including 2 hammerstones in flint, a circular mortar and a pestle in flint, 2 grinding stones, a polisher in green diorite and a rectangular polisher in white stone.

This block of rooms was bordered on its western side by a street (XIX) whose other side marks the eastern limit of another architectural unit which belongs to a later building phase. The base of the wall bordering the street XIX is about 2 metres above the zero point. In spite of many modifications and changes in their plans, we can assume that locus XVI, XVII, XVIII, XIX and the early phase of locus XIII have been part of a same vast multi-roomed complex whose only a small part was included in the grid plan on our excavation. Only room XX has been excavated down to its original floor which is 25 cm above the street to which it communicated through a water drain in baked bricks, the upper part of the drain in locus XX has been distributed and the baked bricks were in disorder but it nevertheless shows a clear difference of level between the room and the street. Taking into account the many modifications which could be noticed wherever excavation was carried deeper, many subphases could have been evidenced within this complex if we have had more time to be able to reach everywhere the building floors. But we can notice the same type of modifications seen in the preceding building complex, for instance in room XVII, at an altitude of 2.25 metres above the zero point, the northern wall was made wider by adding a row of bricks. In the same locus (XVII), there is a new floor at an altitude of 2.90 m above the zero point where one sees a doorway for communicating with locus XVI. This

means that in the locus XVII, 3 major building stages are visible. The upper floor of locus XVI and XVII (between 2.90m and 2.95m above the zero point) have yielded many remains related to domestic activities with large patches of brown burnt soil containing many charred cereal seeds. Against the southern wall of locus XVI a quadrangular fire-place with a central hearth contained three broken and one complete terracotta triangular cakes. On one of its sides, 2 hammerstones in flint and one polisher in white stone were found. In the ashy deposits linked to this fire-place in the western part of locus XVI, eight oblong cakes, seven top-shaped objects, ten shell-shaped spoons were found among broken goblets and storage jars crushed by fallen bricks. On the same level in locus XX, two broken and incomplete dishes-on-stand have also been found.

Locus XIII as well as locus XIV have been partly disturbed by later pits. An interesting feature of locus XIII is the presence, in the north-eastern angle of the room, of a water drain paved with wedge-shaped baked bricks (altitude 3.23m above the zero point) bringing water from a narrow corridor (XV) into the room. In the case of locus XX, the drain was used to evacuate the water in street XIX, but in locus XIII the function of the drain is to bring water though it is difficult to understand for which purpose since there is no remain of bath-room or sanitary device in the locus itself which has a well-rammed clay floor. Another interesting feature of this room (XIII) is the presence in its southern wall of a square opening (0, 70m x 0, 70m). In a later stage, the northern wall of locus XIII was raised but with a smaller width and with a new drain bringing water from an upper level of locus XV, but in that case, the drain has just been cut through the wall without the use of any baked brick. The upper fill of locus XIII is made of thick deposits of ashes mixed with hundreds of broken terracotta cakes. Among the more exceptional finds from this locus is an Indus seal decorated with a unicorn (Pl. XLI, A-left), which comes from the south-east corner, in an area disturbed by a later pit.

The upper part of the excavation is sector NS.P (NS.P 2E, 3E, 4E, 5E and NS.P 2F, 3F, 4F and 5F) was also occupied by a series of quadrangular rooms or open-spaces being part of a large complex limited to the west by a sort of street (locus IX) with a new block of buildings on its other side. To the east, the walls which are partly overlying the structures of the complex we have just described, disappear in the slope due to erosion. From traces of walls visible from the surface, this complex extended to the north and to the south.

The buildings of this upper phase (period III,C) follow the same type of plan with similar orientations that we have seen for the earliest complexes exposed in NS.P. As we have noticed it for the earlier phase, the plans of the bulidings have constantly been modified in the course of time and the exact relation of the various rooms between themselves is not always easy to set since, due to the accumulation of ruins, there was obviously difference of levels which explains the presence of steps or small platforms.

The lowest floor of this upper complex was reached in room XII (3.50m above the zero point) where a big jar with a tapering base was found still "in situ", (Fig. 22) another big storage jar has been destroyed by a later pit, many goblets and terracotta cakes were found on the floor of this room which yielded too big a laddle in copper, may-be used in relation with the big jar which has a rather narrow mouth. This room was communicating by a doorway with locus XI whose walls have been damaged by later pits and its southern wall which is a later addition has been partly taken away by erosion. The fill of this locus and the space south of it is made of layer (about 30cm thick) of accumulated ashes containing hundreds of cakes, three patches of burnt soils containing charred seeds have also been located. In the south-west corner of square NS.P 5F five fragments of vitrified walls of a circular firing-structure were found near an imprint of wattle, but in strata of ashes cut by the slope of the mound in this area, no waster or craft indicators were found, except for a lump of copper and few steatite beads.

Locus I must have occupied a central position in this upper complex (Pl. XXXVII, A) but only its upper fill and floors were excavated (between 5.30m and 4.90m above the zero point). To this upper floor corresponds the adding of a wall against the western wall, separating this locus from locus IV. A wall with two niches has also been added against the wall separating the locus from locus II, but the base of the added wall has not been reached in locus I though it is prolonged in locus III by a similar niched wall which does not go deeper than 4.68m above the zero point. Since the external wall of locus I on the side of locus V has been excavated to an altitude of 4.43m above the zero point without reaching its base, it is clear that this locus and other ones in this sector have been modified several times. The upper floor of locus I is entirely covered with ashes and in its centre an oval patch of brown burnt soil contained many charred seeds of cereal. In the north-eastern part of the locus a rectangular fire-place with burnt wall (0.90 x 0.36) with a depth of 20cm has been exposed associated with the lower part of a jar with a tapering base, of a type similar with the one found in locus XII but with an external

slip with a pulm colour. The northern part of locus I has been disturbed by a later pit which has cut a large jar or bin in unbaked clay whose original diameter must have been about 1 metre associated with an area paved with complete and broken cakes, two intact goblets and several top-shaped terracotta objects. In the north-western corner of the same locus I, a structure with three steps was perhaps a sort of stair-case blocked by later walls. Just in front of the upper step, a big open jar with a rusticated external surface was filled with animal bones, imprints of vegetal and one copper dagger (or spear head) and an ivory rod of triangular section decorated with incised dotted circles. Near the southern niche of the eastern wall, several hundreds of tiny disc-shaped beads in fired white steatite have been collected; their sections are not more than 1mm and their diameters vary between 7mm and 2mm. Such beads have been found in other parts of the locus but they clearly form a cluster near and inside the niche. Most of the beads were so minute and fragile that they were found mainly by sieving an area which was about 0,40 square metre. The difference of sizes of the beads and the fact that many of them were strewn with layers of ashes extending over other parts of the locus suggests that the beads do not come from a broken necklace but are probably related to a process of production though no waster of any sort can be put in relation with the firing of steatite. Locus I has also yielded on its floor and in the fill just above the floor several copper objects including one big and one small chisel, one tanged dagger larger than the specimen found inside the jar from the same locus, one broken blade, a fragment of a circular object, perhaps a mirror, a broken razor, four small balls. A small and thick container in coarse, very-baked clay has the shape of the crucibles used in relation with the bun-shaped copper ingots found at several Indus sites and whose earlier prototypes are known at Mehrgarh in about 4000 B.C. But there was no copper traces visible in this container. Thirteen flint blades were recovered in locus I where terracotta objects are found in great quantity (6 fragments of chariot, 23 top-shaped objects, 11 wheels, 8 spoons with suspension holes, 7 tubular beads and 4 bangles). Another feature of locus I is the rather high occurrence of human figurines, 8 fragments and one specimen almost complete except for the lower part of a leg. They outnumber animal figurines (2 birds and 1 head of a bull probably from a composite figurine of bird with a bull head). The human figurines belong all to a type of corpulent female figurine with one hand in front of the mouth (Fig. 25-A). Twelve fragments of shell bangles have also been found as well as, against the western wall, half of a white marble shallow bowl of a type well attested at Moenjodaro (Mackay 1937: pl. CLXIII). Bone tools are limited to one spatula.

Locus II (Pl. XXXVII, B) has also been modified in the course of time and in its original stage it was contemporary with locus XII and locus XI. Two storage jars whose external surface is painted in plum, have been found against a partition wall in the middle of the locus, their upper parts were raised when the plan of the locus was modified by the building of the niched wall separating locus II and locus III. On the new floor, a storage bin or jar in unbaked clay was set against a sort of stair-case raised on the older partition wall probably in order to communicate with locus I whose floor was slightly higher.

Locus IV is another room with domestic features, but it is also a locus rather difficult to analyze as many modifications in its plan can be seen, small platforms have been added against the walls, maybe as steps for communicating with other rooms or as working platforms on which huge grinding stones have been found. A rectangular fire-pit full of ashes has been found on a floor (4.60 m above the zero point) littered with broken jars, goblets and terracotta cakes. The functions of locus V, and locus VIII are more difficult to assess. Locus V has been dug to a depth of 1m above the top of its walls and no door or system of access is visible. A square copper seal decorated with a cross (Pl. XXXIXB-right) has been found in its upper fill but, below, only fallen bricks and ashes were found. The excavation in this locus was stopped at an altitude of 4.41m above the zero point without reaching the bases of the walls. Locus VIII is an almost square small unit (1.62m x 1.25m) set in the middle of a vast mud-brick platform which progressively disappears in the southern slope of the mound. The southern wall of this locus does not go deeper than 5 m above the zero point (about the altitude of the upper floor of locus I), the other walls stop at an altitude of 4.56m, about the same altitude as it is the case for the walls of the next locus (VI). This means that the big brick platform is a later addition. The fill of this small locus VIII is just trash, for locus VI, its fill has been disturbed by later pits.

If we put aside minor modifications, from the floor of locus XII to the upper floor of locus I, at least four architectural subphases can be seen in the plan in spite of its very fragmentary aspect.

More work is needed to understand the sequence and the internal organization of the buildings which have been only very partially exposed in sector NS.P in the course of 8 weeks of excavation. The early levels need in particular to be investigated on a larger surface since they have not been reached elsewhere at the site. Our excavation for these early deposits of the Indus period were limited to 9 square metres. Though the base of this early Indus

occupation could not be reached, two metres of deposits have been evidenced in locus XXVI to which can be added about 1 metre of ashy strata between the top of these early structures and the building floors of the early architectures of the next phase (Period III) such as locus XXI, XXII and XXIV. The presence of an accumulation of at least 3 metres of deposits related to an early Indus Civilization occupation (of Amri IIIA type) indicates that this phase (Period II at Nausharo) is probably not a short episode as far as time span is concerned.

For the next period, our description of the structures may seem rather confusing as there is an evident continuity and no clear break between the different subphases. For the earliest one (IIIA) two subphases, at least, can be distinguished, for the next one (IIIB) we can distinguish at least five and for the upper one (IIIC) not less than four. This makes at least ten subphases over five metres of superimposed architectures and accumulated remains in NS.P. Except for small water drains in baked bricks, the sanitary or urban features are absent, though we know from sector NS.F/K that paved bath-rooms existed at Nausharo. But the regularity of the plans of the big multi-roomed complexes and of their orientation seem to be consistent with some planning.

No significant elements have been gathered in order to help us to assume the status of the inhabitants of the complexes we have partially exposed. We have already indicated that the planning of the buildings in a settlement forming in the course of time rather impressive artificial mound suggests that area NS.P was a quarter of a town and not of a village. But the process of continuous occupation explains the fact that in most of the cases the fills of the architectures are just trash of ashes and broken terra-cotta cakes and pots. It is hard to know if all the thick accumulated strata of ashes and broken cakes are related only to domestic activities. No clusters of artifacts or craft indicators speak of a large scale production within the complexes, but the vitrified fragments of kiln outside locus II in square NS.P 5F indicate perhaps some activities other than cooking. The patches of brown burnt soil containing many charred seeds of cereals found in almost every locus (except the very small doorless ones) have to be related to cooking activities. These patches with their more or less circular shapes are probably the areas where cereals were parched in a way still used to-day in Kachhi and which can be compared with the technics for making popcorn, many seeds falling around in the ashes during the process. Charred seeds are not found outside these speci-

fic patches in the loose ashy fill. The fact that many broken terracotta cakes bear traces of burning indicates that they were used for keeping and transmitting the heat as substitutes of the burnt pebbles used at Mehrgarh. At a first rough estimation the density of terracotta cakes at Nausharo is equal to the density of burnt pebbles at Mehrgarh. But contrary to the situation noticed at Mehrgarh, where no true cooking-pots were found, several coarse hand-made pots with heavily burnt outside surfaces were found in the different locus of the NS.P area. Bones have also been found in all the areas where cooking activities were carried on and in the trash outside the buildings but they never form heaps indicating specialized butchering area in the architectural units so far exposed in this sector NS.P.

No object which could indicate a special status of the inhabitants has been found so far, except for one inscribed seal bearing an unicorn, but which comes from a mixed fill. This may also not be of great significance for we are dealing with a kind of occupation where valuable items are not likely to have been thrown away or left in trash. It is only chance discovery of a jar with a rich content or of an hoard which can provide us with this type of information, as it has been the case at Allah Dino. It is significant that two spectacular finds made in NS.P come from a jar in locus I which contained in a curious association vegetables, animal bones, a copper dagger and a decorated ivory rod.

Within the buildings of the second Indus civilization occupation in NS.P (period III), the most abundant type of objects (if we except potsherds, terracotta cakes and minute steatite beads) are the top-shaped objects (90 specimens) (Pl. XLIIIA). These objects which have diameters varying between 30 and 36 cm for heights mostly between 20 and 23 cm have been found at all Indus Civilization sites but have been published as lids or small jar-covers. But we have noticed that all these objects when their pointed ends are kept in the fingers can be easily set into motion and once thrown on the ground can spin and balance on their points for some time. Traces of use on the points support the idea that these objects were used as tops. As we do not know any craft activities requiring the use of tops, it can be assumed that they were gaming devices. Even the few miniature specimens (diameters between 15 and 17mm) can spin, and if occasionally some of these objects can have been used as lids or pawns, their primary function was to rotate. The terracotta spoons with a suspension hole have also been found in numbers within the buildings of Period III in NS.P. (60 specimens, most of them complete) (Pl. XLIII,B). By their shapes they resemble shells, in particular unio shells which have often been found at Indus sites where they were thought to have been used as

spoons. Several *Unio* shells have also been found in NS.P and elsewhere at Nausharo but without suspension hole. One of these *Unio* shells from locus I has its edge very finely denticulated. It is difficult to know the exact function of these terracotta objects, they are rather thick and their edge is usually worn in a way suggesting scraping. Except for one specimen with traces of red ochre, the other spoons were void of any identifiable remains. The holes were probably not used for fixing a shaft but for suspension or for tying together a set of such objects with a string.

Other terracotta objects, as we have already seen it, were spread all over the surfaces of sector NS.P without significant concentrations. It was the case of wheels, frames of carts, beads, bangles with a few double-row specimens. Clay balls, baked or not, are found almost everywhere, two of them have a central groove and one is decorated with series of 3 incised points.

For the human figurines, as it has been the case at Mehrgarh or in the early levels of Period I at Nausharo, they come from fills where they have obviously been thrown, the most complete example belonging, as the others, to the pot-bellied type figurines with a hand raised on the mouth (Fig. 25,A) was found on a floor among remains related to domestic activities. The fabrics of this figurine bearing many bangles is rather exceptional. Eight fragments of human figurines have been found in locus I and five elsewhere. Twenty-five animal figurines, most of them fragmentary have been recorded in sector NS.P including nine bulls, (Pl. XLIV,B) three unidentified quadrupeds, four specimens of quadrupeds (Pl. XLIV, A) with inflated, spherical body, often found at other Indus Civilization sites, four pedestalled birds and four bull heads.

A few objects with the shape of a smoking pipe, sometimes referred to as feeding cups or lamps, have also been found, but since they contain, in a few instances, well-preserved charcoal, obviously still *in situ*, it is likely that these objects were used to carry fire which could be kept blazing by blowing air through the pipe.

Stone objects have been found in abundance, mostly hammer stones, grinding stones, pestles, polishers, burnishers, fragments of stone vessels and only 47 blades and flakes and one fluted core in flint. The 38 objects or fragments of objects in copper/bronze all belong to the repertoire of metal objects of the Indus Civilization sites. Forty three fragments of shell bangles and one broken laddle or spoon in chank shell, and a few broken bangles in gypsum are among the finds from sector NS.P.

As far as pottery is concerned, work done in sector NS.P is of great importance since from its deepest layers (2 metres below the zero point) up to the top (5.88 metres above the zero point), we have a sequence over 7.80 metres of accumulated deposits which should provide us with a comprehensive picture of the ceramic evolution in the course of the Harappan or Indus Civilization phase at Nausharo (Periods II and III).

It is too early to try to present a detailed analysis of the pottery from the site, only a few weeks after the end of the first excavation ever done at Nausharo and it will take time before field-notes can be used in a more systematic way. Indications here are still provisional and only general trends in the evolution can be mentioned in this report.

The deepest layers in NS.P have been excavated on such a small surface that it is not possible yet to have a complete catalogue of the pottery of the earliest Indus Civilization phase at Nausharo (Period II). There is no stratigraphical continuity between the early period of Nausharo evidenced in sector NS.G (Period I) with its pre-Indus material and the early Indus deposits of sector NS.P. Nevertheless, there is as far as technics and shapes of pottery are concerned, an evident continuity. We had already suggested the existence of such continuity in the Bolan/Kachhi region when we presented the pottery from Mehrgarh, Period VII,C in the seventh preliminary report when we stressed the occurrence in an area on the southern slope of MR. I of many sherds which could be related to the transitional stage between premature Harappan and Harappan periods at Kot Diji or Amri. This was confirmed by the excavation of a kiln area of the same period at Lal Shah (preliminary reports of the tenth and eleventh seasons) as well as by the excavation conducted in the course of this season at Nausharo in sector NS.G. Many shapes in the deepest Indus Civilization levels of sector NS.P are in direct continuity with the pottery of the upper layers of the excavation in NS.G (end of Period I, contemporary with Period VIIC at Mehrgarh). This is the case of the sturdy jars with carinated necks and outturned rims, thick bowls with nail-shaped rims, carinated body with string impressions, jars with flanged rims or jars with a neck painted in brown. But several proto-Indus shapes and patterns which have been found at Mehrgarh, Period VIIC, at Lal Shah, at Nausharo, Period I, were, as it was the case at Amri (Period IIB), associated with pottery in the late Quetta/Mehrgarh tradition including bracketed-ware, wet-ware. In the deepest levels of NS.P, all the patterns of the late Quetta/Mehrgarh traditions disappear. Only a few sherds of the typical wet-ware are found and it is difficult to be sure if they are *in situ* or not. Traditions of wet-ware which

developed in the Period VIIC at Mehrgarh and at Nausharo I, grooved wet-ware or decoration of incised wavy lines (Fig. 20) replace almost completely the "Quetta wet-ware"

The pottery of the deepest levels of NS.P is identical with the pottery of Period IIIA at Amri and all the elements stressed by Casal in order to define an early mature Indus phase at Amri are also present at Nausharo. The pottery as a whole is sturdier than in the later phases. It is true for the dishes-on-stand, for the perforated jars, for the big trunconical basins. Sturdy jars with globular body, straight carinated neck and clubbed rim in well levigated micaceous clay bear remarkable decorations in black on a bright red register combining peacocks, concentric floral rosettes and *pipal* trees (Pl. XLII A). On the lower part of such jars a register of wavy lines is incised on a sandy applied band. One almost complete jar of this type has been found along with many sherds from such other jars. This type of jar still exists in the following period at Nausharo, as well as at Amri (IIIB), but the clay is not so well levigated and the floral patterns are often painted with less care. A new feature is the first occurrence of hand-made cooking pots in a very coarse ware, sometime bearing cloth impressions. In the second Indus civilization period in NS.P (Period III of the general sequence of the site), the pottery is very similar to the pottery of Amri IIIB, as defined by Casal and of the mature phase of Chanhudaro. After sorting out all the drawings and field-notes, it should be possible to distinguish an evolution of the ceramic in relation with the three main architectural phases of NS.P (1st: XXII, XXI, XXIII, XXIV; 2nd: XVII, XVIII, XVI, lower part of XIII; 3rd: I, II, IV and other locus from the upper area) which will be supported by similar evolutions in excavations conducted in sector NS.L and NS.F/K. But except for the development of a few new shapes in the final stage of occupation in this sector, only a minor evolution or transformation can be noticed within a ceramic industry rather homogeneous. Changes can be seen in shapes of the dishes-on-stand, in the types of incised decorations inside the dishes, in the profiles and rims of the bowls and jars, in the shapes of goblets. The bowls in particular have a more external projecting rim and less carinated profile. Jars with a wide globular lower part, a rounded bottom and a carinated concave neck often painted in red represent one of the most common shapes of this period. This shape exists in a wide range of sizes from miniature pots to sturdy jars, with neck either painted or not, or they exist also in black polished ware and their fabrics vary from fine to coarse (cooking pots) (Pl. XLII, B). Such shape has no direct prototype in the pre-Indus civilization phases at Nausharo or Mehrgarh where pots have always flat bases, but it is close to copper jars found at Moenjodaro or Chanhudaro

(for instance see Mackay 1937, pl. CXVIII, 22 or Mackay 1943, pl. LXXV, 3). Jars with a flat base and a globular body have a wider mouth with a very marked external projecting rim, often their lower parts are rusticated. Big storage jars with a narrow neck, a globular body and a tapering lower part resting on a narrow flat base (Fig. 22) string marks are visible on the lower part. There is a tendency in the upper levels to paint the external surface of the jar in a plum colour. Goblets are also found in large quantity, but the tradition of massive production of goblets removed from the still rotating wheel with a string goes back to the pre-Indus civilization phases at Mehrgarh, Lal Shah and Nausharo. But beside the goblets with a simple globular shape, there is a tendency to have in Period III at Nausharo carinated profile and tulip-shaped goblets (Pl. XLV, A). It is interesting to point out the fact that such tulip-shaped goblets are also produced in copper at Moenjodaro, in the upper levels, according to Mackay (1937, Pl. CXIV, 8, 12, 14). In the upper layers of Period III one notices also small globular goblets with a narrow base with grooves on the larger part of their body (Fig. 23, D.C). Such a shape seems the direct prototype of the Indus goblets with pointed bases found in great quantity at Moenjo-daro, Harappa in the upper-layers of these sites as well as at Amri in phase IIIC but are conspicuous by their absence at Nausharo.

An interesting evolution, already noticed by Casal at Amri, concerns the dishes-on-stand. In the upper levels of NS.P, in the phase which we would call Period IIIC, one sees the occurrence of a sort of bulb between the stand and the dish (Pl. XLV, B). The occurrence of this bulbous part between the dish and the stand is for Casal a diagnostic feature of Period IIIB and its extension of the second mature Harappan phase at Chanhudaro (Mackay 1943, pl. XXV, 21, 27). But in parallel to an evolution of the dishes on high stands with or without bulbs, we see also a tendency to have very short stands, some of them with a bright red slip and a Harappan fabric, others with a plum colour slip or plain in a lighter ware. In locus II one of these short pedestals was found with its upper part which is a large and deep open bowl (Pl. XLVII, A), very different from the upper parts of the Harappan dishes-on-stand. The pedestalled bowl as well as several fragments mostly from locus I and II, are the obvious prototype of the pedestalled bowls found in the funerary complex of Mehrgarh, Period VIII, where a number of such vessels, in some cases with an identical plum slip, have been found in great quantities. As we shall see it later in this report such pedestalled vessels have also been found in a funerary context at Dauda Damb. The other diagnostic type of pottery of Mehrgarh, Period VIII and Sibri, along-side the pedestalled bowls,

is a truncated bowl or tumbler in different range of sizes. Many upper parts and rims of such truncated pots had been collected in the southern part of the mound before the excavations, but about ten fragments of this type of bowl have been found in locus I (one specimen with a plum slip) and in locus II in association with the pedestalled bowls.

The discovery of pedestalled bowls and truncated bowls which are typical of Mehrgarh, Period VIII, in the upper levels of Nausharo, in association with finds and pottery of the mature Indus phase of Amri (IIIB), contemporary with the mature Harappan phase of Chanhudaro or Moenjodaro is a major contribution to our understanding of the formation process of the cultural complex of Period VIII at Mehrgarh. As far as chronology is concerned, it is very significant to note the absence in the upper levels of sector NS.P (as well as in sector NS.F/K or NS.L) of the typical decorations and shapes of the late mature Harappan or Indus phase of Amri (IIIC) and of Moenjodaro. We have already mentioned the absence of the pointed goblets so characteristic of Amri IIIC and of the upper levels of Moenjodaro and of Harappa. Similarly, the style of paintings typical of Amri IIIC (Casal 1964, fig. 82 and 83) and of the upper levels of Moenjodaro (Mackay 1937, Pl. LXVIII, 16 to 26) with mostly geometric and broad vegetal motifs executed with a thick brush in a black or violet-black colours, in a rather stylized way, is not found at Nausharo. Painted pottery in the course of Period III at Nausharo accounts for very little, but the few painted specimens found in the upper layers of NS.P are decorated with typical Harappan motifs in black on bright red, (Fig. 21, 23C) and if the paintings of the big jars are no longer as decorative as in the earlier levels, small pots, open bowls or lower parts of stands occasionally bear very fine paintings. A few bases of dishes-on-stand from the upper locus are decorated with palm-trees and vegetal motifs in a way closely similar to specimens from Chanhudaro (Mackay 1943, Pl. XXXVII).

On the evidences from sector NS.P, we can say that the end of the occupation of this area is contemporary with the end of Amri IIIB (or the very beginning of Amri IIIC), the end of the second Harappan occupation of Chanhudaro and of the mature Harappan phase of Moenjodaro. Such dating elements are very important since they provide us with the possibility to put within a solid chronological framework the genesis of pottery shapes which will become predominant in the Mehrgarh, Period VIII/Sibri complex.

In relation with the Mehrgarh, Period VIII/Sibri complex, we must report here a chance discovery made on the eve of the closing of our camp at Mehr-

garh. Driving on the *Kacha* road between Dhadar and Sanni, 300 yards beyond the fork for Nausharo when one comes from Mehrgarh, we had already noticed on the western slope of the road, at a place called Dauda Damb (from the name of a local saint) the presence of a few sherds in the style of Mehrgarh, VIII. But recent public work has just made the road wider, cutting through the western slope and through pots which were obviously still *in situ*, some others already fallen down were crushed on the side of the road. We decided to rescue what was possible by cleaning the section and in three hours time, we could distinguish three clusters of finds, corresponding to three burials, but only one could be studied properly. It is a grave of a child which had been cut just in its middle (Pl. XLVI). The body has been disposed in a vaulted chamber made of big jars put upside down and broken in a way to form the walls and the roof of the grave, which was then coated with a thick layer of clay. In this chamber (about 0.45 m in height and 0.50 m in width) several pots had been disposed on the right side of the body oriented west/east, the head to the west, facing north. In the part still preserved, four pots, one bottle-shaped vessel, one pedestalled goblet, one pedestalled bowl and one plate were recovered. In the case of the two other clusters, very close to the first one, erosion had cut deep gulleys carrying down pebbles. It was not possible to reconstruct the shapes of the chambers without undertaking proper excavations which were not possible at that time. We just cleaned the pots which had started falling down toward the road. Big broken fragments of jars in the section above the long bone of an adult indicated that there was another vaulted chamber and that the pots which were visible had been put at the feet of the dead. As regard the other cluster, it was too eroded to see the structure of the grave. These funerary clusters yielded fourteen complete pots, (Pl. XLVII, B) pedestalled bowls and goblets, truncated pots, one storage jar, plates and one copper compartmented seal, one biconical bead in black steatite decorated with punch-marked circles. This chance discovery, due to circumstances, could not be studied in detail and the finds properly catalogued, a task left for the beginning of the next field season at Mehrgarh. But by their shapes and fabric all the pots are totally identical with the pottery from the cenotaphs exposed in the funerary complex of Mehrgarh, Period VIII. But an interesting detail is the presence on one of the pedestalled bowls of a small bulb between the pedestal and the upper part (Pl. XLVII B-central). This vessel which has a bright red slip has a shape which derives from the Harappan dishes-on-stand with a bulb, found in the upper levels of NS.P at Nausharo, along-with the first pedestalled bowls slipped in bright red or in plum of the Mehrgarh, Period VIII types. Climbing on a hill

where Dauda's grave is built, overlooking the road on its eastern side, we could see at the foot of the hill, looking towards Nausharo, a terrace cut by the deep dry bed of a river, an area littered with potsherds, including many truncated pots, typical of the Mehrgarh, Period VIII complex, and fragments of pedestalled bowls plain or painted in plum or in bright red and other pots, absolutely identical with the pottery of the same Mehrgarh VIII complex. The vaulted graves from the side of the road have to be linked to this settlement, from where one can see the mound of Nausharo and the archaeological area of Sibri, at about 2.5 km further south as the crow flies.

3. EXCAVATIONS IN SECTORS NS.F and NS.K by G. Quivron

An area of 143 sq.m was subjected to excavation in Sectors NS.F and NS.K of the grid plan (squares F9J, F8J, F9I, F8I, K9A, K8B) located on the North-Western slope of the mound, (Pl. XXXV), at a maximum altitude of 6.50m above the level of the surrounding plain.

Two groups of buildings, divided by a lane, were exposed. To the north, two buildings had been superimposed (Structures I and IV) and to the south, several structures, with very thick walls, had been built side by side (Structures II, III and V).

The lane (Lane A on the plan) was excavated to a depth of 10m showing the facades of the mud-brick structures lining it. The walls have been made higher on several occasions over the course of time.

1. THE BUILDINGS SITUATED TO THE NORTH OF THE LANE

STRUCTURE IV (Fig. 12, 13) – level 5 (Fig. 16) (from 3.65m up to 4.00/4.50m):

It is a building divided into at least two rooms (eastern part of the excavations). We know neither its size (since the structure has been only partly unearthed) nor how much of its walls remain since we did not have enough time this year to carry on the work down to the foundations.

The walls were made of mud-bricks and were 0.40m wide. Like all the other exposed walls, they were covered, inside and out, with a coat of mud plaster. However, a part of the west wall was built with baked bricks. They framed a small duct (0.14m by 0.18m) made through the wall near the south-

west corner of the south room in order to drain waste water off. In addition, all the objects found nearby were rust-coloured.

Moreover, the west part of the building slopes southwards because of the weight of a wall belonging to the subsequent phase of occupation, built upon the south wall of Structure IV.

STRUCTURE I:

It is a very large building, rectangular in form. It is 4.85m wide and at least 18.50m long. The structure has not been totally preserved : in particular, the North wall is missing because the erosion which created the slopes has also destroyed a part of the buried walls. Similarly, the shape of the top of the preserved walls follows the contours of these slopes.

The walls are made of mud-bricks and are 0.45m wide. The structure is oriented east-west and is divided by a north-south wall which partitioned either two joined houses or two rooms of the same building. Only the Western part of the house has been excavated (4.85m by 9.00m). Five occupation levels have been cleared out to a depth of 2.30m.

Level 5: At the time of this occupation level, the above-mentioned wall had not yet been built. On the other hand, the West wall of Structure I, contemporary with Structure IV, had been made higher and built upon the long south wall when the latter was built partly on Structure IV. At the same time, the top of Structure IV was covered with a platform made of several courses of mud-bricks set on edge. We know only the width of the platform – 2.42m.

Level 4: (Fig. 15). In the next stage, the east wall of the structure was built. At the same time, two perpendicular walls were built on the north and west edges of the above-mentioned platform to create, with the south wall, a small room (2.90m by 2.55m). But these south and west walls were found with only one preserved course of bricks since they had obviously been pulled down during the next phase of occupation. Thus, the doorway providing entry to the small room was no longer visible.

In the western part of the structure a group of small rooms had also been built at the same period (Ia, Ib, Ic, Id).

Domestic feature Ig: In the middle of the structure, a small domestic feature made of baked bricks (Pl. XXXVIII, A) was built on the south wall. The size of the bricks was 0.28m by 0.20m that is to say they were much larger than the others found in the course of the excavations. The feature is a sort of basin (0.90m by 0.65m) the bottom of which is made of bricks carefully laid flat while the bricks of the sides were set on edge obviously to retain water. Moreover, the basin was connected to a small opening through the south wall, also framed with baked bricks.

Level 3: (Fig. 14) The small rooms referred to in the previous paragraph (Ia, Ib, Ic, Id) were still in use during this occupation level but their walls were made higher because of the trash which accumulated little by little on the floors. There was a door between room Id and room Ia and the imprint of a wooden lintel is still visible.

Domestic feature Ib: All these walls were made of mud-bricks apart from two smaller ones, in baked bricks, built on the long south wall of the structure. They might have carried a wooden shelf at the time of occupation. They demarcate a small locus 0.72m wide in which we uncovered several stacks of "cakes", some large animal bones and fragments of burnt wood.

Domestic feature Ic: This domestic feature is located in the south-east corner of the room. Two small perpendicular walls in baked bricks were built on the walls of Structure I in order to demarcate a small rectangular locus (1.25m by 1.30m). The walls were three courses of bricks high. Several bricks of the upper course had been replaced by two grinding stones placed upside-down. The feature was filled with scattered baked bricks and painted sherds of pottery.

Also belonging to this feature, several baked bricks were visible from the lane on the other side of the long south wall of Structure I. During this occupation a buttress had also been built against the outer west wall of the building.

Domestic feature If: This feature is a rectangular fireplace, built of mud-bricks in the middle of the room. The bricks had turned red in the firing process. To the north of the fireplace, a large container in unbaked clay was full of fragments of "cakes" obviously associated with firing activities.

Level 2: The only remnant from this phase was a part of a well-made clay floor located in the south-east corner of the room, at an altitude of 5.54m. A complete jar (no2) had been placed on this floor, in front of a doorway which was found blocked up with bricks.

Level I: A small buttress, two courses of bricks high, had been built during this phase of occupation, to the right-hand side of the above-mentioned doorway.

2 – THE BUILDINGS SITUATED TO THE SOUTH OF THE LANE.

The upper part of four joined buildings to the south of the lane were excavated (Fig. 13) and the most recent phase of occupation of three of them was cleared (Structures II, III, V)

Structure II: The corner of a room appeared within the limits of the dig. The walls, made of mud-bricks, were particularly wide (0.80m) and the bricks used to build them were very large. (0.40m by 0.20m).

The inside of the building was excavated to a depth of 0.80m. Many objects were found in the successive ashy layers : fragments of human and animal figurines, terrecotta beads and top-shaped objects and also fragments of cart frames.

Structure III: This building, constructed to the east of Structure II, is rectangular in shape and oriented East-West. It is 6.95m long and 3.25m wide. It is a massive structure with very thick walls, divided into two rooms (locus IIIa and IIIb).

Locus IIIb (1.85m by 1.75m): This room was excavated to a depth of 0.30m. There was no means of communication with the lane and in spite of the discovery of a few terracotta objects, the room can be considered rather as an internal compartment which was later filled in with bricks, perhaps in order to carry another structure since destroyed by erosion.

Locus IIIa (3.00m by 1.75m): The second room of Structure III was a little larger and rectangular in form. The fill was also rather homogeneous and consists of fallen bricks. However, contrary to the room IIIb, many objects were discovered in it. In addition to those found at all levels, beads and top-shaped objects in clay, fragments of figurines and bangles of shell, some other

objects of better quality were also found. For example, there was a series of small complete pots, three bronze objects : a chisel, a double spiral-headed pin with steatite inlay and a small fragment of an unidentified bronze object covered with gold. Among the bricks we also found a square seal made of white steatite, with perforated boss (Pl. XLI, A-left). An unicorn was portrayed on the seal which was inscribed.

STRUCTURE V: This structure, joined to the south wall of Structure III, was also rectangular in form (6.95m by 4.10m) but had only one large room. The building was certainly used for accommodation as proved by a domestic feature found in the room.

This feature is a square fireplace built on the east wall. Beside it, in the north-east corner of the room, was a large container in clay, filled with fragments of burnt "cakes"

Two small niches were set into the walls in the north-west corner of the structure. One of them still has imprints of a wooden shelf. The south-east part of the building has been destroyed by erosion (the doorway was doubtlessly located there). The fill of the room consisted of ashy layers in which we found many sherds and fragments of cart frames as well as shell-shaped objects in clay, a bronze ring and some animal figurines. One of them, with the body of a bird and the head of a bull, was originally mounted on wheels.

3 - LANE A : (Pl. XXXVI, B) The lane, roughly 1.25m wide, was excavated to a length of 13m and, in its eastern half, to a depth of 5m. At this level, coming upon the foundations of the walls lining the lane, led us to stop the excavation for this year (Fig. 17). But this does not mean we have reached the very first floor of the lane ever used because the superimposed walls found on each side were rarely built exactly on top of one another and the continuation of the dig might show the existence of more ancient recessed structures.

Furthermore, seven raising of walls have been noted on the south facade of the lane (Structures II and III on the surface). Moreover, the last five preserved heights fit exactly with the five levels of domestic features of Structure I already described.

The different cross sections made along the lane show, at each raising of walls, a remaking of the floor of the street on top of layers of trash accumula-

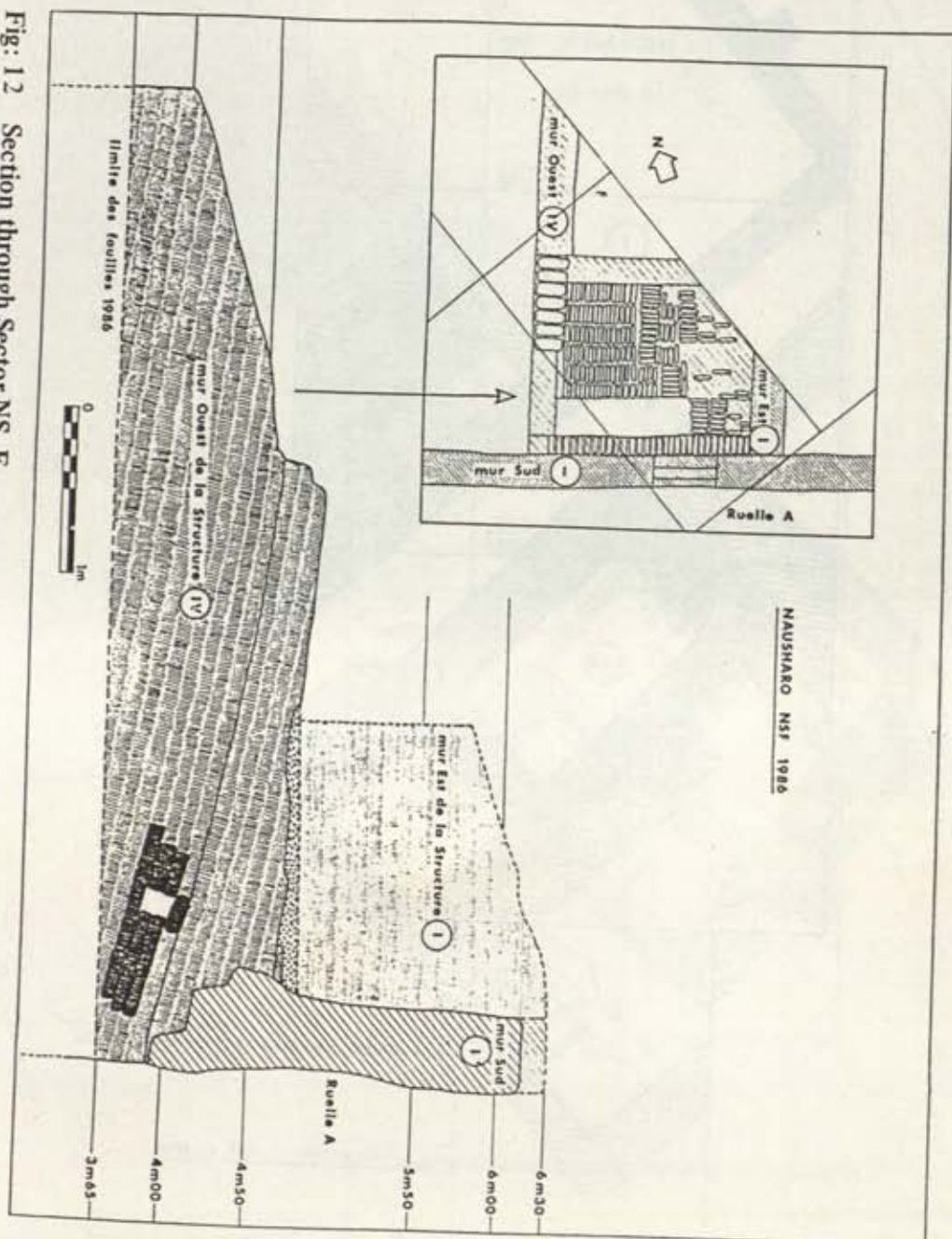


Fig. 12 Section through Sector NS.F.

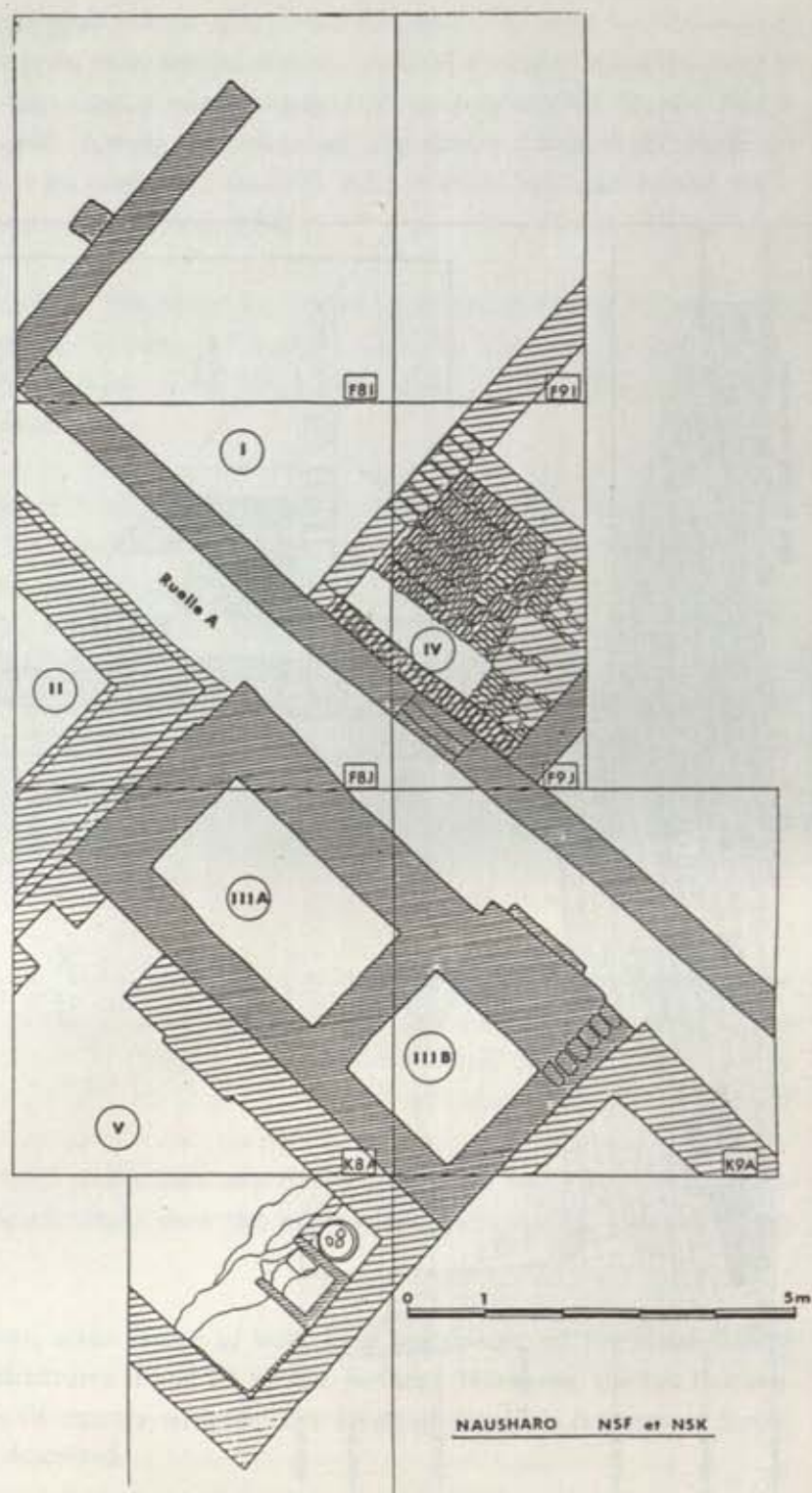


Fig: 13 Nausharo NS.F and NS.K.

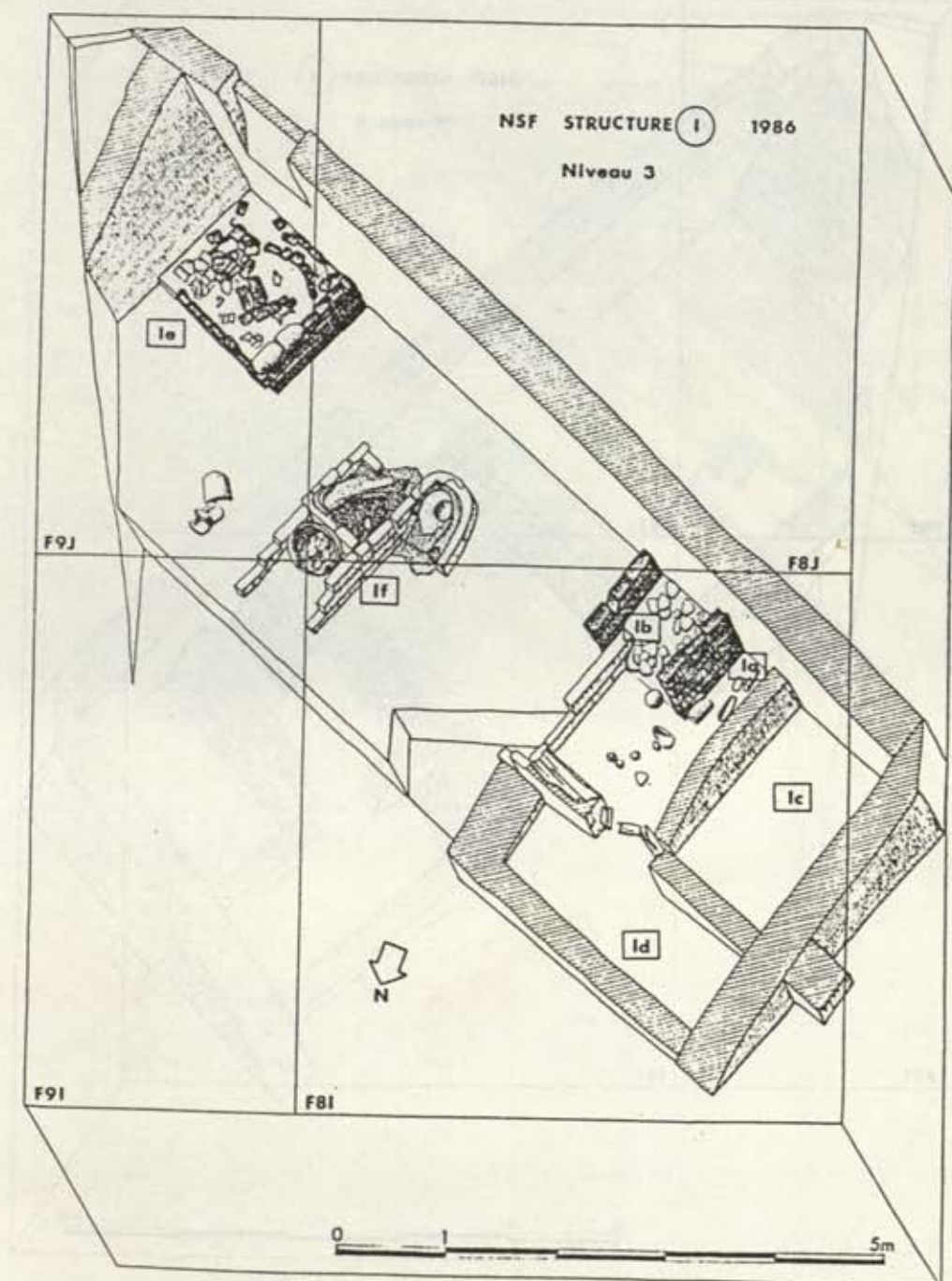


Fig: 14 Structure I, Layer 3. Period III.

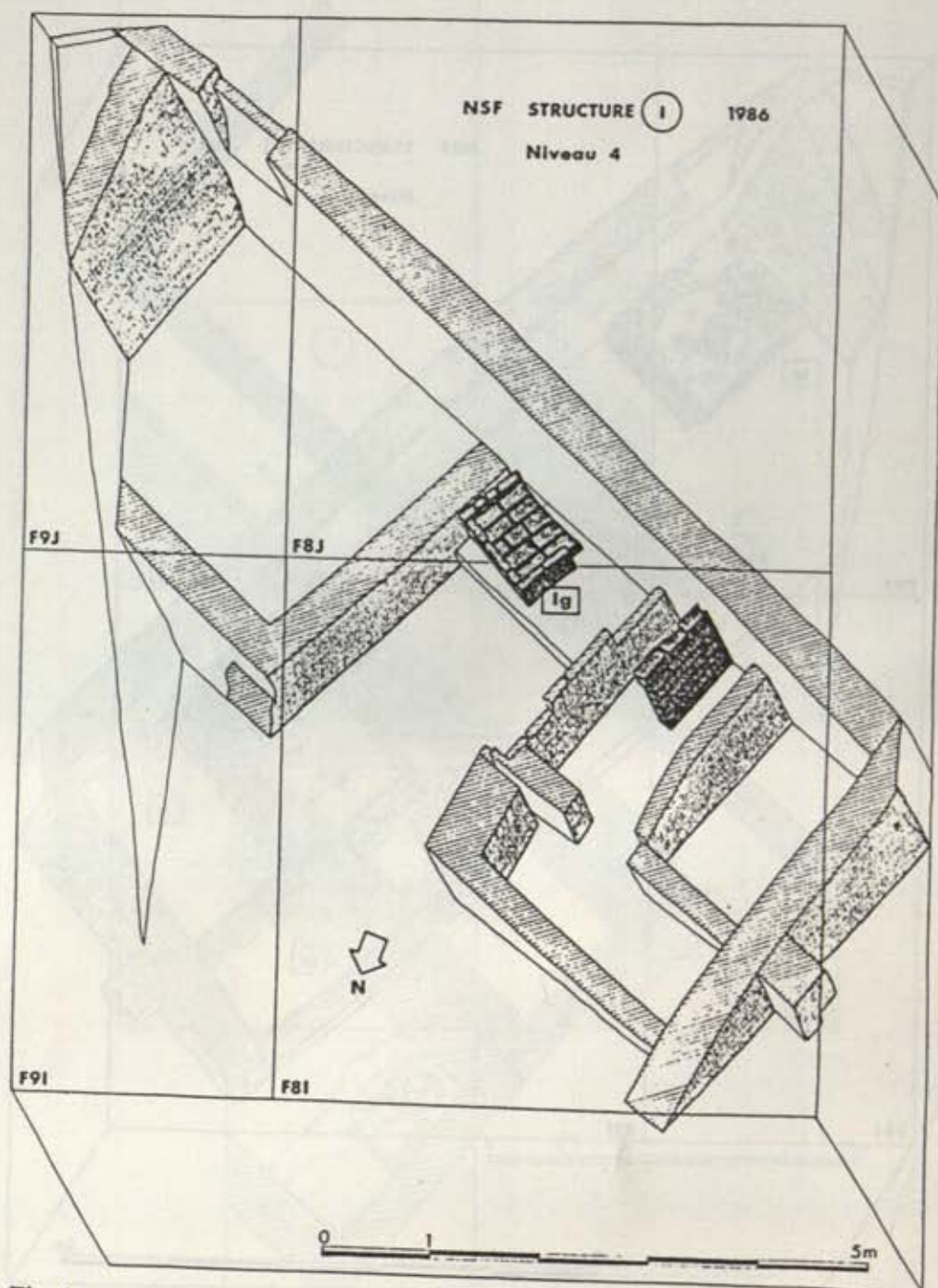


Fig: 15 NS. F, Structure I, Period III.

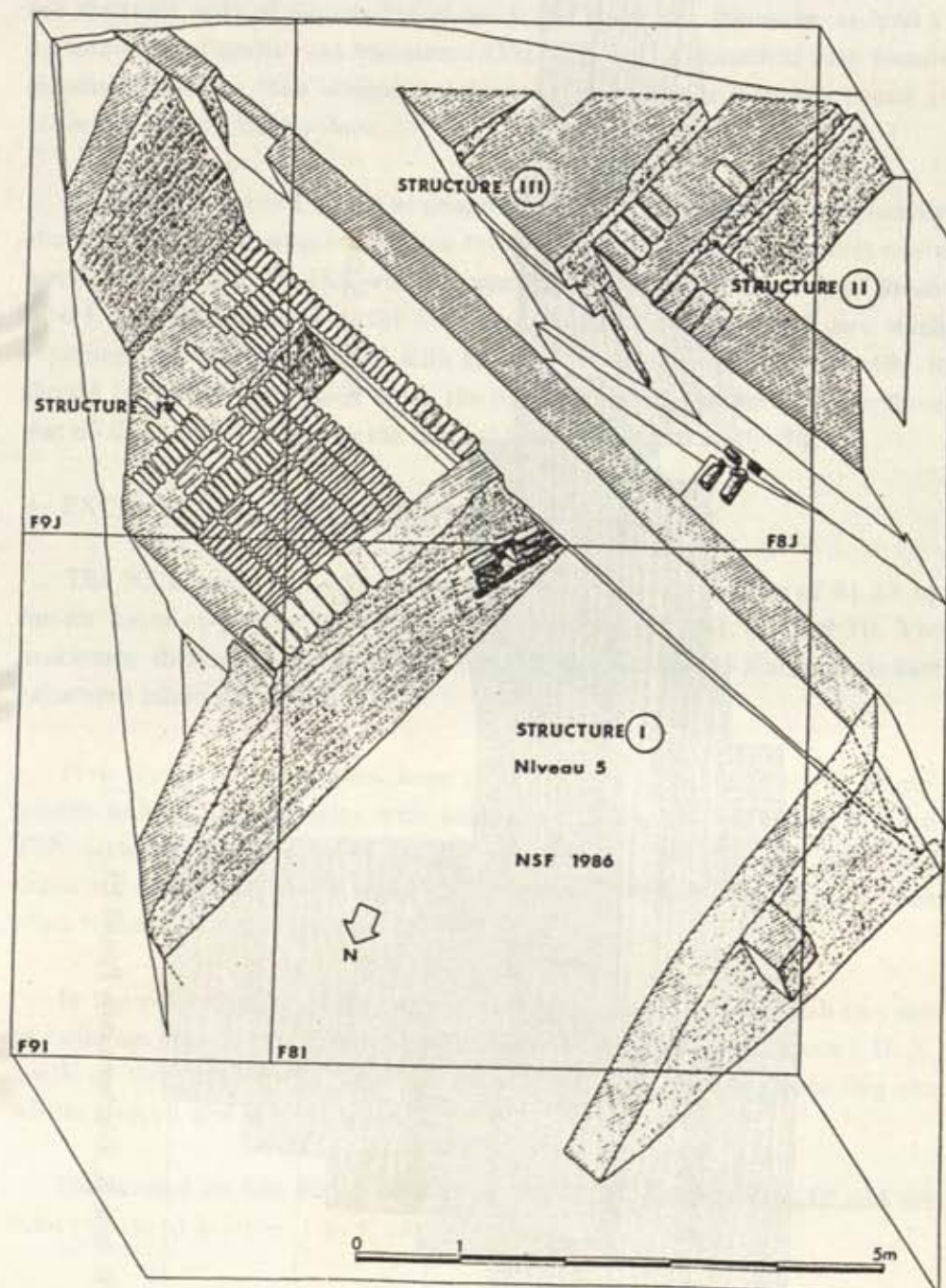


Fig: 16 Structure I, Layer 5. Period III.

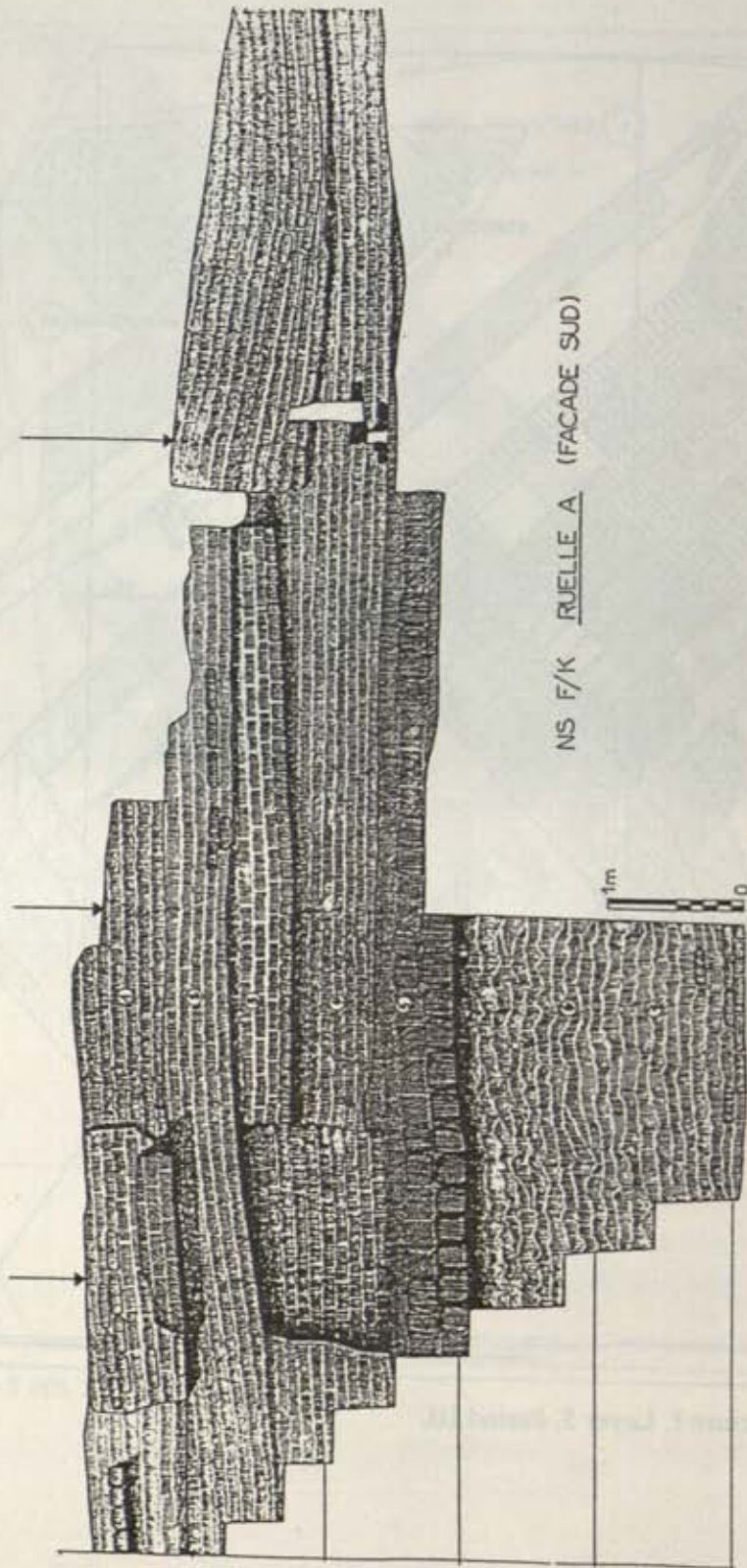


Fig: 17 NS.F/K, lane A, Southern side. Period III.

ted little by little on the previous floor used. Many pot-sherds and objects were found within these intermediate layers. From level 7 up to level 1, they are the same type of objects found inside the dwellings. However, at level 5, an interesting figurine was discovered (Fig. 25). It is a corpulent clay female figurine wearing a "fan"-shaped headdress, very similar to figurines found at Moenjo-Daro or Chanhudaro.

Thus the lane was a means of communication as well as, when temporarily abandoned, a place where trash was thrown. It was also in the lane that waste water was drained off. This was the case for the domestic feature Ig of Structure I, but also, at level 4, for Structure II in the wall of which two small superimposed openings framed with baked bricks were uncovered. Finally, it should be noted that, apart from the blocked-up door of Structure I, there was no door leading out into the lane, at least in this part of the dig.

4. EXCAVATIONS IN SECTOR NS.L: by C. Jarrige

The NS.L area (Fig. 18) has been excavated over a surface of 81.25 sq. metres covering part or the totality of squares 5F, 4F, 4G, 3G and 3H. The maximum difference between the top of the trench (4F) and its lowest excavated portion is 1.84m.

Five layers of occupation have been evidenced, within a rather homogeneous architectural complex with only a few changes in the course of time. This occupation corresponds, as far as altitudes above the zero point and crafts are concerned, to the intermediary zone of sector NS.P. One may then place it during Nausharo period III.

In the present state of the excavation, it is possible to distinguish two sets of buildings with a lane inbetween. The first set (set A) includes locus I, II, X, north of the trench at the top of the excavated zone, and has been dug out within layers 1 and 2.

The second set (set B) includes locus III, IV, V, VI, VII, VIII, IX and has been evidenced in layers 1 to 5, south of set A.

We shall tackle with this trench starting with layer 5 in order to show more clearly the different successive alterations.

1) Layer 5

The deepest layer cleared until now in zone NS.L, at an altitude of 3.75m; is represented in locus IV, V, VI and VIII.

Locus V; It is a zone of ashy and pulverulent sediment, which may well have been in the open. It is limited towards the east by a wall 50cm wide, and north and south by two buttresses or walls with doors (the western side of the locus has been completely eroded).

In the south-eastern corner, a fire-place has been built against the wall and the buttress by mean of fragments of baked bricks and lumps of clay. The centre of the fireplace is circular and slightly hollow. The whole structure has become red and hard due to fire. This fire-place contained, along with ashes, a baked brick and many cakes or fragments, as well as a small black cooking pot and fragments of another one.

On each side of locus V, north and south, locus VII and IX, dug out on a small surface and completely eroded, must be linked to locus V from which they are separated only by buttresses (unless these are an element of a door, the other part of the wall being obscure at this level). Both are filled in with an ashy sediment with many sherds and cakes.

Locus VIII

It was excavated on a small depth, knowing its topographical situation at the bottom of the excavated zone. Evidenced in its northern part, it is limited by three narrow walls (29 cm) – the size of a brick lengthwise, or two bricks side by side.

The eastern wall has been considerably cut through by the digging of a later grave, which appears as being bordered, around the trench, by a row of big stones or baked bricks-and by what is left of the eastern wall of the locus. At this level, locus VIII has yielded, in the undisturbed area, north-west of the "room", a great quantity of faunal remains thrown away along the western wall where they accumulated, as well as six shells of "unio" lying against the northern wall. The bottom of this layer 5 has not yet been reached.

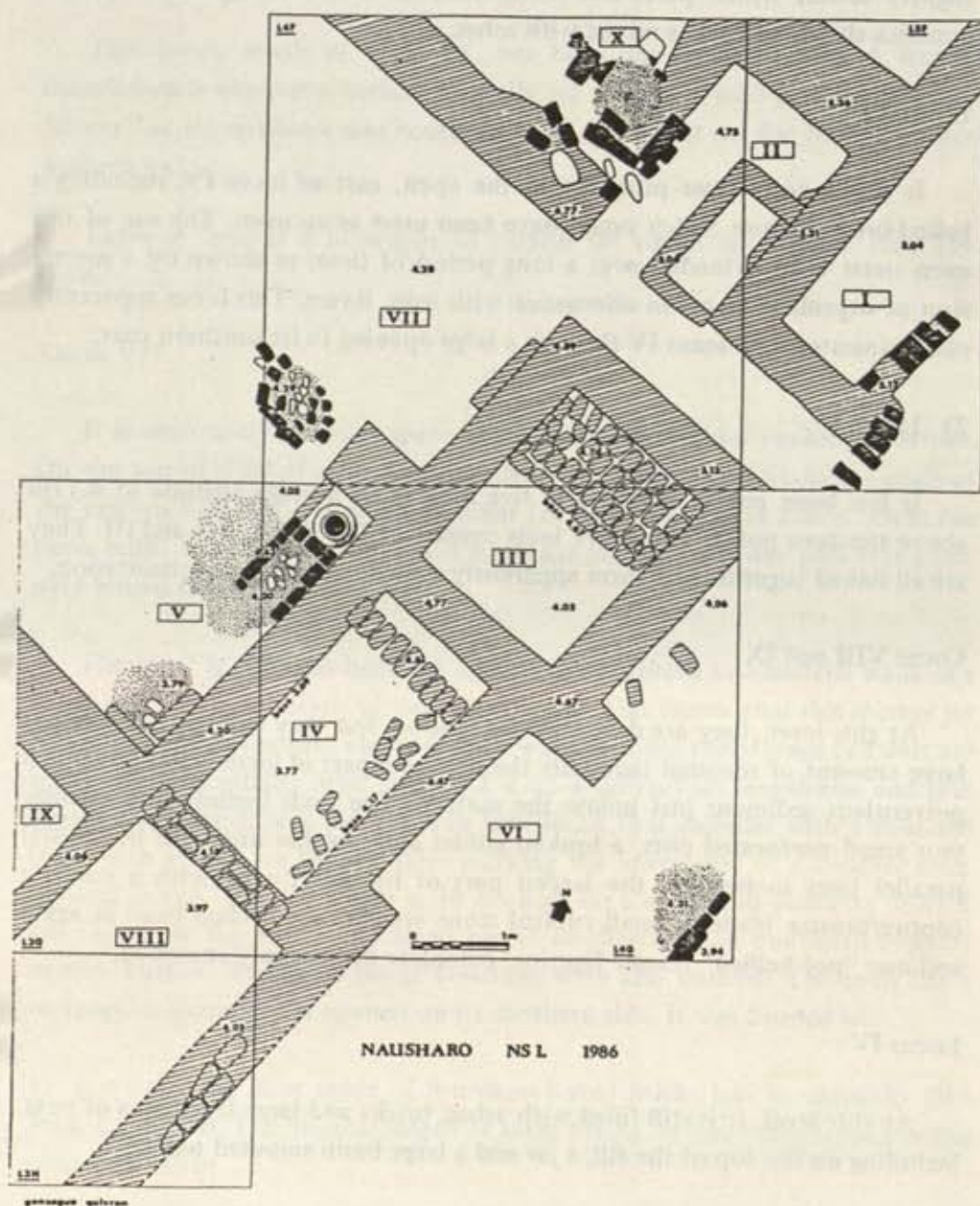


Fig. 18 Area NS.L. General Plan. Period III.

Locus IV

One floor covered up with sherds corresponds to the building of a wall, slightly lower, which parts this locus from locus V. Throughout its fill, it contains sherds and cakes mixed with ashes.

Locus VI

It was a zone most probably in the open, east of locus IV, including a baked-brick feature which could have been used as an oven. The use of this oven must have extended over a long period of time, as shown by a succession of organized floors in alternance with ashy layers. This locus apparently communicates with locus IV through a large opening in its southern part.

2) Layer 4

It has been put in evidence in five locis at an average altitude of 4.17m above the zero point. These five locis consist of IV, V, VI, VII and III. They are all linked together and form apparently a single complex of inhabitation.

Locus VIII and IX

At this level, they are destroyed by erosion, but they still contain a rather large amount of material (specially the northern part of locus VIII) taken in a pulverulent sediment just below the surface. The finds include in particular two small perforated pots, a broken goblet and another one with horizontal parallel lines incised on the largest part of its body, a lid with a knob, a copper/bronze blade, a small cubical stone weight, one etched bead in agate and one "pot-bellied" female figurine, complete but entirely corroded.

Locus IV

At this level, it is still filled with ashes, bricks and large fragments of pots, including on the top of the fill, a jar and a large basin smashed out.

Locus VI

Against the wall separating this locus from locus IV, and prolonging the northern wall of locus IV, but with a wider base, a buttress has been built.

The fill of ashy deposits is probably connected with a later phase of use of the oven of layer 5.

Locus III

This locus, north of locus IV, has been dug down to layer 4, but its foundation is obviously earlier. Its walls are well-built with a width of about 50 cm for its northern and southern walls and of 60 cm for its eastern and western walls.

Layer 4 here is a homogenous clayish fill which has yielded only few finds.

Locus V

It is apparently an open space which has been used for cooking activities. On the top of a fill of ashes from an earlier fire-place (layer 5), in the angle of the eastern wall and the northern pillar (or wall), an oven in baked bricks has been built, to which was attached a storage jar, whose lower part was probably buried (Pl. XXXVIII, B).

The jar (Fig. 24) has been set against the northern and eastern walls in a small cell by the addition of two small walls. This shows that this storage jar was a permanent feature. The two small walls forming this storage cell unit are made of standardized mud bricks (7 x 13 x 26 cm) set lengthwise and preserved over five layers (35cm). The jar (86.28.7) is globular with a rounded base, with a ridge on the shoulder marking the lower part of a concave neck painted in red. This jar which is 39 cm high for a maximum diameter of 51.5 cm (33cm at the neck) contained pieces of charcoal and one small copper/bronze button. Traces of burnt cowdung were also noticed. The oven has a rectangular shape and is opened on its southern side. It was formed of:

- 1) a rectangular floor made of 9 broken baked bricks laid horizontally (H= 9cm, L= 17cm). The original length of these bricks, before being reused in the oven was 33 cm.

- 2) Three walls (north, east and west) built with baked bricks whose sizes are more standardized (7 x 13 x variable). The northern wall is built with bricks set horizontally lengthwise at the level of the floor of the oven, resting against the mud-brick wall of the cell containing the jar. Its preserved height is 40 cm.

The western wall is also built with baked bricks set horizontally lengthwise. Its preserved height is 35 cm. The eastern wall is built with baked bricks set edgewise against the eastern wall of locus V, which was built earlier than the oven. The base of this wall is made of a row of unbaked bricks supporting baked bricks over a height of 40cm.

It appears that we have a rectangular oven with three walls in baked bricks, but with foundations, below the floor of the oven, in mud bricks. Ashy layers outside the oven correspond to its constant use till it was almost buried under strata of solidified ashes mixed with complete and fragmentary terra cotta cakes.

Locus VII

On the extrenal side of a wall or pillar of locus V, it is a big pit filled with loose ashy and burnt deposits containing sherds and many terracotta cakes.

3) Layer 3:

This layer corresponds to an altitude of about 4,30 m above the zero point and was found in the locus III, IV, V and VI.

Locus III

Layer 3 in this locus is a thick fill of ashy deposits full of sherds and fragmentary artifacts, some like humped bull figurines in unbaked clay.

Locus IV

In the northern part of the locus, a small wall made of bricks set width-wise (29cm wide) has been built. This wall is not exactly parallel to the northern wall but has a slightly more south-east orientation. Only three layers of bricks are preserved. Between this wall and the northern wall (17cm in the west and 24 in the east), there is a fill full of animal bones. The fill of the locus itself is as far as layer 3 is concerned, hard and compact.

Locus V

The feature associating the rectangular oven and the storage jar is still in use, but the oven is already half buried by solid strata of ashes full of cakes.

Only the neck of the jar emerges from its cell which is now filled. West of the northern pillar or in the door in the northern wall — a circular fire-place is bordered by broken baked bricks and big stones (some of them probably former grinding stones). This is the third firing structure found in succession in this area of the excavation. The ashy deposits associated with this firing structure, extending to the north of the pillar into locus VII, contained a great quantity of cakes, of fragmentary bricks and potsherds, among which many sherds one "cooking pot" in black ware.

Locus VI

In layer 3, the buttress becomes smaller and the fill of the locus is compact.

4) Layer 2

This layer has been evidenced in the northern set (A) and the southern (B) at an altitude of about 4.90 m, in locus II, III and X.

Locus III

The southern wall of the locus was built upon the earlier one, but slightly unwedged to the south. Corresponding to this resetting of the locus, a rectangular structure is bordered by two rows of mud bricks set lengthwise and paved with unbaked bricks complete or fragmentary. This structure is perpendicular to the northern wall. A sort of drain reaches the south-eastern corner where it is roofed by one widthwise brick. Another drain slopes along the western wall.

The edges and the brick pavement of the structure were coated with clay mixed with straw, a floor also made of clay mixed with straw extended outside the structure, just at the same level as its internal pavement.

Locus II

This locus is part of the complex A, in the northern part of the excavated area. Bordered by three walls 50 cm wide on its eastern, western and northern sides, it is open to the south. Its rammed floor is cut by a water drain coming from the northern wall and cutting through the southern wall into locus X. Baked bricks have been set in the two walls where the drain is going through.

In set B, there is on the surface a deposit of deflated material corresponding to the surface of locus III. Many terracotta cakes, stone pestles and beads in semi-precious stones or in white steatite have been found. Among the beads, a fragment of a long bioconical bead in agate has been recovered, as well as a rather exceptional amulet in faience depicting the head of a horse. One painted small bowl, a pot and an animal figurine come also from what must have been an occupational layer, later than layer 2, and destroyed by erosion.

This occupation can perhaps be related to a series of post-holes, two of which being on the western and southern walls of locus III, a third one was dug in the top of the mud brick structures of locus III (layer 2). The fourth one was dug in the small northern wall of locus IV. The diameter of each one measures about 20 cm. It is hard to know if they belong to layer 1 or if they are later at a time when the structures of layer 2 were still visible.

Many pits, as we have already said have been dug at several places of the excavated area. Some are due to later burials which have contributed to the mixing of the material found at the surface.

Conclusion

The information gathered in the course of this excavation in area NS.L suggests that this sector was mostly used for domestic activities. No craft indicator or cluster of wasters of any sort can be related to a specific craft activity. The various strata of occupation evidenced in this area show a succession of firing structures, used apparently for quite sometime until accumulated ashes and debris necessitated the building of new ones. They are associated with cooking-pots, storage jars, large amount of terracotta cakes and animal bones.

The type of structures and of sanitary elements in baked bricks suggest that these buildings were part of a much larger complex, at a time when the settlement had reached a fully developed stage. These structures can well be compared with those excavated in sector NS.P and related by J.F. Jarrige to the intermediate and upper phases of period III.

A few objects which have not yet been reported in the other excavated sector of Nausharo deserve a special notice. They include one long barrel shaped cornelian bead which was reused when one of its ends was broken.

Later on, the locus has been filled by fallen bricks.

Locus X Half of this locus has been excavated in the complex A. A rather exceptional structure has been found here. It is a semi-circular structure in baked brick but its bottom is not paved.

The water drain which cuts locus II disappears in the eroded part of this locus.

The passage between the two sets or complexes, at this level (layer 2), has been cut by a water gulley following the slope due to the erosion towards the west. In the rusted yellowish clay of this large gulley many finds were clustered, including fragments of carts, figurines etc.

5) Layer I:

This layer has been evidenced only in the set A and at the surface level of locus II, at an altitude of about 4.95 m above the zero point.

Locus I On its eastern side, a baked brick structure is associated to an ashy floor with red patches due to firing. This structure which could be the remains of an oven of the type of the one found in locus V has been disturbed by a later burial. Another later burial has also partly destroyed its western wall.

Locus II Situated to the west of locus I, its southern part is open on a sort of narrow lane and contains a structure in baked bricks with many traces of fire, which is the southern part of a sort of rectangular basin in mud bricks, against the eastern wall and which contained a thick fill of ashes, cakes and fragments of baked bricks forming successive strata.

North of this structure and associated to it, a jar with a shape similar to the jar from locus V but with a plain neck, was found resting on a small clay platform.

West of the same structure, just on the surface, several baked bricks are associated with a firing area. The orientation of these baked bricks corresponds roughly with the direction of the drain of locus X and, therefore, it seems quite possible that these bricks which were perhaps parts of the drain, were reused later on for a firing-structure.

etched beads in cornelian, two beads in faience and one amulet in faience in the shape of a horse head (Pl. XLI, B). No administrative device such as seals were found in this area. But one notices the presence of a cubical stone weight which is typical of the measure-system of the Indus civilization. A few human figurines have also been found but in secondary deposits, except for one specimen with a pot-belly and one hand on the mouth which was lying complete on a floor but with a core entirely corroded. The animal figurines were all in secondary or mixed deposits. As in the other excavated areas related to period III, several terracotta tops were found (40), as well as shell-shaped terracotta spoons with a suspension hole (14).

The five phases we have isolated in this architectural complex provide us with a hoard of information about the life in a settlement in the Bolan basin in the time of the Indus civilization. But this information is fragmentary since what is left is only a small part of a much larger set of buildings whose walls disappear in the slopes of the mound due to the strong erosion which has affected this area.

Conclusion

A few weeks of excavations at Nausharo have already yielded important results which must now be accounted for in our perception of the question of the position of the Indus Civilization in the general sequence of the Kachhi/Bolan area.

One of the main questions we wanted to study in undertaking an excavation at Nausharo was the problem of relation between the cultural complex which had been evidenced at Mehrgarh (period VII) and the Indus Civilization. The work we had done at Mehrgarh, in the context of period VIIC and at the kiln area of Lal Shah had provided us with a material presenting good parallels with Amri IIB and the late Kot Dijian phases of Kot Diji. Such material included many shapes and painted designs which could be considered as representing a proto-Harappan pottery. We, therefore, considered period VIIC as a transitional phase during which we could see the occurrence of an increasing number of shapes and painting which would develop later on in the context of the mature Indus civilization, along side late Quetta ware, "bracketed" ware, wet ware and a rather degenerated Faiz Mohammad grey ware. Some of the sherds from period VII, in particular from Lal Shah, were also presenting striking similarities with some pots from Mundigak IV,3 and Shahr-i-Sokhta IV.

The excavation in sector NS.G can be considered as extremely rewarding on that specific question since almost 6 metres of deposits contemporary with Mehrgarh VII B and C have been evidenced sealed by Harappan levels. In her report, A. Samzun has described the impressive and well preserved architectural remains related to Mehrgarh, period VIIC. With their thick butteressed walls, these architectures are very similar to those excavated at Mundigak, period IV and Shahr-i-Sokhta. The monumental platform in mud bricks to which is attached the upper building exposed by A. Samzun, in a context contemporary with Mehrgarh, period VIIC is an architectural feature already noticed at Mehrgarh, or at Mundigak and Shahr-i-Sokhta where the "burnt house" is a good example of a building against a huge brick platform or rampart (Tosi 1983, p.XXVIII).

Though the excavation in sector NS. G was limited, it appears clearly that the settlement of period I (contemporary with Mehrgarh VII) must have been quite sizable, extending to the north and west of the present mound, below the cultivated fields where architectural remains are still preserved down to a depth still unknown. Like at Mehrgarh, burnt pebbles used as heat transmitter are found in the fire-places, but terra-cotta triangular cakes start occurring in the upper building, and as we have seen in the excavation of area NS.P, replace entirely the pebbles in the firing structures of the Indus civilization period.

The very good state of preservation of the buildings in NS.G makes it worthy of extending an excavation here which confirms and completes the sequence evidenced at Mehrgarh in a key period of the general sequence of the Greater Indus system. Many of the sherds and pots collected there offer more parallels with the ceramic sequence of Mundigak and Shahr-i Sokhta providing good cross-dating in a context which precedes the beginning of the Indus civilization phase. More pots from the upper phase of Nausharo I help linking the ceramics of Nausharo I and Mehrgarh VIIC with the pottery of the early Indus civilization or Harappan phase found in the deepest layers of area NS.P.

Though the Nausharo I deposits are overlaid in sector NS.G by Harappan remains, there is no direct continuity in this sector. The Harappan remains overlying the deposits of period I, some 5 metres above the zero point, belong to the second Indus civilization or Harappan phase of occupation of the site (period III in the general sequence of the site).

From the information gathered in areas NS.G and NS.P, it is possible to understand the process of growth of the settlement. The first stage is the Nausharo I occupation in the northern part of the site which in a course of time contemporary with Mehrgarh VII, formed a mound of accumulated architectural remains whose top was about 6 metres above the surface of the plain at that time. Then the settlement shifted to the south in an area corresponding to-day to the central and southern parts of the mound. We have seen in the report of the excavation in sector NS.P that the bases of the walls of this second phase of occupation of Nausharo could not be reached as the dig was stopped 2 metres below the modern surface of the plain (at the altitude of the zero point). This means that the second occupation which corresponds to the early phase of the Indus civilization period (Nausharo, period II) started in a new area which had not previously been built in the course of period I. In this turn the settlement of period II and III formed a mound of accumulated architectural remains which little by little reached the level of the mound of the period I deposits and overlaid it.

The main question is to know what sort of continuity exists between Nausharo, period I and Nausharo, period II. The fact that the beginning of period II is marked by a shift in the settlement may indicate a break between the pre-Indus civilization phase and the early Indus occupation. Could it be an argument for supposing the arrival of "Harappan colonizers" in the north of the Kachhi plain, settling down at the foot of a previously abandoned settlement? In spite of important changes between period I and II, factors of continuity are such as far as building technics, pottery and other crafts are concerned. It is possible to tie up period I and II in the way Mughal has done it in the case of Kot Diji and Amri for the "early Harappan" levels and the "early mature Harappan" levels.

The solid parallels we have already established between Mehrgarh, period VIIC, the material from Lal Shah and the transitional layers of Kot Diji and with Amri IIB, are now strengthened by the evidence from Nausharo, period I. It can be confidently assumed that further work at Nausharo in the early levels of period II will confirm such a continuity which suggests that the whole Kachhi region as well as large parts of the Indus valley has been directly involved in the cultural process defined by Mughal as the "early Harappan" stage. This is not surprising as the Kachhi plain is directly linked to the Indus valley, through its southern part where major Indus civilization sites such as Judherjo-daro and Pathani Damb have been reported.

Another important point was to know to which extent the material associated to Nausharo periods II and III would be identical with the catalogues of finds from classical Indus sites such as Moenjo-daro, Chanhudaro or Amri III. It had often been noticed that the sites where finds related to the Harappan culture had been reported in the Kachhi region, many sherds in wet ware, along with fragments of pots in the late Quetta tradition, had been found. It was the case for instance of Chhargari, near Bagh, a site visited long ago by Aurel Stein (1905) where the surface is strewn with mature Harappan sherds, mixed with many sherds in wet-ware, a few in the gray ware in the Faiz Mohammad style and several human figurines in the style of Mehrgarh VII. At Judherjo-daro, wet-ware has also been reported by every visitor as very abundant all over the surface of the site (Flam 1981). From each evidence gathered from survey samplings one could conclude that some local pottery traditions survived in the course of the mature Harappan phase in Kachhi region, situated on the periphery of the geographical core of the Indus civilization. Such a situation had been noticed in the context of the Kulli complex where mature Harappan pots are found in association with Kulli style vessels.

The results from the deep excavation in sector NS.P has shown that the finds from the early Indus civilization period at Nausharo are identical with Amri IIIA and the first Harappan occupation of Chanhudaro show no local traditions which should be different of what is evidenced at the same time in the Indus valley proper. As already mentioned in the report of sector NS.P, sherds in the wet-ware typical of Mehrgarh VII and Nausharo I are found in such limited numbers in the levels of Nausharo II and III that they seem to be out of their original context. It can, therefore, be assumed now that the occurrence of "Quetta" wet-ware, of a few sherds in "bracketed ware" or figurines of the Mehrgarh VII/Zhob valley style at various sites which yielded also mature Harappan finds means that these sites present a situation similar to what we have at Nausharo with a first occupation contemporary with Nausharo I and Mehrgarh, period VII and a second one which belongs to the Indus civilization phase. The evidences gathered at Nausharo will also help not to call "mature Harappan" some sites which belong to the cultural horizon of Nausharo, period I, Mehrgarh, period VIIC and Lal Shah.

An important contribution of this campaign of excavation has also been the discovery of a rather impressive stratigraphical sequence of Indus civilization deposits from the deepest layers of NS.P 2 metres below the zero point

to the top of the mound 9.35m above the zero point. In sector NS.P almost 8 metres of Harappan deposits are preserved in spite of the intensive erosion of the top of the southern area of the site. Since such accumulation does not involve major platforming or terracing work but results from the progressive piling up of debris and structures, it can be assumed that the Harappan occupation of the site, divided in two periods (Nausharo II and Nausharo III) lasted for a rather long span of time. The description of building phases given in this report indicates clearly a process of continuous occupation extending over a long period of time. It is interesting to note that the pattern of occupation shows some differences with what we have evidenced at Mehrgarh. No room full of complete pots sealed by collapsed roof such as those found at Mehrgarh in sector MR.1 has been so far exposed at Nausharo. The constant process of rebuilding and reshaping of the architectures at Nausharo left apparently no space and no time ruins full of abandoned material to stand in the settlement itself.

The discovery of this continuous Harappan occupation beginning in the deepest levels of NS.P in a chronological context contemporary with Amri IIIA, an early Indus civilization phase, helps also to establish good cross-dating with sites such as Mundigak and Shahr-i-Sokhta. In the reports of the 9th and 10th seasons at Mehrgarh we had shown the strong parallels between Mehrgarh, period VIIC (including the kiln area of Lal Shah) and Mundigak IV, 3 and Shahr-i Sokhta (end of period III and period IV). At that time we knew that period VIIC was earlier than the Harappan occupation of Nausharo. But as Nausharo, the surface finds would show good parallels with Amri IIIB, the mature Indus civilization phase of the site. On such evidence, it could have been argued that period VIIC at Mehrgarh could have overlapped with the early Indus civilization phase of Amri IIIA, the first Harappan occupation of Chanhudaro and Moenjodaro, allowing to suppose some contemporaneity with the final urban phases of Mundigak and Shahr-i-Sokhta. But the presence of at least 2.50m of archaeological deposits with pottery closely parallel to Amri IIIA pottery, at the bottom of the excavation in sector NS.P indicates that there was no such overlap between the cultural horizon of Mehrgarh VIIC, Nausharo I and the Indus civilization. From the very good parallels we have been able to stress between the pottery of Lal Shah, Mehrgarh, period VIIC, the upper levels of Nausharo, period I, and Shahr-i Sokhta III and IV and Mundigak IV, 3, we can say without risk of mistake that the urban phases of Mundigak and Shahr-i Sokhta had ended when the Indus civilization emerged at the time of Amri IIIA. This has probably far reaching implications but are beyond the scope of this preliminary report.

It is interesting to stress the fact that Nausharo II and III have yielded almost nothing which could suggest strong links with eastern Iran or Afghanistan, in spite of the fact that the site is just at the foot of the Bolan Pass. The few prestige goods found at the site can be related to the pyrotechnological processes (white steatite, faience) which apparently gave a value to the objects produced by the craftsman of the Harappan period. Lapis Lazuli though easily accessible in the Chaghai hills is, in a significant way, almost absent. It is an interesting situation since the periods of Nausharo II and III are sandwiched between the time of Mehrgarh VII and Nausharo I when the links with Mundigak and Shahr-i Sokhta were very obvious and the period of the cultural complex of Mehrgarh VIII and Sibri which present so many parallels with the bronze age of N.W. Afghanistan and southern Uzbekistan as to be termed wrongly as the Bactrian phase of Kachhi.

As a whole the Indus Civilization settlement of Nausharo looks like a sizable rural centre whose situation seems more linked to the very fertile alluvial lands surrounding it than to its geographical position in relation with an eventual international trade with southern Central Asia and eastern Iran. There are no remains of large scale craft activities. Pottery was probably made outside the settlement in a specialized area for which the hill of Lal Shah, contemporary with Nausharo I, gives us a model. The character of a rural township explains the use of mudbricks and the lack of a complex sanitary system, though a few drains and a bath-room in baked bricks indicate that the site was well within the Indus Civilization architectural concepts. The excavation is still too limited to allow us to distinguish different quarters. But one can notice the more monumental aspects of the structures exposed in sector NS.F and NS.K on each side of a lane or alleyway whose walls were raised seven times (over a height of more than 5 metres). This constant raising of the walls recalls strongly what can be seen in the streets of the lower town of Moenjo-daro. In this area a larger number of baked-bricks feature has also been noticed.

In this report we have already mentioned the fact that the evolution of the pottery from period II to period III was following what Casal had evidenced at Amri in the course of periods IIIA and IIIB. With larger excavation at Nausharo it will be possible to develop what Casal has done at Amri. Such work will be made much easier with the so useful corpus established at Moenjodaro by Dales and Kenoyer (1986). Though the Harappan pottery is homogenous, there exist nevertheless evolutive trends in the shapes and paintings which will become more and more obvious with a large sampling.

The parallels that we have been able to establish between the sequence of Nausharo and Amri indicate that the late phases of the Indus civilization are absent at Nausharo. We have already mentioned in the report of sector NS.P that the diagnostic shapes and paintings of Amri IIIC were not present at Nausharo, even in the upper levels. The goblets with pointed bases and the pots decorated with geometric and floral designs painted with a thick brush so characteristic of Amri IIIC and of the upper levels of Moenjo-daro are not found at Nausharo. But we have pointed out the occurrence in the upper levels of Nausharo III, contemporary with the final phase of Amri IIIB, of new shapes which will become diagnostic of the cultural complex of Mehrgarh, period VIII and Sibri, to which we can add now the graves and the site of Dauda Damb. We have already insisted on the fact that the pedestalled bowls so typical of the cenotaphs of Mehrgarh, period VIII, have to be seen in the context of the upper levels of Nausharo, period II, as a variant of the Harappan dish on stand. The presence of a pedestalled bowl with a small bulb in one of the vaulted graves of Dauda Damb has been for us one more element to prove the filiation of this shape with the dish on stand with bulb, typical of the mature Harappan phase of Amri IIIB and of Nausharo III. In a very significant way, this new type of pedestalled bowl begins to occur at Nausharo in association with the first specimens of the so-called "truncated pots", so characteristic of the Mehrgarh VIII complex. No complete specimen of such bowls has been found, but their rims are characteristic enough to recognize them. Some of these "truncated pots" were painted with the same plum colour used for coating some of the pedestalled bowls or the big storage jars of the upper levels of Nausharo. In the context of Nausharo, period III, where we have many examples of bowls with concave profile, these "truncated pots" do not look intrusive.

The evidences provided by the excavation of the upper levels of Nausharo III help to understand the formative process of the cultural complex of Mehrgarh VIII/Sibri and Dauda Damb. There is obviously no break in the pottery sequence from the upper levels of Nausharo III and the Mehrgarh, period VIII complex, as far as technics and shapes are concerned. Goblets, bowls, storage jars, pedestalled bowls of the Mehrgarh VIII complex have evident prototypes in the upper levels of Nausharo III, in a phase which must be contemporary with the climax of the Indus civilization. But the very important point is the fact that at the end of Nausharo III the cultural unity we have seen between the Indus valley and the Kachhi/Bolan region is broken. Nausharo, period III, is followed by the Mehrgarh VIII/Sibri complex and Amri IIIB is followed by Amri IIIC during which the Harappan pottery at Amri and at

Moenjo-daro in the upper levels evolve towards a new style which will give birth to the Jhukar style. From the same starting point (Moenjo-daro intermediate levels, Chanhudaro, second Harappan occupation, Amri IIIB and Nausharo III) we have now two different lines of evolution, as far as pottery is concerned. In the Indus valley, dishes on stand, bowls with averted rim, pots and big jars bear thick floral or geometric paintings typical of the late Harappan style and pointed goblets are mass-produced. In the Bolan Basin, in the funerary complex of Mehrgarh, period VIII, at Sibri or at Dauda Damb, the Harappan tradition of painted designs disappears completely and if goblets in the tradition of Nausharo III are produced in quantity, pointed goblets are conspicuously absent.

In the previous reports and articles (Santoni 1983, Jarrige 1985) we have insisted on the evident links of the Mehrgarh VIII complex with Eastern Iran (Shahdad), northern Iran (Hissar IIIC), Afghanistan (Dashly complex) and South Turkmenia (upper Namazga V levels). More recently the discovery of exceptional funerary deposit at Quetta (Jarrige & Usman n.d., Jarrige n.d.) has provided us with more elements on the strong ties between all these regions in a chronological context which can safely be considered as contemporary with Amri IIIC and the upper levels of Moenjo-daro.

At the end of period III at Nausharo there is, therefore, a major change. If the geographical position of Nausharo at the foot of the Bolan Pass does not seem to have played a major part in the life of the site, except perhaps at the local scale of the seasonal relations between lowlands and highlands, in the course of period II and III, the situation changes dramatically at the end of period III. The position at the foot of the Bolan Pass of the sites of the Bolan Basin becomes then a key element to understand some of the main phenomena of the very early 2nd millennium in the Greater Indus system and the Indo-Iranian Borderlands. The presence of pedestalled bowls and "truncated pots" in the Dashly complex or in the cemetery of Sappaly very similar to those found in the funerary complex of Mehrgarh, period VIII, lead some specialists to assume that the Kachhi plain had been invaded by "Bactrian" groups in a period contemporary with Namazga VI in Turkmenia where such shapes are attested at that time. But the clear evidence we have now of the relation between the pedestalled bowls of the Mehrgarh VIII complex with the Harappan dishes on stand of the Nausharo III period, in the chronological context of the mature Harappan civilization (therefore much earlier than the period of Namazga VI in Turkmenia) contradicts such explanations. It seems in fact now that northern Afghanistan was strongly influenced as far as some

pottery shapes are concerned, by the emergence of a new type of ceramic derived from the Harappan ware in a region at the foot of the Bolan Pass, in a period contemporary with the late phases of the Indus civilization. It is also significant that the graves and hoards of Altin Tepe where pottery shapes are the closest to those found in the Mehrgarh VIII complex date from the upper levels of Namazga V, contemporary with the upper levels of Meonjo-daro, and have yielded many ivory objects — dice, rods, plaques decorated with incised circles (Ganyalin 1967) — which were obviously imported from the Indus system and for which we have also good parallels in the funerary deposit of Quetta, in association with exceptional gold finds. It is important to recall here that most of the "foreign" finds, usually copper/bronze objects, made at Moenjo-daro and other Indus sites are associated with their upper levels. It is beyond the scope of this report to discuss the many implications of the new evidences gathered in the Kachhi/Bolan region in the course of these last field-seasons but we just wanted to indicate that the work done at Nausharo gives us the possibility to bridge the gap between Mehrgarh VII and the Mehrgarh VIII/Sibri complex and provides us with new bases to analyze the cultural and economical processes of the early 2nd millennium B.C. in the Indo-Iranian regions.

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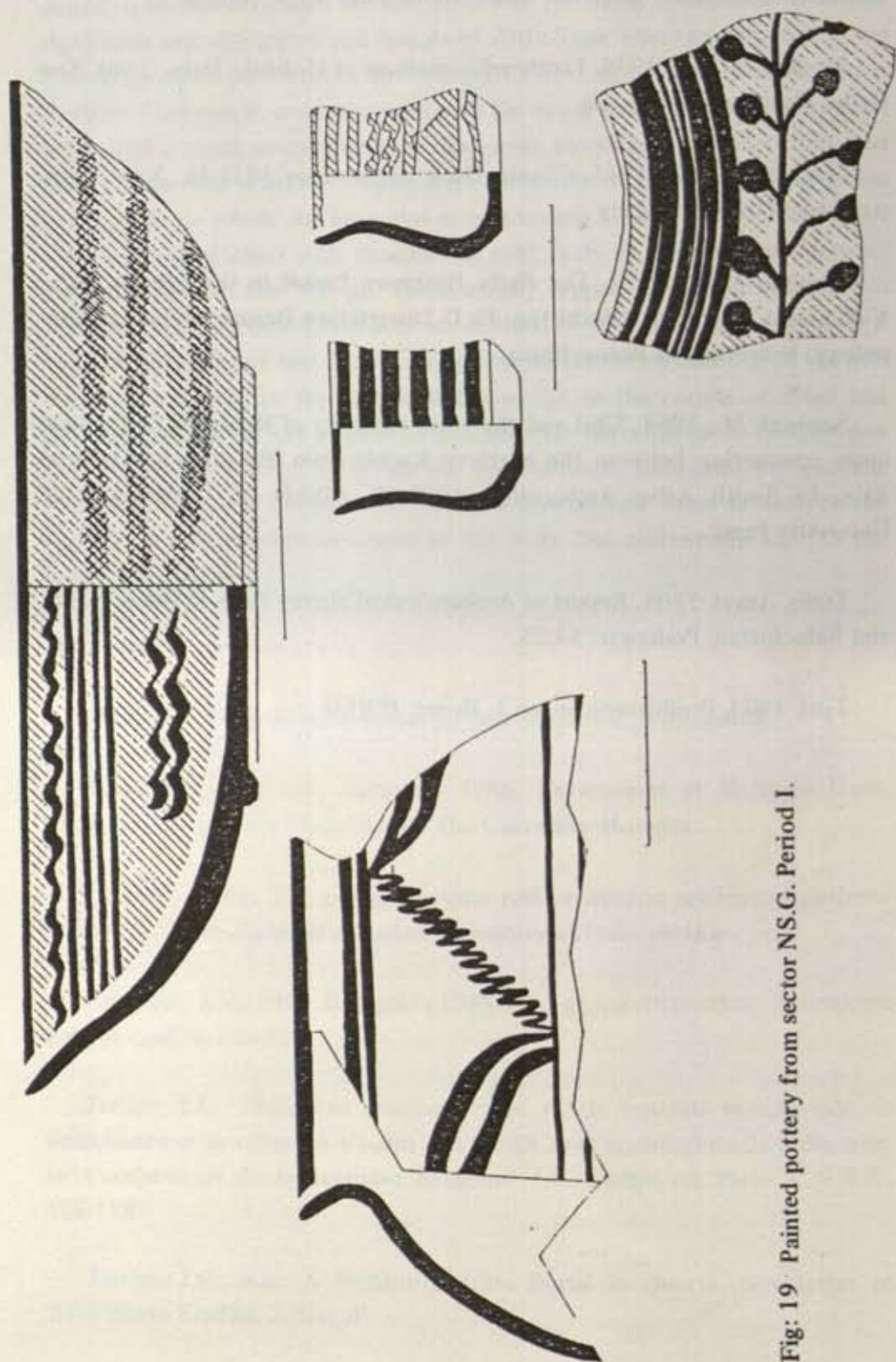


Fig: 19 · Painted pottery from sector NS.G. Period I.

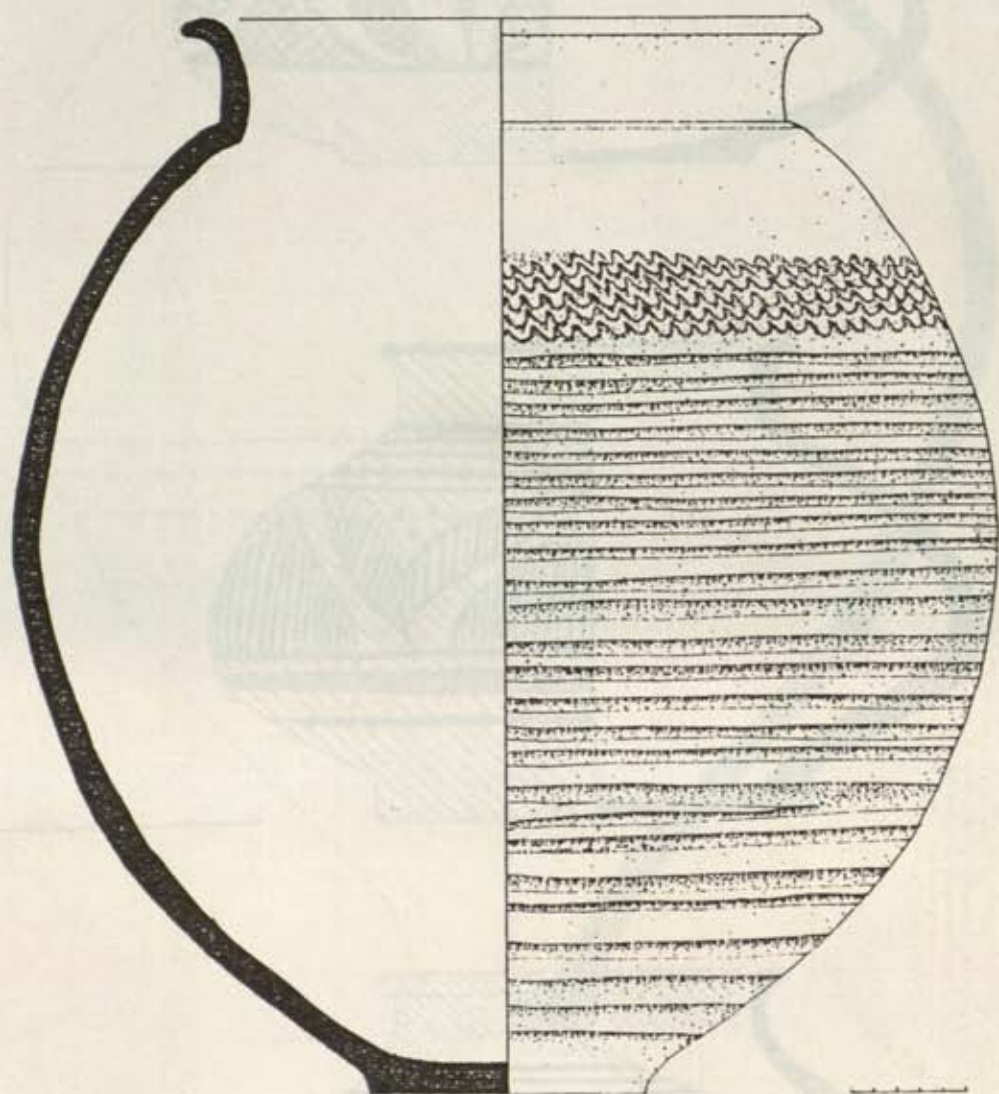


Fig: 20 Jar with incised decoration; from
Sector NS. F (Period III).

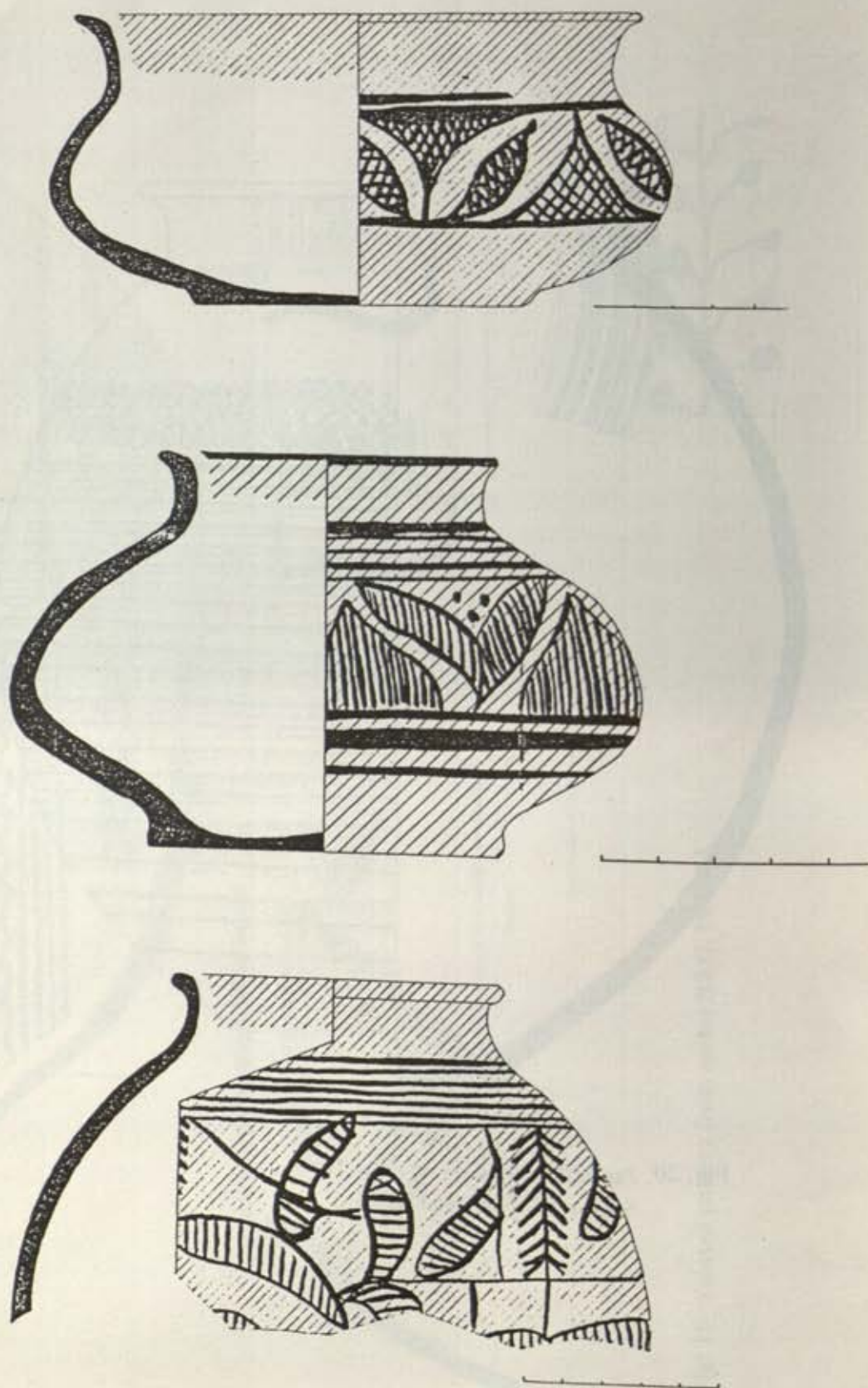


Fig: 21 Painted pots from sector NS.P (Period III)

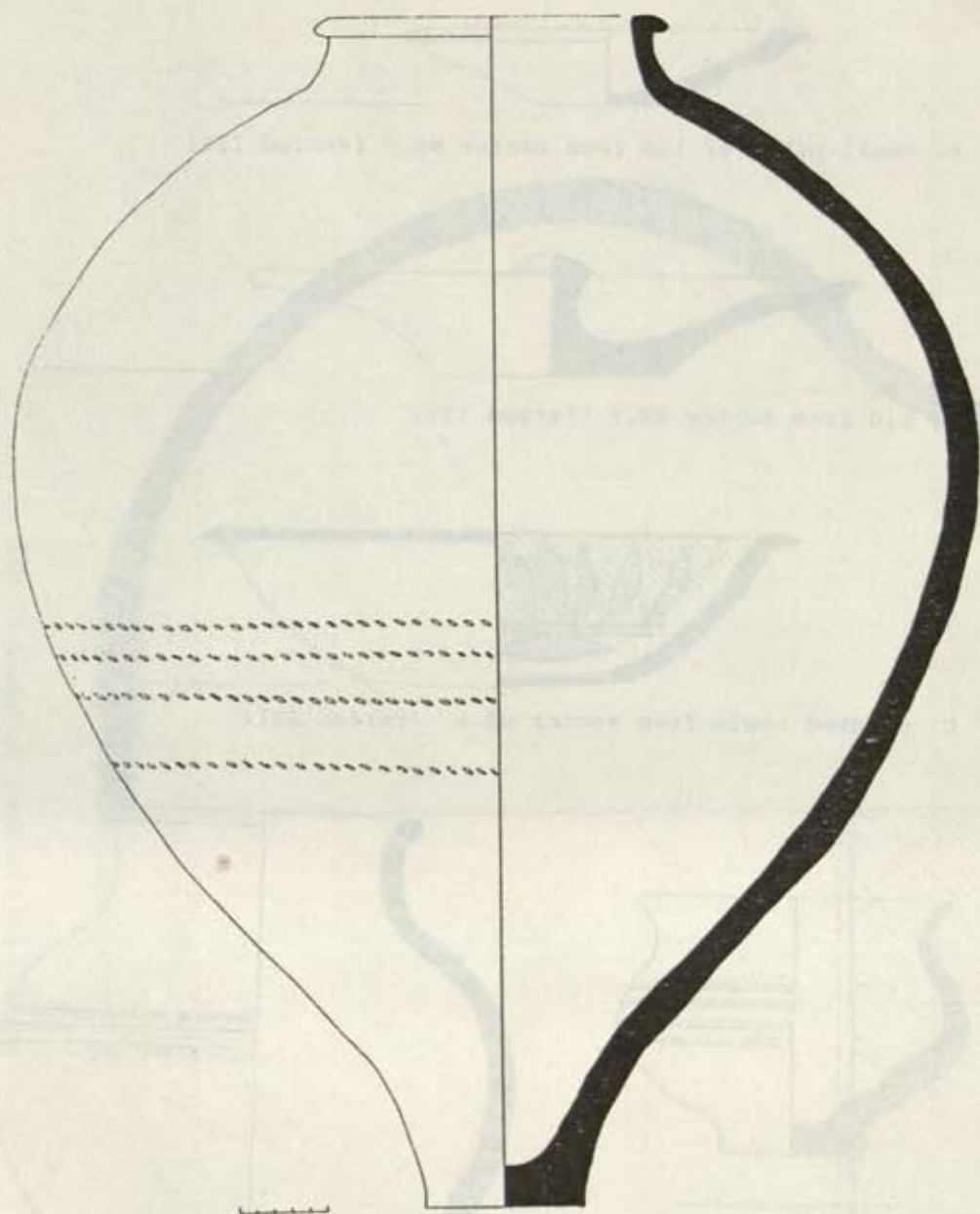
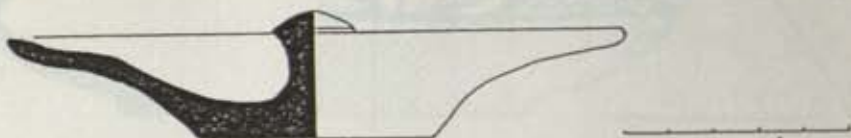


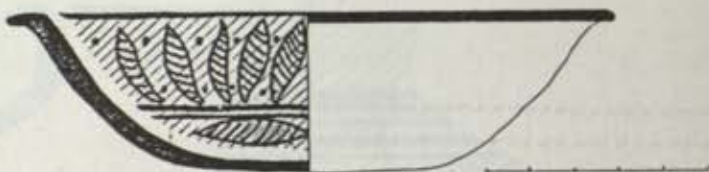
Fig: 22 Storage Jar from locus XII.
Sector NS. P (Period III).



A: Small plate or lid from sector NS.P (Period III)



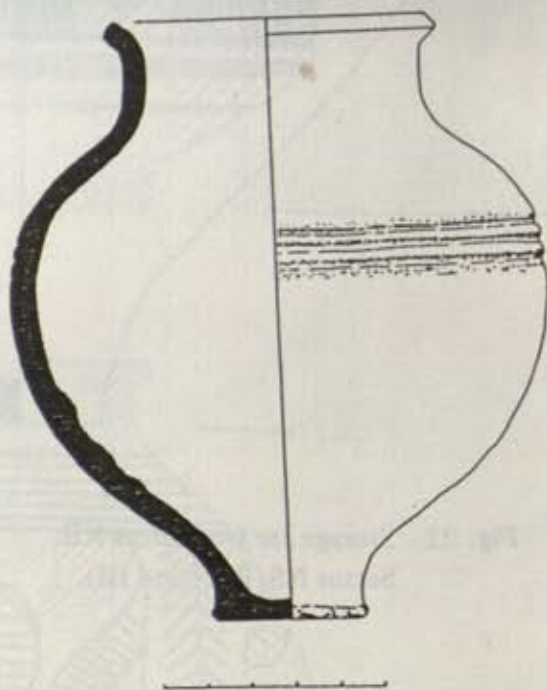
B: Lid from sector NS.P (Period III)



C: painted bowls from sector NS.P (Period III)



D: goblet from sector NS.P.
(Period III)



C: goblet from sector NS.K
(Period III)

Fig: 23 Pottery from period III.

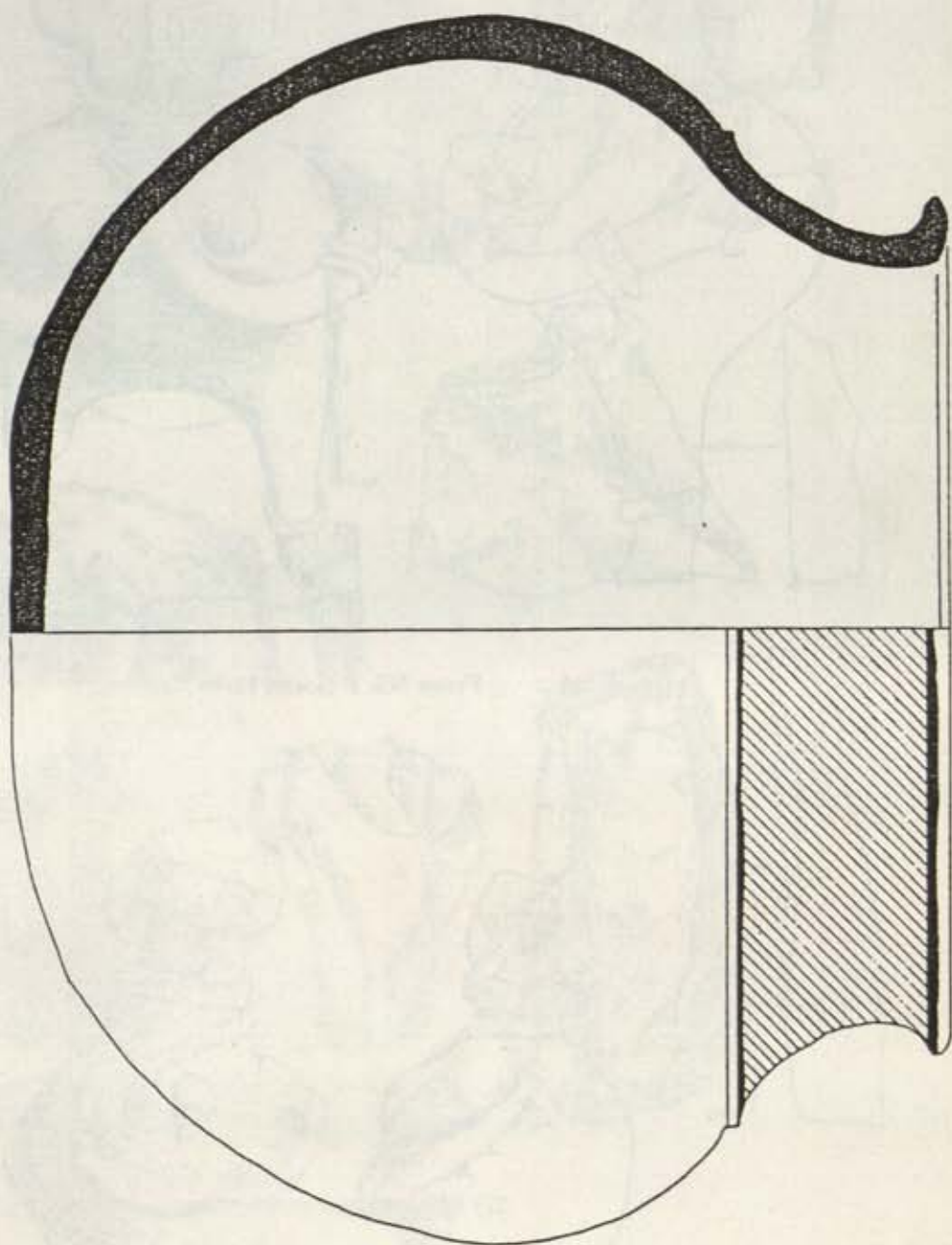
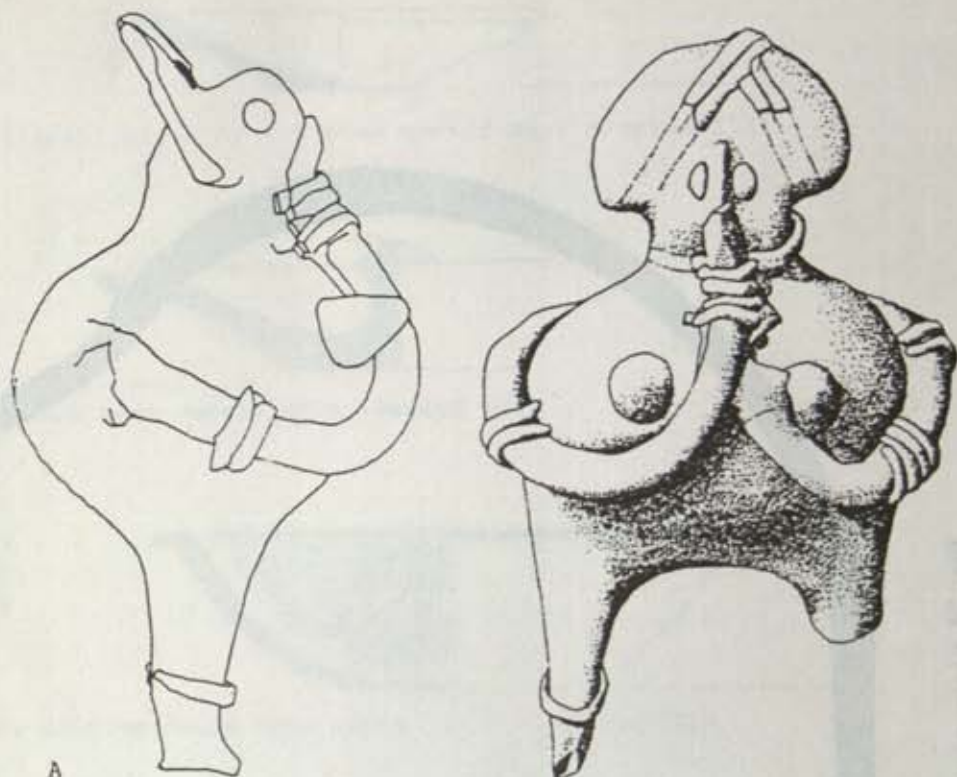
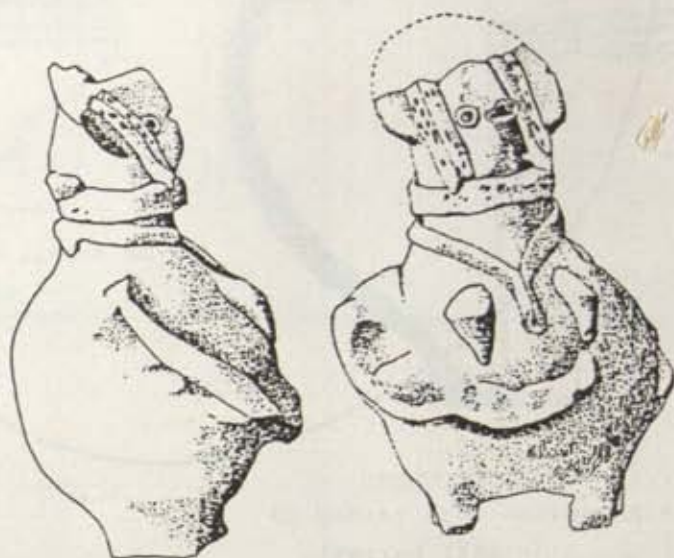


Fig. 24 Storage jar from area NS.L (locus V)
Period III.



A : From NS. P (locus I).



B : From NS. K (Period III).

Fig: 25 Two terracotta female figurines;

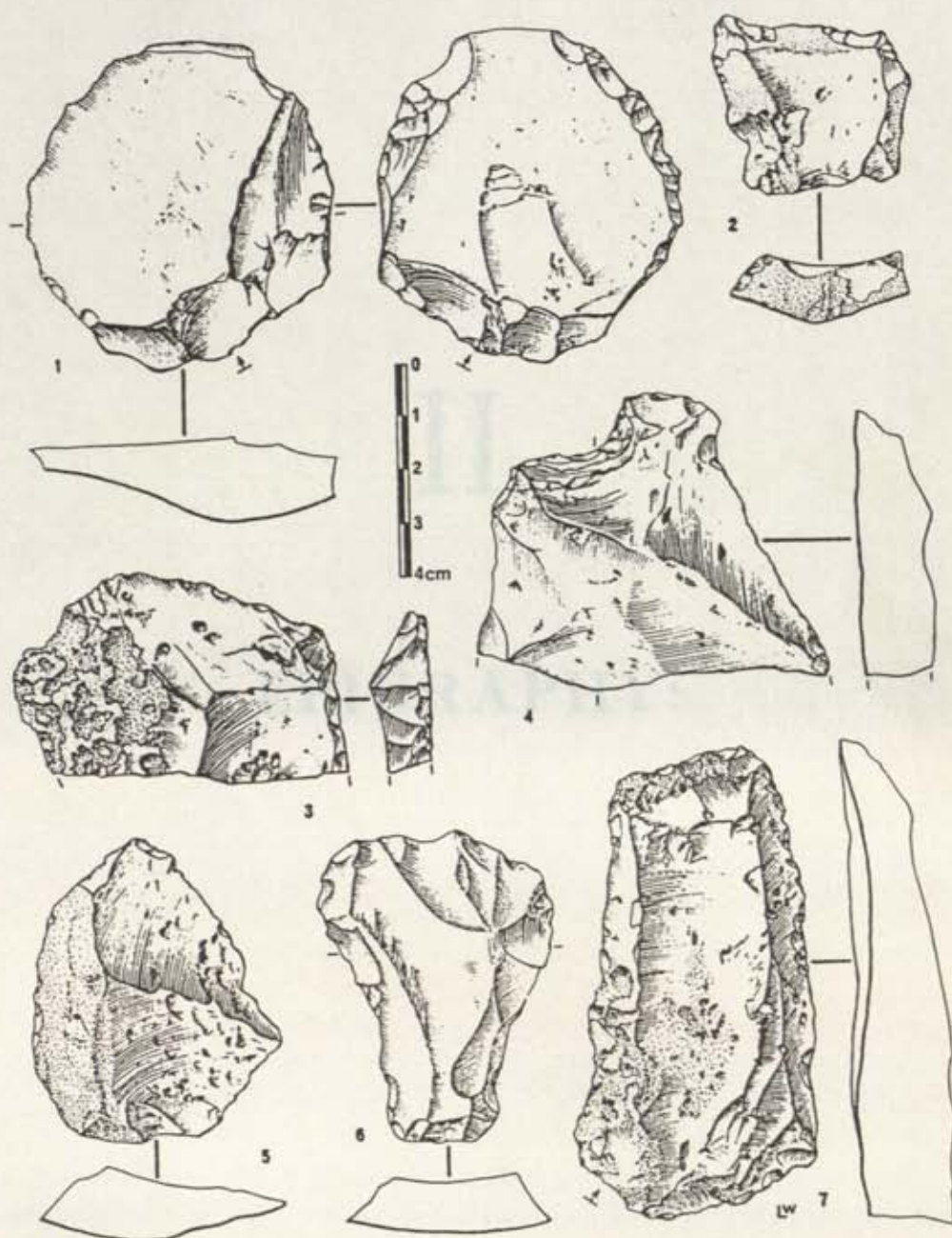


Fig: 26 Paeleolithic tools from GLACIS G2.



II

EPIGRAPHY:

II

EPICRAPHY:

CONSTELLATIONS IN THE HARAPPAN SEALS

By

Syed M. Ashfaque

INTRODUCTION:

In most of the ancient cultures of the world invention of writing has been attributed to the human reflex of certain celestial phenomena which evoke fear and superstition and the desire to record them as reference in time to relate the events of daily life. Some of the celestial revelations are sufficiently dramatic of excite religious beliefs, such as total eclipses, appearance of comets, meteoric showers or outbursts of supernovas, which leave indelible memories for many generations. Such events occurring at the dawn of civilisation have often spurred the primitive observers to record them in some kind of crude symbols.

An interesting instance of such illiterate record of an astronomical event has come to light during exploration of the cave dwellings of Pueblo culture.¹ In one of the abandoned houses a marking was noticed on wooden log, depicting a lunar crescent in proximity with a large stellar object. This drawing has been suggested to record the event of the moon approaching close to the Nova in Crab Nebula, which is mentioned as the 'guest star' in Chinese records, dated July 4 of the Christian Era 1054.

The researches of George Michanowsky, member of the Science Advisory Board of the Explorer Club, New York, indicate that the earliest Sumerian cuneiform originated when a supernova in the southern constellation of Vela burst into view about 4000 B.C.² the Mayan and Egyptian hieroglyphics and the Chinese pictographs on the Oracle Bones probably also owe their origin to the primitive astronomical observations in their respective areas.

Even aside from the observations of exceptionally striking events in the night sky, the more modest notations of the phases of the moon, appearance and disappearance of planets and their conjunctions, and the heliacal risings and settings of the prominent stars form the basis of calendarical computations in primitive societies for their hunting, gathering, and agricultural purposes. Study of distribution patterns of megalithic circles and menhirs of prehistoric times in the widely scattered areas of Europe, Central and eastern Asia, and the Americas, has now confirmed the assumption that primitive attempts at astronomical observations have played an important role in man's intellectual progress,³ and in promoting the writing systems in the various ancient civilisations.

ORIGIN OF THE OLD WORLD CONSTELLATION PATTERNS:

The Old World constellation patterns as seen in the medieval uranographs (Fig.27 & 33), are generally thought to be Mesopotamian legacy passed down to our modern star maps from the late Chaldean astronomy, transmitted through the writings of Eudoxus (fl. 368-365 B.C.), his follower Aratus of Soli who wrote a long poem *Phainomena*, the commentary thereon written by Hipparchus⁴ (fl. 161-126 B.C.), and finally through the works of Ptolemy (fl. 125-161 C.E.), rediscovered through the Arabic translations of Muslim astronomers. Out of 48 pictorial representations of the groups of stars or constellations, depicted as mythological heroes or animals, 12 constellations belong to the Zodiacal belt along the Ecliptic, 22 are located in the northern sky, and 14 occupy the southern sky leaving there a broad lozenge shaped vacant space around the South Pole, as this part of the sky remains invisible to the dwellers of the northern hemisphere.

The history of the Old World constellation pattern narrated above with sweeping brevity remains popular with the pan-Babylon scholars, but it has not gone unchallenged by historians of palaeo-astronomy since the beginning of the present century. According to Maunder,⁵ the constellations were

devised by a people living between latitude 36° and 40° north of Equator in about 2700 B.C., while Allen⁶ suggests the date of their origin between 2400 to 2000 B.C. Ovenden⁷ argues that the constellations were first conceived by the Minoans about 2800 B.C., as they were symmetrically disposed with respect to the celestial poles of that age. A very useful study on the subject, however, is that of Hartner,⁸ who traces the origin of certain motifs on pre-historic painted pottery and the depiction of certain animal figures in the sculptural art of Achaemenian period to primitive astronomical concepts in the Near East about 4000 B.C.

One of the much debated aspects of the origin of the Old World constellation patterns is the question of determining the priority between three ancient systems of the lunar mansions of calendrical use encountered as the *Manazil al-Qamar* (Fig-34) in the Arab astronomy of pre-Islamic times, the *Nakshatras* in the Vedic astronomy, and the *Hsieu* in the Chinese astronomy. While the Arab *manazil* have been clearly shown to have been derived from the Hebraic *Mazzaloth* and, therefore, of Babylonian origin — the greatest debate has centred on the genesis of the *Nakshatras* and *Hsieu*.

One important difference between the two systems of Zodiacal asterisms is that while the Vedic *Nakshatras* follow roughly the trend of the ecliptic and are rather haphazard in distribution (Fig. 4) the Chinese *Hsieu* (Fig.29) are disposed along the celestial equator and are at more regular spaces. Both the systems have their determinative or junction stars in each asterism, which in *Nakshatras* are known as the *Yogataras*. The determinative stars of the *Hsieu* asterisms are thought to have been more carefully selected by keying their positions with circumpolar stars by imaginary lines passing through the celestial North Pole. Out of the 28 asterisms in *Nakshatras* and *Hsieu*, 7 have common determinative stars, 14 have common members, and 7 are entirely different groups.

A review of the history of the Chinese *Hsieu* indicates that the Chinese astronomers have kept revising and changing the asterisms and their determinatives whenever the equatorial disposition of the *Hsieu* became too large to be negligible by the slow but cumulative backlogging effect of the precession of equinoxes. Thus, the stars Vega (Abhijit) and Altair (Cravana) which probably served as determinatives of their respective asterisms of *Hsieu* were abandoned as such, and were replaced by much less bright stars. In *Nakshatras* these two stars continued to serve as the *Yogataras* down the ages.

Needham,⁹ after examining a great deal of modern researches comes to the conclusion that both the Chinese *Hsieu* and Vedic *Nakshatras* have been ultimately derived from the Babylonian astronomy, as the library of Assurbanipal (668-626 B.C.) has yielded a clay tablet whose contents possibly date back to the 13th Century B.C., showing a threefold division of the sky in concentric bands, marked with names of constellations. This fragmentary tablet, erroneously called an 'astrolab', indicates the Babylonian division of the sky as circumpolar region with its constellations referred to as the stars of Enlil, the middle or equatorial belt marked with 24 asterisms serving as the lunar mansions and called the stars of Anu, and the southern zone with its constellations known as the stars of Ea. Some of the names of constellations and stars missing from the broken "astrolab" have been gathered from a series of clay tablets known to the Assyriologists as MUL APIN tablets. A tangible map of the early Babylonian sky has been shown in Fig. 28, in which the equinoxes have been placed at 1400 B.C. — the maximum antiquity which can be allowed to the Babylonian lunar mansions.

The conclusions reached by Needham are natural corollaries in the absence of any material evidence and convincing arguments about very ancient origin of the Vedic *Nakshatras*. Studies of Indus Civilisation till 1960s have remained deplorably short-sighted in omitting any emphasis on primitive computational astronomy for calendarical purposes in a predominantly agrarian society, which from its material remains is also judged to be deeply religious, and obsessed with the philosophy of offerings and sacrifices to countless deities of an animistic or shamanistic pantheon. Extinct cultures far less in geographic extent than claimed by the Indus Civilisation, and primitive societies far inferior in intellectual and social mores than the authors of the Indus Civilisation, have been endowed with advanced ideas of astronomical concepts of cyclic events and observational techniques.

The only serious voice raised to assert the antiquity of the Vedas and Indian astronomy was that of Bal Gangadhar Tilak, whose classic, *The Orion: Researches into the Antiquity of the Vedas*, published from Bombay in 1893, does not seem to have drawn much notice as it actually deserved. The reason may be that as a pleader by profession, his ability to weave arguments was charming, but as a political leader of eminence he was distrusted as a chauvinist. If Tilak were reincarnated to see the pictures of the Antelope and the Scorpion on the seal found from the Kot Dijian levels of Rahman Dheri in Bannu Basin, he would never again have felt tempted to pass the gates of Heaven to go to Pitriyana.

Material evidence of the tradition of primitive astronomical observations for calendrical computations in the Indus Civilisation seems to be settling with some justifications upon the large number of ring-stones and pestles found from excavations at Moenjodaro. Some Finnish scholars are of the opinion that these may be some kind of sun-dials, or alignment devices to observe the rising and settings of the sun or other heavenly bodies with reference to distant landmarks, such as the indentation of the gorge of the Gaj river, observed from the citadel mound of Moenjodaro near sunset, when the western horizon shows an eerie silhouette of the Kirthar Range. Alternatively, the two kinds of ring-stones, i.e. those whose outer sides are convex, and those whose outer sides are concave may account for some kind of mechanical clepsydra, with ropes running round wooden axles and passing over the ringstones with concave outer sides, and the heavy pestles hanging by the end of the ropes to revolve the arrangement at a steady pace to measure the passage of hours. It could also be something akin to the Nilometer in Egypt, used at Moenjodaro to measure the discharge of water during heavy rains or in flood seasons.

The aspects of primitive astronomy in the Indus Civilisation in the present paper is mainly restricted to the iconography on the Harappan seals, including the one found at Rahman Dheri from Kot Dijian levels mentioned above, which belongs to the earlier phase of the Harappan Culture from an area coming within range of the Greater Indus Basin.

CONTENTS OF THE INDUS SEALS:

Nearly 4200 seals known to have come from excavations of the Indus sites spread over the plains of the Greater Indus Basin in Pakistan and India are mostly made of steatite, but there are also some in copper and clay paste. The steatite seals occur in two shapes i.e., rectangular ones bearing only the characteristic Indus Script and known as the 'small seals of Harappa', and the square ones bearing the script symbols usually in the upper register and the iconic miniatures in relief of the various real or mythological animals and the human figures, probably signifying dieties or heroes of the contemporary folk-lore. The copper seals are usually oblong, engraved with figures of various animals on obvers sides, and some characters of the script on the reverse sides.

Although a through stratigraphic analysis of the two types of the Indus seals was not given particular attention in the earlier excavations of the major Indus sites under Sir John Marshall, now it is generally agreed that the rectangular seals show a persistent occurrence from the top layers to right downwards of the cultural accumulation of the sites, while the square pictographic seals show up from the top layers to only somewhere in the middle of the thickness of the cultural deposits. This circumstance probably indicates that the Indus Civilisation possessed the script right from the beginning of its Mature Phase, while the iconographic devices were introduced at some later stage.

The animals depicted on the square pictorial seals of the Indus are generally those whose habitat has remained the warm and humid subtropical climate of the South Asian subcontinent. The miniature figures have been shown in relief with a mastery of the art of sculpture, which is surprising and at the same time vouchsafes their especial significance as the medium of expression of the religious or superstitious ideas. Some of the animals, for instance tigers, have been shown with horns, as if to emphasise their importance as deities or objects of worship. Most of the animals have also been shown with draperies covering their backs or necks, emanating a sense of holiness as one feels from the tunic worn by the King Priest of Moenjodaro, besplangled with trefoil patterns, recalling to mind similar designs on the Bull of Heaven from Gudea.¹⁰ Most of the animals, domesticated, wild, or legendary, have also been shown with different kind of menageries placed before them as if to placate their vicious nature by food offerings.

The menagerie of animals consists of the humped bull, the small bull, buffaloes, rhinoceros, elephant, the ram, the antelope, the hooded python, the alligator, the onager or wild ass (but no horses), and the rabbit. Among the mythological animals the most conspicuous and frequent place on pictorial seals belongs to the Unicorn. There are also creatures of the fables with composite features of many wild animals. On a copper seal coming from the L-sector on the citadel mound of Moenjodaro is depicted an animal looking like a Siberian moose or more likely a composite of the camel and the leopard with large spread wavy horns. It looks that the fish, the scorpion, the birds and domestic fowls, the crab, the dog, and the various flying insects had already been too well conventionalised in the Mature Indus script to require their separate depiction in the miniature sculptures, and we can distinguish them unmistakably in the script characters. The scorpion, the stag, and

the frog are, however, recorded as separate sculptural entities in a small amulet seal recovered from the excavations at Rahman Dheri already noted, and dated in a layer belonging to a cultural phase preceding the Mature Harappan period.

Among the pictorial seals depicting human figures as heroes, priests, or deities, there are the two well known seals from Moenjodaro – one showing a horned anthromorphic figure with a tall headgear sitting on a low stool in yogi posture, surrounded by some wild animals, and the other again in yogi posture on a low stool with arms wearing bangles, and looking to be presiding upon solitude. The first figure whose head-gear of seven curved lines is interpreted to emanate brilliant rays of light has been identified with Pasupati, Rudra, or proto-Siva by those professing an australic or Dravidian racial origin of the people of the Indus Civilisation, and as Sapta Manusha or Agni by those prone to give a Vedic interpretation to the mythology of the Indus seals, and therefore believing in an Indo-Aryan genesis of the vanished race. The solitary yogi figure has not been identified yet.

The other important seal with human figures is the one numbered 2430 in Marshall's report on Moenjodaro, showing a horned deity in human form standing in the looped boughs of the pipal tree, with a priest kneeling nearby and a human faced ram standing behind the priest, In the lower register of the seal are shown seven human figures in standing posture.

Almost the same pictorial device as seen on the seal 2430 is also depicted on both sides of a smaller square seal made of grey-coloured paste, indicating its use as an amulet by two holes for thread, and bearing number B.426. The seal comes from Room 17, Block 3, Section B, of DK area of Moenjodaro.¹¹ The important points of difference between the seals 2430 and B.426 are that while in the first there are some characters of the inscription visible on the left side of the upper register, the second seal shows no inscription of any kind. Then, there is the difference of the row of human figures shown in the upper register of the second seal whereas the row stands in the lower register of the first seal. The number of human figures in the first seal is clearly seven, while in the second seal it is just six. Lastly, while in the first seal the human-faced ram stands behind the kneeling priest, and does not look to have been meant for sacrifice, its counterpart—a true caprid in the second seal stands between the deity in the pipal boughs and the kneeling priest, and appears to be meant for sacrificial offering.

Other notable seals bearing human figures are those oblong ones from Moenjodaro showing a standing stalwart hero with hooved feet and a tail, reminding Satyrs of the Greek legends. The same figure is depicted in one of the seals as fighting a tiger, reminiscent of the fables of Gilgamesh of Babylon, and of the feat of Hercules, killing the Nemean Lion. Then there is an interesting seal from Kalibangan, depicting a deity standing beneath a narrow arch framed with tongues of flames. On its reverse are a few characters of the Indus script.

PURPOSE OF THE INDUS SEALS:

By a common consensus of opinion of scholars, the purpose of the major body of the seals in steatite was to authenticate or identify commercial goods, exchanged under a barter system between different provinces of the Indus empire, or between that empire and neighbouring domains. As apparently it was a well unified country with all signs of administrative regimentation and homogeneity of language, the commercial purpose within the country was well served by stamping the goods with the purely inscriptional protocols, such as of the 'small seals of Harappa'. On the evidence of stratigraphy the use of these seals is affirmed consistently from the lowest to the top levels of the mature Harappan phase. Introduction of the pictorial seals beginning from somewhere in the thickness of the cultural accumulations, therefore, bespeaks of the fact that commercial activities had now extended to areas in regions of different foreign languages, where the meaning of the inscriptional notations had to be made clear by pictorial representations, carefully wrought in miniature reliefs. Seals used as amulets or as cards of personal identifications are also evident from the repertory of seals made in clay paste or of copper.

It would be perfectly legitimate to suppose some relevance of purpose between the inscriptional notations and the pictures made on the square seals, for the two acts of painstaking artistry of the scribes and the engravers cannot be divorced as entirely discordant and irrelevant. In most cases, the scribe and the engraver may have been the same person, but certainly he cannot be imagined to be working on simple personal whims while engraving the small sculptures and the inscription characters.

The pictorial devices as amplifications of the brief notations in the Harappan script hold the potentials of betraying the thought process of the authors of the Indus Civilisation. Actually, in the absence of any bilingual inscriptions,

these are our last hope of being able to decipher the Indus script with any measure of confidence. But understanding the full significance of the pictures in itself is a difficult task, requiring a thorough exploration of all the ancient myths of the earthly and heavenly deities.

As protocols of trade formalities, it may be argued that the Indus seals speak of the bare essentials of official clearance, indicating the name of the consigner or the trading company, the name of the commodity or its season of plucking in the agricultural field and forest, and its destination possibly with the name of the consignee. In any single seal, however, provision of all this data looks difficult in view of the extremely limited numbers of the script symbols not exceeding five on an average except on the 'small seals of Harappa' where characters or combinations upto eleven are counted.

It may be perhaps that the name of the individual consigner or his company was considered adequate for clearance through port or custom formalities.¹² The pictorial devices of the real or mythological animals and the deities in human forms appear, therefore, to be quite logically the guardian spirits or family identities or hall marks of the individual traders.

This naming, baptismal or christening purpose of the pictorial seals used in trade may be applied with equal justification also to the amulet seals and copper tablets, which probably served as personal or official identity tokens of their owners. In any case, the baptismal notations in the Indus script, and their amplifications by pictorial devices suggest a strong possibility of the tradition of nativity horoscopes.

As casting of horoscopes requires knowledge of the positions of the sun, moon, and other planets with reference to the fixed stars, the groups of stars lying along the apparent path of the heavenly luminaries were possibly distinguished by the figures of the various real or mythical animals and deities in human forms. In case of the moon being in crescentic phases, this fact was duly notified by placing crescentic horns on the heads of the animals or deities, even when horns did not agree in nature. Thus we see horned tigers, elephants, and anthropomorphic deities in the miniature reliefs.

It appears that in some cases also where position of the moon or other celestial bodies could not be observed at the moment of birth, the approximate season was indicated by pictures signifying earthly events or the rhythm of Nature in the floral and faunal world, peculiar to that part of the year.

There is nothing silly or surprising in the postulation of the Harappans utilising positional astronomy of phases of the moon with reference to zodiacal asterisms, situation of the different visible planets, heliacal risings and settings of the prominent stars, etc., in their calendrical problems. Other ancient cultures and civilisations in far backward stages of their evolution have been shown to do the same. Positional astronomy for solving the calendrical problems is not a need in the Indus Civilisation simply by implication, but by the solid evidence of their having practised specialised agronomy in various crops, such as cotton, wheat, barley, etc., and by the fact that in their town planning and architecture they knew to align their schemes along cardinal directions.

For determination of the length of the year of the seasonal cycles, the Harappans must have made observations of the sidereal appearances or disappearances of the stars by heliacal and achronycal risings and settings, and must have divided the year into twelve months by the lunar count. The irreconcilable durations of the solar and lunar cycles probably led them to mark the heavens in fairly a large number of asterisms, specially in the regions of the ecliptic, traversed by the sun, the moon, and the other planets. At one time they probably adopted a five year cycle for intercalation of an additional month, and there are signs that they might also have adopted the convention of tithis or lunar days, as we find them used in early Vedic calendars.

INDUS SCRIPT AND THE PROGRESS IN DECIPHERMENT:

The main contestants in the field of decipherment of the Indus Script are the scholars of the Scandinavian Institute of Asian Studies, led by Asko Parpola, and joined by the Russian academicians, who postulate a proto-Dravidian genesis to the language of the Indus Script, and some of the Indian archaeologists represented by S.R. Rao, who claim the language as archaic Indo-Aryan, not much different from that of the *Rigveda*.

Asko Parpola has made rather exhaustive researches so far in exploring the origin of many quant folk-lore and mythological literature both in the Dravidian languages and in the Vedic works to get at the philological basis of many words suggested by the pictographic characters of the Indus Script, and during the last twenty years has published innumerable papers on various problems and discernable features of the script and its possible phonology.

One of the rich veins struck by him upon the tip first given by Father Heri Heras of Bombay about the possibility of the vertical fish sign in the script meaning a *star* and sounding *min*, has opened an entirely new field of researches in the archaeo-astronomy of the Indus Civilisation. Most of his suggestions on the basis of Dravidian terminologies for primitive astronomical features have been received with enthusiasm by his Russian counterparts, as well as, by the present author¹³.

The proponents of the Indo-Aryan and Rigvedic solution to the decipherment of the Indus Script have rather towed the arguments of the assyriologists who tried to establish a similarity between pictographs of the Proto-Elamite and archaic Sumerian scripts with those of the newly discovered Indus Script. In this respect, the recent researches of S.R. Rao are quite interesting as he claims a 75 per cent similarity between the script characters of the Indus and those of the Proto-Sinaitic (Gezer, Lachish, Schechem inscriptions, 16th - 14th Cent. B.C.) and of Ahiiram (Byblos assignable to 13th. Cent. B.C.)¹⁴

While command over the Rigvedic philology of S.R. Rao is impeccable, his postulates that the Indus Script of the Mature Harappan phase is alphabetic, possessing the same phonetic values as their counter-parts in the Semitic writings, has rather led to a very easy solution to the whole problem of decipherment of the Indus Script, which has defied all previous attempts made over the last six decades. One of the major obstacles in the matter is the total lack of any index to verify the lexical and phonetic values of the words formed from the symbols in the various schemes of decipherment offered by different scholars.

Despite absence of any touchstone of bilingual verification, Rao's decipherment of the texts on Indus Seals deserves serious consideration, and at places sounds profoundly convincing. Very interesting indeed, are some of the proper names of persons made out by him, such as Sakha-Makha Draka¹⁵ (Powerful-Rich-Strong), and Pah-Saka-tra-dyusataha¹⁶ (Powerful guard or protector, and saviour of the Devine Hundred). Especially significant are the names of the divine bards and *rishis*, read by him in the inscriptions on Indus Seals, who are known to be authors of the various hymns of the *Rigveda*,¹⁷ such as Baka (known with patronymic epithet of Dalbhya); Sasa alias Atreya or Atri who compiled the Rigveda; Mana, son of Agastya or Agastya himself; Gara, and Kasyapa, two other authors of the Rigvedic hymns.

In a general way, almost all his renderings of the inscriptions on Indus Seals indicate proper names with epithets borrowed from presiding deities in Heaven or on Earth. The names are often suggestive of their places in ruling hierarchy, with obsequious expressions of gratitude to gods for bestowing upon them the bounties of material world, or asking spiritual blessings and courage in the conduct of their worldly affairs. As regards pictorial depiction of animals, especially the Bull and the Tiger, he envisages them to be kinship symbols or identity marks of the different clans making up the population, who adopted the figures of these guardian spirits.

Rao does not mention any explicit relationship between the script symbols or pictorial representations, and the celestial objects or constellations. But in most of the Vedic traditions invoked by him, the legends of Vedic astronomy are quite implicit. His reference for instance to Raksha,¹⁸ the 'bear' indicates the Aryan origin of the name of the constellation of Great Bear. His mention of the Ribhus,¹⁹ identified with Ritus or Seasons of the Year (personified as deities) sleeping in Aghoya's (sun's) house for 12 intercalary days, and said to be awakened by a Dog (*Rigveda*, 161, 13), points to the tradition of reconciliation of the lunar and solar years by epagomenal vacation as seen in the ancient Egyptian civilisation, and the convention of beginning the new year with sacrifices and festivities at the heliacal appearance of the Dog Star (Sirius) in remote antiquity. The frequently occurring pictograph of dog symbol in the corpus of Indus script has probably something to do with the Dog Star (Sirius), called Mrgavyadha in Vedic astronomy, or with its lesser bright neighbour Procyon in Canis Minor. Even the name Pah-Saka-tra-dyusataha made out by Rao, as noted earlier, suggests by its meaning the Nakshatra constellation of Satabhishaj (Hundred Physicians) in Vedic astronomy. And finally, the animal figures adopted by the clans as guardian spirits suggested by Rao, could not be taken to be literally and prosaically the beastly creatures in their miserable secular existence, but had to be assigned exalted places among stars of heaven, visible as constellations in the night.

THE HEAVENLY RECORDS OF THE INDUS SEALS:

In the paper published by the present author (1977) in support of the astronomical interpretation of certain script symbols by Asko Parpola, a detailed background of the development of the Vedic astronomy has already been given. The astronomical connotation of the seal 2430 led to the conclusion that it possibly marked an epoch at the heliacal rising of the Pleiades when

the planet Jupiter happened to be in the *Nakshatra* asterisms Asvini or Bharaṇi or in their equivalent constellation of Aries in the twelve-fold solar zodiac.

Looking back at the mythological pictures of the medieval maps of the sky, considered to be a Babylonian legacy from 13th Century B.C. onwards, one is irresistably reminded of the iconographic devices of the pictorial Indus seals which far exceed the antiquity of the 'Assyrian astrolab,' and the records of the MUL APIN tablets. There exist strong possibilities that at the Mature Phase of the Indus Civilisation, the lead belonged to the Harappans in the matter of division of heavens into constellations, designated by the names of deities and pictures of the real or legendary animals, specially along the ecliptic zone of that age.

In the pictorial seals reaching Mesopotamia through the trade channels, the pictorial devices for constellation patterns were adopted by the Babylonians to distinguish the respective asterisms for their own practical purposes. In this process, some of the figures borrowed from the astronomical iconography of the Indus Civilisation were perhaps later replaced by creatures of Babylonian imagery, while some of the figures got dispersed or displaced into different regions of the sky.


After due consideration of the factors of precession of the equinoxes, proper motion, etc., an attempt has been made in Figure 36 in this paper to present the map of the sky in the time of the Indus Civilisation, and to identify some of the stars, asterisms, or constellations of the time represented by pictorial devices on the seals or by certain individual characters of the Indus Script. The asterisms and constellations have been given their familiar names on the map by which they are recognised in heaven even in the modern times, and their Harappan equivalents as seen on the Indus seals have been shown parachuting down from the relevant and specific points in the forms of the typical seals or script characters enclosed in circles. These Harappan paratroopers do not include all members which are identifiable with the constellations seen in the medieval uranographs. The identity of some of the pictorial devices and pictographs is necessarily ambiguous, in which case they hang down by more than one parachute.



In the menagerie of animals depicted in Harappan or Indus Seals, the most frequent position is held by the Unicorn. It looks most likely that the Unicorn ✓ in Indus Seals signified the zodiacal constellation of Leo, which in Vedic

Nakshatras has its equivalent as Magha, with its yogatara at Regulus. This yogatara is duly given prominence in Unicorn seals as a special kind of manger or brazier placed before the divine animal. The Indus Unicorn or the Babylonian Lion signified by its heliacal rising the end of the peak of summer. The Indus seals of Unicorn travelling to Dayala or Babylon were duly interpreted for the constellation depicted by the Lion, which remained a popular art motif in western Asia and Iran for a long time, and which was given the name of Leo by Latin astronomers. It is surprising that both Lion and the Unicorn were adopted in the British heraldry at a much later age.

Although the Babylonians did not like to exchange their lion with the unicorn from Indus region, they seem to have liked this creature and accommodated him in their southern sky between the constellations of Canis Major and Canis Minor. Thus the Indus refugee in Mesopotamian sky remained in obscurity until some Latin astronomer gave him the name 'Monoceros', or the 'One Horned', which can still be seen in the medieval star maps.

✓ Among other zodiacal signs in the Indus seals is the large humped bull, immortalised as Taurus, which marked the end of the Spring season by its heliacal appearance. Here, the Mesopotamian fancy remained in perfect agreement with the Indus Bull, though nothing can be said with certainty about its smaller cousin, the short horned bull.

✓ Most probably, the short horned bull was assigned a position in the non-zodiacal constellation of Pegasus in the northern sky, which corresponds to the 26th-27th *Nakshatras* of the *Surya Siddhanta* list, named respectively as *Purva Bhadrapada* and *Uttara Bhadrapada*. In older literature the term *Bhadrapada* (beautiful foot) is also synonymous with *Proshthapada*, where Proshtha means carp and Ox. If the translation of Burgess is correct,²⁰ we can visualise the *carp* as a fresh water edible fish. The combination of the Indus pictograph  suggests obviously a fish and the hind leg of an ox. Could it be that the Sanskrit name *Proshthapada*, and the Tamil *Kullamin* signify the same constellation of Pegasus, which is depicted as a fish and an Ox leg in the corpus of the Indus epigraphs²¹? However, the short horned bull of Indus, or its hing leg only, marking the constellation of Pegasus (Sumerian Iku) lay almost directly over the point of winter solstice in the age of which we are talking. It signified the fact that a full moon occurring in this constellation indicated the peak of the winter season.

Then, there is the Scorpion. Full depiction of a pair of scorpions has been mentioned earlier on a small seal from Rahman Dheri in Bannu Basin, dating from early Harappan times. By the time of Mature Harappan age, the iconography had been well abbreviated into the well known pictographic character . Here again we find that its stellar significance is in consonance with the figure of the zodiacal Scorpio, which came down to us as Babylonian legacy. In the Mature Harappan age, the constellation marked the turning point after autumnal equinox by its heliacal rising. It has been pointed out that the most ancient form of a character in Chinese pictographs, represented by the tail of a scorpion  was known as Ta Huo, meaning a celestial marking point.²²

Mention of the scorpion tail as marker point of the heaven in Chinese astronomy reminds us of the constellation of Orion on the opposite side of the heaven. When Scorpion rises in the east, the Orion sets in the west, and vice versa. Seen from this angle, the seal from Rahman Dheri, bearing pictures of scorpions on one side and of antelops on the other is an irrefutable proof of the existence of these two constellations in the astronomical omen seals even in Kot Dijian times, preceding the Mature Harappan phase by a few centuries. This particular seal from Rahman Dheri appears to mark the era when heliacal rising of Orion was nearly abandoned as marking the beginning of the new year, and its place was taken by the heliacal rising of the Pleiades.

The constellation of Orion, called Mrgaciras in Vedic *Nakshatras*, was the location of the Vernal equinox approximately from 4000 to 2500 B.C. Its opposite sign, the Scorpio was naturally the location of the Autumnal Equinox. Accordingly, the heliacal rising of the Mrgaciras signified the beginning of the new year with attendant social functions of mass prayers, feasts, and sacrifices to gods and deities.

This schedule of the annual sacrifices and feasts was disturbed towards the middle of the third millennium B.C., when the vernal equinox had gradually shifted towards Pleiades or Krittika. As the ancients were not aware of the phenomenon of the precession of equinoxes, this was a very startling revelation in which Prajapati, the god of time, was accused of advancing towards Rohini (Aldebaran), his own daughter. This outrageous act of Prajapati enraged Rudra, who killed him by the arrow. This romantic interpretation of a scientific fact is commemorated in the Vedic literature as the incidence of the primeval or cosmic incest, in which Prajapati seeks to play the villainy in the guise of an antelope or Vrishakapi. His head was pierced by Rudra's arrow,

and as such the constellation of Orion is traditionally depicted as an antelope or a deer. Rudra himself is thought to be represented by the constellation of Canis Major, and as such the star Sirius is called Mrgavyadha or Antelope Slayer.

This cosmic intrigue in Vedic traditions may be the first crude realisation in human experience of the calendar going wrong after long lapses by the slow but cumulative effect of the precession of equinoxes. In an agrarian society ruled by priests, and following the religious liturgy of annual sacrifices and prayers with meticulous regularity, a wide divergence in the appearance of particular stars or constellations from the accepted schedule was naturally a cause of fright and consternation, and the explanation of such unseemly events could be sought in the foibles of the characters of gods and deities.

The event of slaying of the Vrishakapi by Rudra in Vedic traditions is the basis of the claims of Bal Gangadhar Tilak²³ for antiquity of the Vedas carried to the beginning of the 7th millennium B.C. He divides the periods of ancient Vedic literature into four ages, viz., *Pre-Orion Period*, 6000-4000 B.C.; *Orion Period*, 4000-2500 B.C.; *Krittika Period*, 2500-1400 B.C.; and the *Pre-Buddhist Period*, 1400-500 B.C. In his effort to prove the name Orion as derived from the Sanskrit Agra-hayana or turning point of the sun from its journey extreme south towards north, and in tracing the origin of the legend of murdering of Prajapati by Rudra, he examines the folk traditions and religious legends of the Germanic, Greek, and Parsi nations of the Aryan stock, finding a great deal of similarity, which indicates a common area of origin of these ideas. From his arguments it comes out that the authors of the Vedic traditions from the earliest times had divided the visible universe into northern and southern hemispheres, called Devayana and Pitriyana respectively, and had devised a scheme of calendrical computations of 12 lunar months, each beginning from the full moon occurring in *Nakshatras* after which it was named, and the year beginning from the Vernal equinox.

Tilak's thesis appearing at a time when Indus Civilisation was unknown, was treated as a display of national chauvinism, exalting Vedic philosophy and Aryan racialism. His arguments had some backing in the ethnological and literary traditions, but no solid material evidence of archaeological authenticity to support them. After the discovery of the Indus Civilisation, the position has considerably changed, calling for a serious attention to his precocious findings. Discovery of the small amulet seal from Rahman Dheri bearing pictures of antelopes on one side and scorpions on the other, particularly lends support to the origin of the constellations of Orion and Scorpio in the region

of the Greater Indus Basin of South Asia. The arrow near the head of one of the antelops is also very significant, perhaps, depicting the event of the slaying of Prajapati by Rudra.

At any rate, the identity of Orion as an antelop, stag or deer seems to have continued during the Mature Harappan phase, as depicted by one of the seals from Moenjodaro, showing double heads of antelops at the trunk of a tree, burgeoning with new leaves in a vernal surge of the renewal of floral life — a most appropriate way of depicting the Spring season. Alternatively, the double heads of the antelops could also possibly represent the constellation of Gemini, which appears as Punarvasu in Vedic *Nakshatras*, with its yogatara at Pollux (Fig.30). This constellation is not very far from Orion. Incidentally, depiction of double heads of deers in symmetric order appears in someway to be the prototype of the double headed eagles met with in Greek and Hellenistic art, passed on to the West through Mesopotamian mediation.

The figure of crab, also conventionalised as a script character in Indus script, is yet another survivor as a constellation in the sky from the Harappan age in the zodiacal constellation of Cancer, passed down to the present age as a Babylonian legacy. In that age, it marked the beginning of the second month of summer season by its heliacal rising, and cautioned the people of the impending floods in the Indus and the rivers of the Punjab after the initial torrential rains of the monsoon in the Himalayan foot-hills.

The sign of fish as one of the important script characters in the Indus seals, survives as a zodiacal constellation of the Pisces, and also as Cetus of the southern hemisphere. The constellation Draco in the northern and Hydra in the southern sky, lying respectively in the Way of Enlil and the Way of Ea according to the early Mesopotamian division of the heavens, might also have their precursors in Harappan imagery as the python or alligator depicted on several seals.

Some of the important anthropomorphic deities depicted on the Indus seals, also seem to have occupied their places in the sky as constellations, such as the Proto-Siva or Pasupati to be identified with the northern constellation of the Great Bear. This prominent constellation which seems to have served mankind as a convenient heavenly clock at night right from Palaeolithic times, had probably undergone a change of identity as Sapta Rakshas (Seven Bears) in Vedic literature, which subsequently became the Ursa Major of the Latin astronomers, and Arktos of the Greek — the root of the term Arctic.

✓ The solitary yogi of the Indus seals, noted earlier, may be the star Canopus, the brightest star visible to the south of Sirius. Canopus revered as the saintly character Sohail in Arabic tradition is the equivalent of the Vedic figure of Agastya, one of the composers of the hymns of *Rigveda*.

✓ The hoofed human figure, called a bull-man by Mackay, and looking like a Satyr of the Greek mythology may be none other than the constellation of Hercules, in close proximity with the small constellation of Lyra. In the Indus seals, Lyra appears to have been depicted as the tiger. The Nakshatra equivalent of Lyra is Abhijit, with its yogatara at Vega, and is the most northerly constellation of the lunar zodiac. The occasional depiction of the tiger with horns in the Indus seals signifies the fact of the appearance of the lunar crescent in that mansion or there about in their calendarical computation.

The identification of the Indus Satyr as the constellation Hercules, and of the Tiger as Abhijit or Lyra seems to be corroborated by another seal from Moenjodaro (No. 357, Pl. CXI) in which the Bull-Man is attacking the horned Tiger, because of the proximity of their location. The scene recalls to mind the exploits of the Mesopotamian Gilgamesh fighting the Lion, which again appears to be the precursor of the Greek fable of Hercules killing the Nemean Lion.

✓ There is also the warrior figure of an archer on one of the copper tablets, which may be the prototype of the legendary figure of the zodiacal constellation of Sagittarius. A part of the last named constellation in the Harappan age might also have been represented as the heavenly Buffalo, appearing on several seals and copper tablets. It stands near the thickest and brightest part of the Milky Way, probably to emphasise its benign character as the source of the river of milk encompassing the heavens. In medieval depiction of the legendary Sagittarius of the twelve-fold solar zodiac, the figure of the Indus archer and the heavenly Buffalo got combined in the form of a centaur, with upper body of a man and the lower body of that of a bull or a horse, as shown in Fig. 7 sketched after a drawing by Albrecht Durer. A true Centaurus is, however, the famous constellation of the southern sky which does not show its counterpart in the Indus seals.

✓ The elephant depicted on several Indus seals probably represented the constellation of Cygnus or Swan. It seems to have been one of the lunar mansions in Harappan calendarical scheme, as the elephant is often shown horned to

signify the crescent of the moon appearing in that constellation. Its achronycal setting near autumnal equinox probably marked a short season of heavy rains before the end of the summer, which might have been harmful to crops. The Babylonians seem to have rejected the elephant in place of their flying swan to depict the constellation of Cygnus. In Vedic Nakshatras also, the corresponding asterism of Cravishtha is chosen in the region of the Delphinus, a little south of Cygnus.

The large eared rabbit depicted on several copper tablets from Moenjodaro, however, fared better in Babylonian estimates, and got fixed up as the constellation of Lepus, south of the Orion. A number of other pictographic figures, both animals and deities have been shown on the star map (Fig. 36), which indicate the survival of the imagery of the people of the Indus Civilisation in the Old World constellation patterns.

It looks very much probable that the origin of a number of legendary animals like Satyrs and Unicorn belongs to the astral myths of the authors of the Indus Civilisation, transferred to the West through Mesopotamian mediation, and appearing as more refined and crystallised characters in Orphic religion and the classical Greek literature, mainly through Aesop's fables. Figures of Centaurus and Pegasus look, however, to have evolved with the Olympian pantheon of the ancient Greeks.

At the present stage of this largely speculative study, it is difficult to work out the exact calendarical scheme of the Indus Civilisation, and to identify all members of their pantheon in the medieval sky map. It may be said, however, that the origin of the three systems of lunar zodiacs of the ancient world (early Babylonian lunar mansions, the Chinese *Hsieu*, the Vedic *Nakshatras*) lies in the primitive astronomy of the Indus Civilisation. The crude model of heavenly mechanism of calendar machine, was improved upon by the early Babylonians by dividing it into three zones as the Way of Enlil, Way of Anu, and Way of Ea. The Chinese did the same by dividing the heavenly sphere into the Summer and the Winter Palaces; and the Vedic Aryans into the hemispheres of Devayana and Pitriyana.

The purpose of devising constellation patterns all along the apparent path of the heavenly bodies from west to east, and in the northern and southern parts of the sky, was not simply a quest for purely the computational mechanism of the compatibility of the luni-solar calendar, but also to accommodate the important members of the Indus pantheon among the

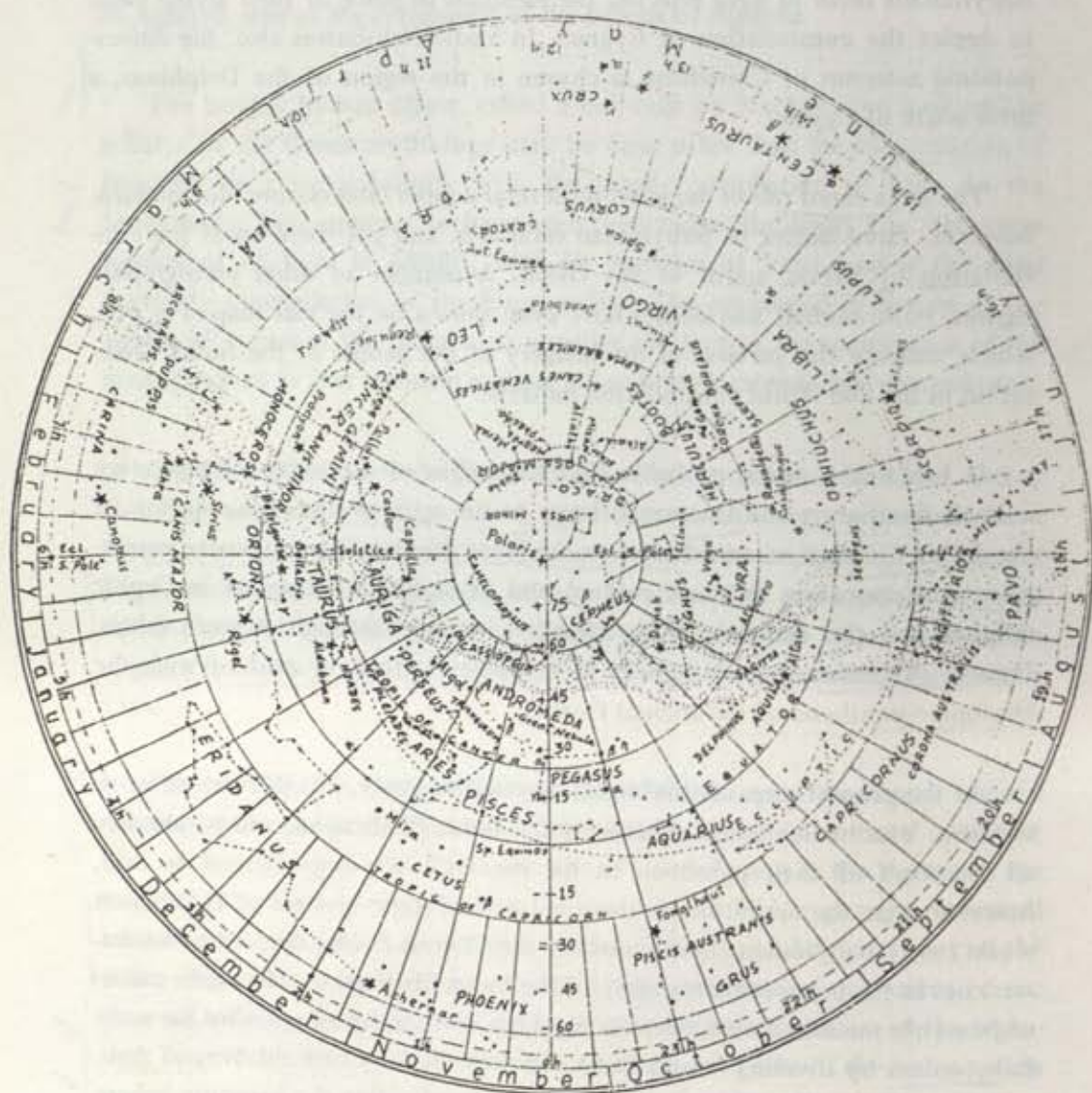


Fig.27. REFERENCE MAP OF THE SKY

This is polar stereographic projection as used in planispheric astrolabes. The Equinox positions in the map are those of the Recent Era, beginning in 1950. Note the Ecliptic drawn in fine broken line. Position of constellations visible overhead at about 8 p.m. are indicated by the names of months at the periphery. Adapted from the *Chart of the Heavens* (1968), Hansen Planetarium, Salt Lake City, Utah, U.S.A.

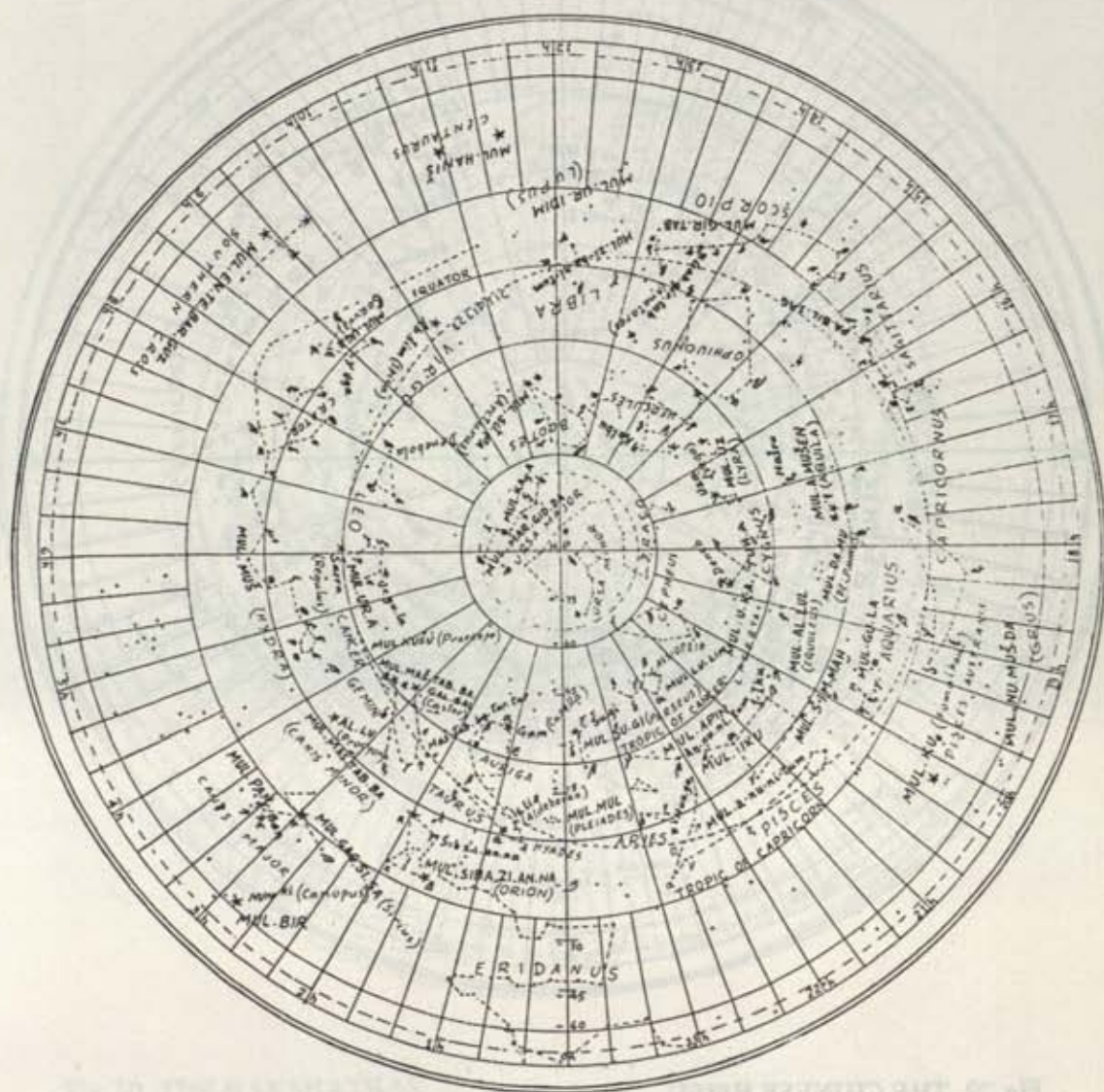


Fig.28. CONSTELLATIONS OF EARLY BABYLONIAN ERA

Star names from the Assyrian astrolab and MUL APIN tablets. The Equinoxes are placed at 1400 B.C. (After Hartner, W. (1965) JNES, Vol. xxiv, No. 182).

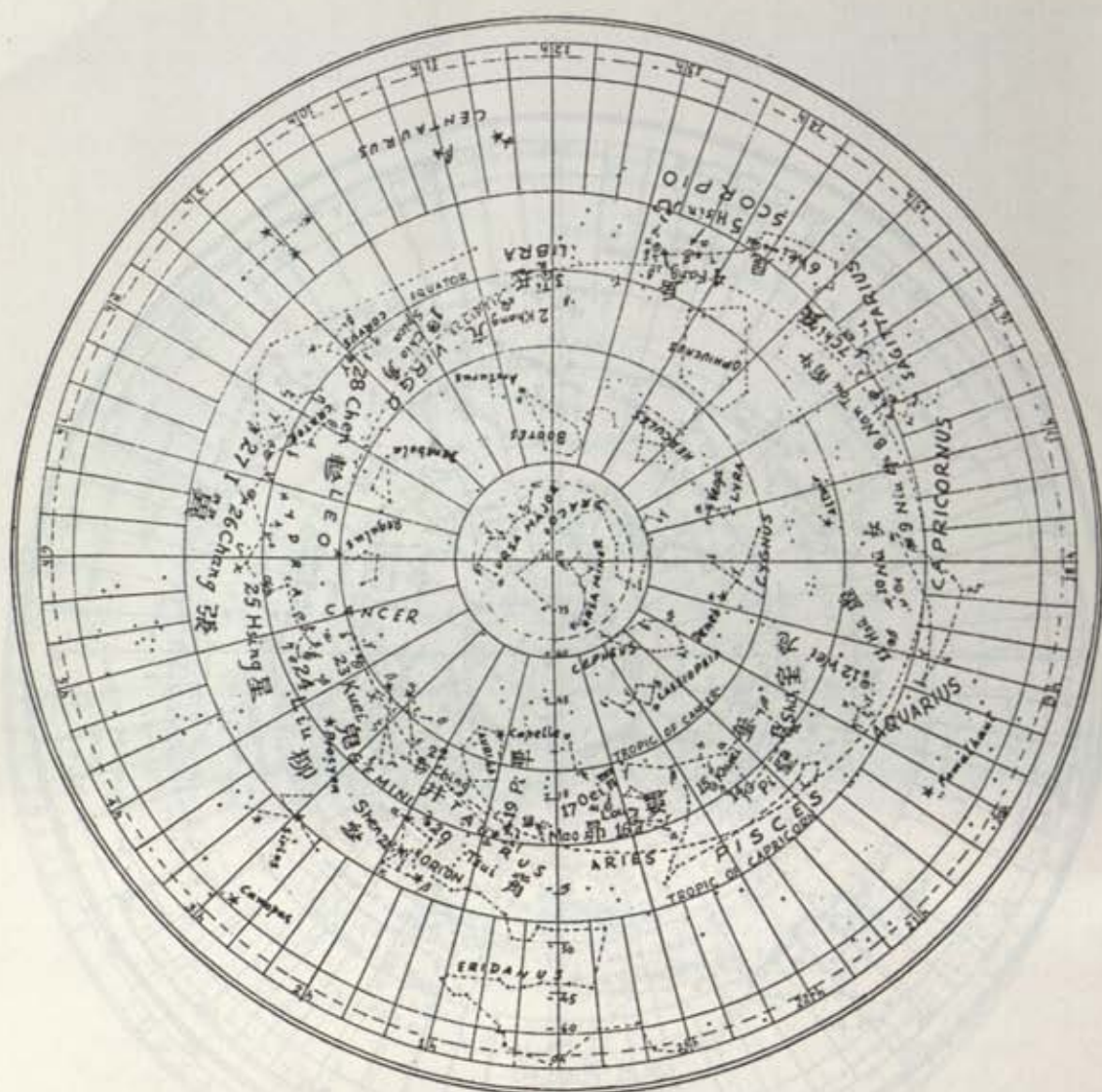


Fig.29. THE CHINESE HSIEU

The equinoxes placed at 1400 B.C. The Junction stars are encircled, thus 1 Chio ★ = Spica. [After Needham, J. (1959), *Science and Civilisation in China*, Vol. 3].



Fig.30. THE NAKSHATRAS

Equinoxes placed at 1400 B.C. The yogataras are encircled, thus
 8 Magha ★ = Regulus. [After Burgess, E. (1860), *Surya Siddhanta*].

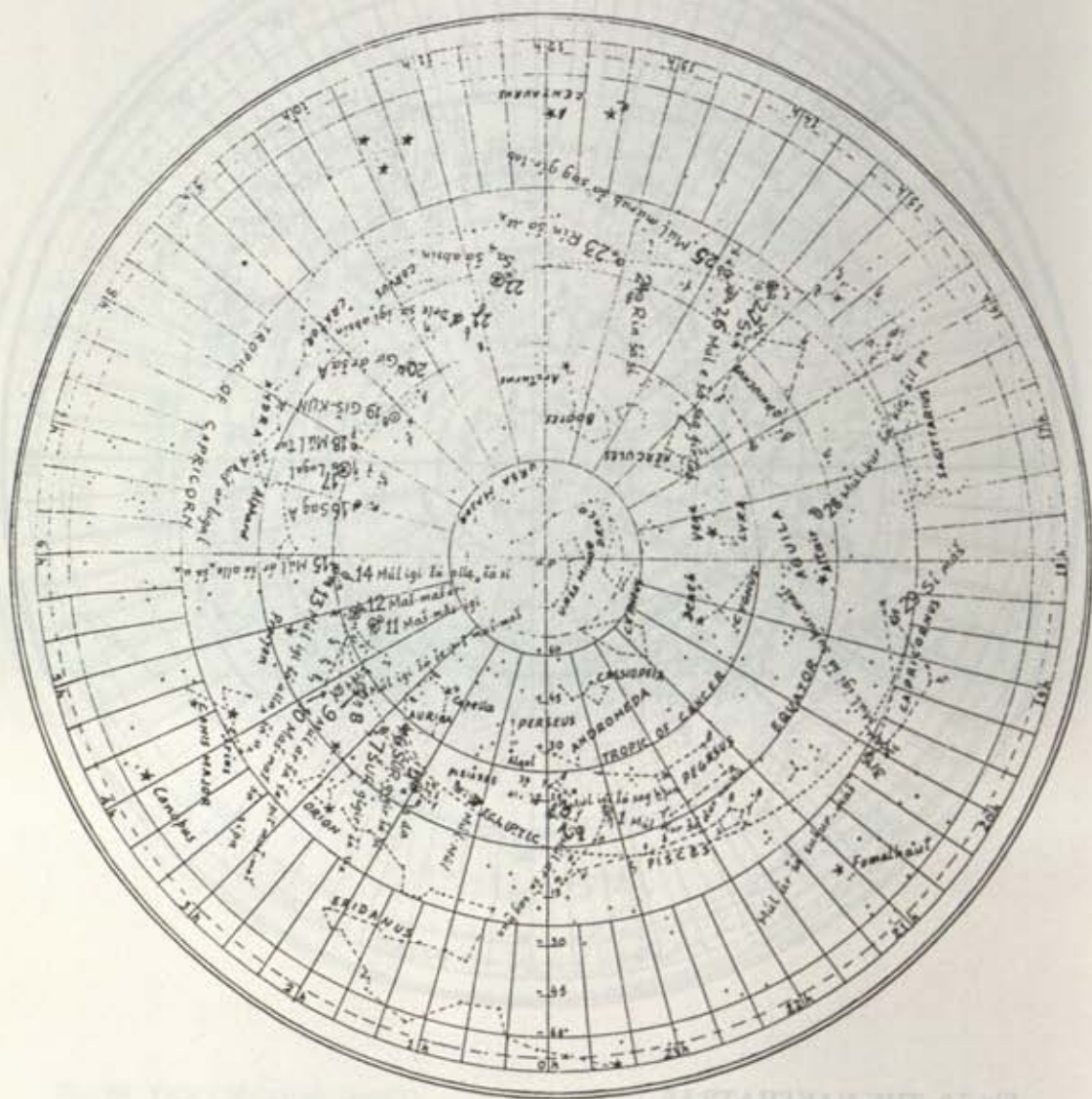


Fig.31. BABYLONIAN REFERENCE STARS AFTER 300 B.C.

Equinoxes placed at 250 B.C. Drawn after Sach, A. (1974), "Babylonian Observational Astronomy" in *Place of Astronomy in the Ancient World*, Table 1, p. 46.

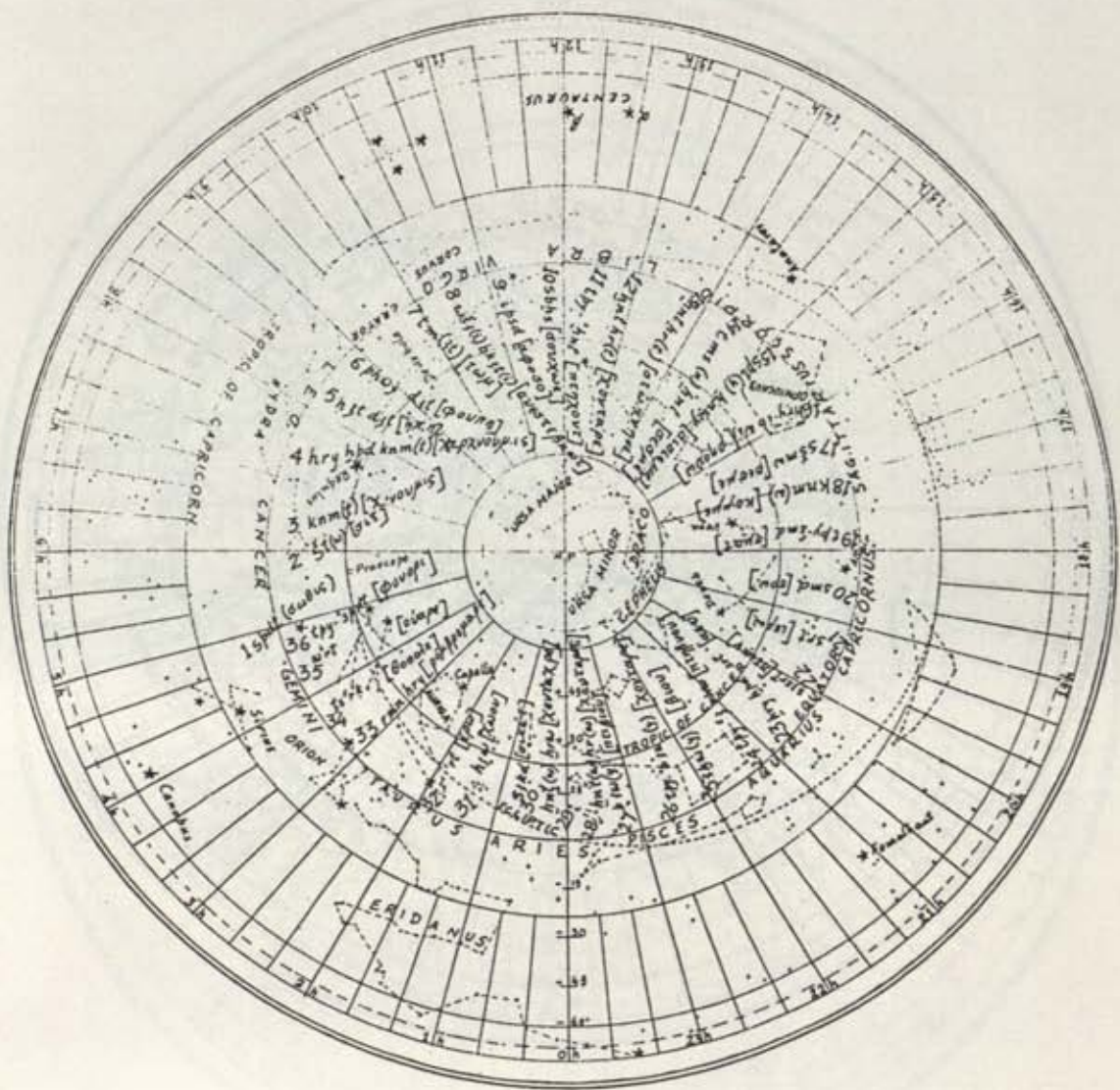


Fig.32. EGYPTIAN DECANS FROM COPTIC TEXTS

The Coptic names appear with Greek transcription. The Equinoxes are placed at 250 B.C. After Parker, R.A. (1974) "Ancient Egyptian Astronomy" in *Place of Astronomy in the Ancient World*, p. 62.

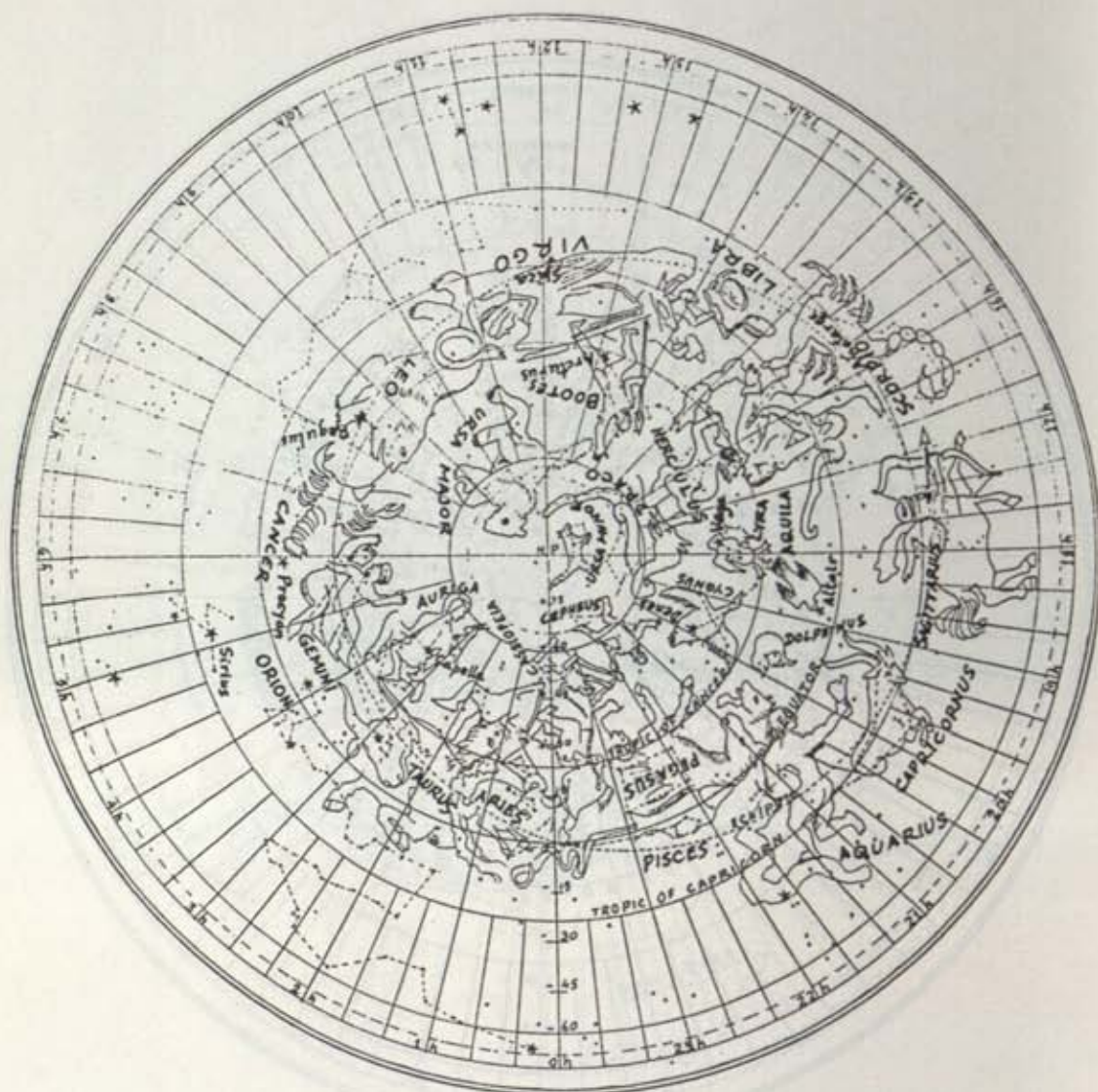


Fig.33. Graeco-Babylonian Zodiac of Twelve-Fold division, and other constellations. Equinoxes at 560 C.E. Adapted from a drawing by Albrecht Durer.

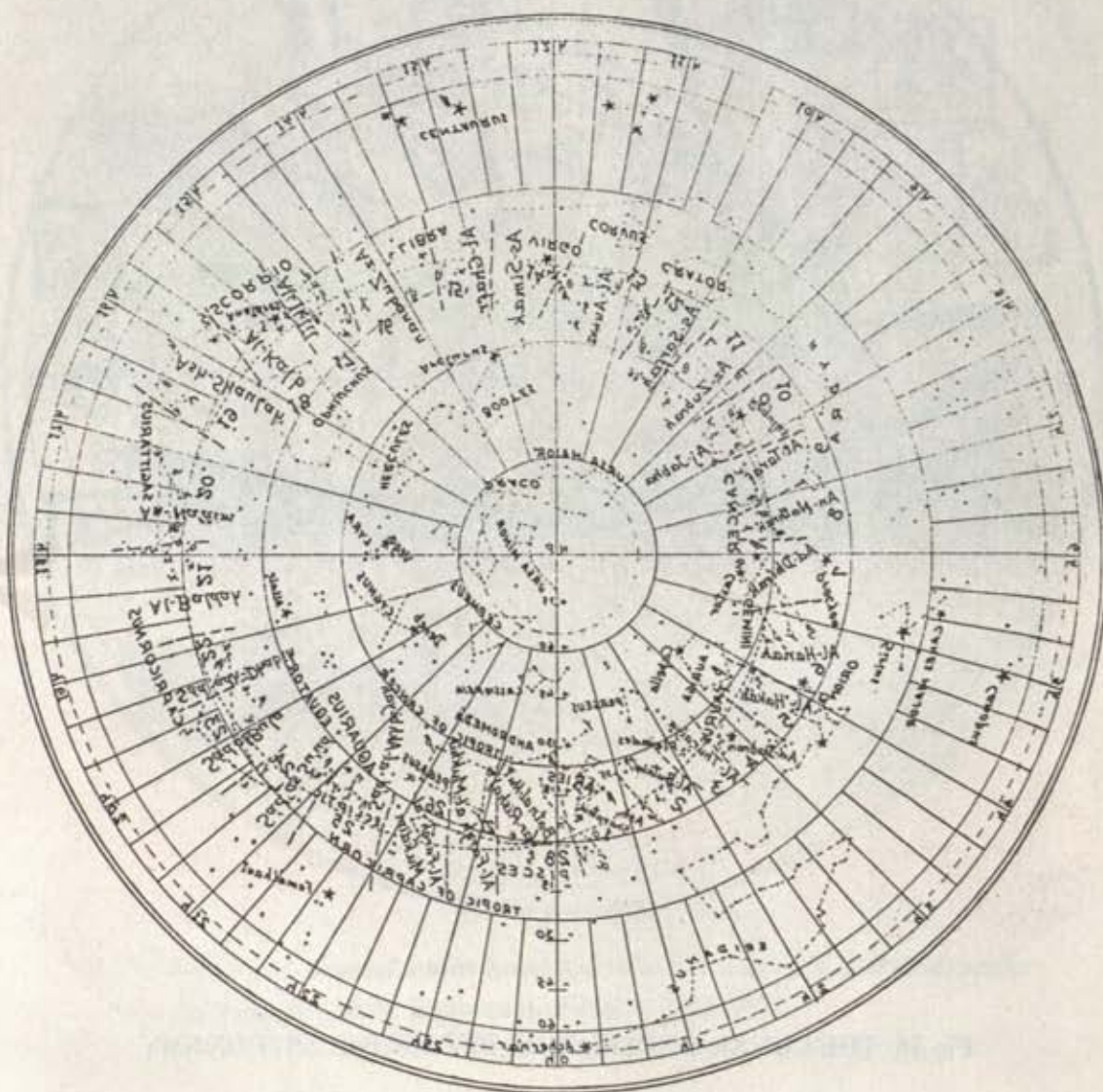


Fig.34. THE MANAZIL AL-QAMAR OF PRE-ISLAMIC ARAB ASTRONOMY

Equinoxes placed at 560 C.E. After Weinstock, S. (1949) "Lunar Mansions and Early Calendars", *Journal of Hellenic Studies*, Vol. 69, pp. 69 ff.

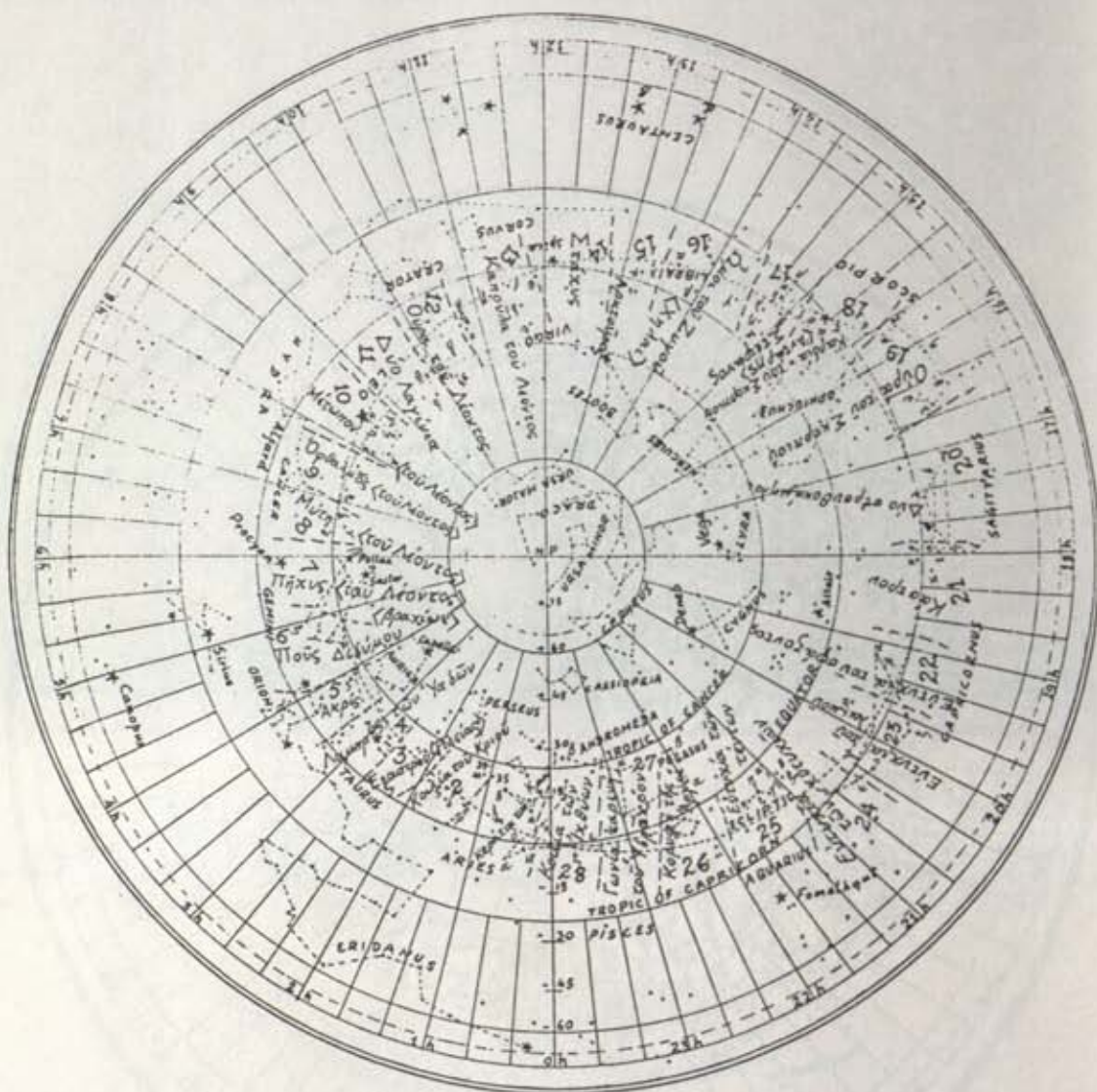


Fig.35. THE LUNAR MANSIONS OF BYZANTINE ASTRONOMY

Equinoxes placed at 560 C.E. After Weinstock (1949), *Ibid.*

stars of heaven. The gods, deities, and guardian spirits in heaven, very distant from profane touch and smell of the material world, and yet visible in the night sky, served as their guides and oracles at important events of the worldly life, such as birth of children in the family, deaths of the relatives, and other natural and social events in war and peace.

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Fig.27 REFERENCE MAP OF THE SKY

This is polar stereographic projection as used in planispheric astrolabes. The Equinox positions in the map are those of the Recent Era, beginning in 1950. Note the Ecliptic drawn in fine broken line. Position of constellations visible overhead at about 8 p.m. are indicated by the names of months

at the periphery. Adapted from the Chart of the Heavens (1968), Hansen Planetarium, Salt Lake City, Utah, U.S.A.

Fig.28 CONSTELLATIONS OF EARLY BABYLONIAN ERA

Star names from the Assyrian astrolab and MUL APIN tablets. The Equinoxes are placed at 1400 B.C. (After Hartner, W. (1965) JNES, Vol. xxiv, No. 182).

Fig.29 THE CHINESE HSIEU

The Equinoxes placed at 1400 B.C. The Junction stars are encircled, this 1 Chio (★) = Spica. (After Needham, J. (1959), *Science and Civilisation in China*, Vol. 3.

Fig.30 THE NAKSHATRAS

Equinoxes placed at 1400 B.C. The yogataras are encircled, thus 8 Magha[⊙] = Regulus. ((After Burgess, E. (1860), *Surya Siddhanta*).

Fig.31 BABYLONIAN REFERENCE STARS AFTER 300 B.C.

Equinoxes placed at 250 B.C. Drawn after Sach, A. (1974), "Babylonian Observational Astronomy" in *Place of Astronomy in the Ancient World*, Table 1, p. 46.

Fig.32 EGYPTIAN DECANS FROM COPTIC TEXTS

The Coptic names appear with Greek transcription. The Equinoxes are placed at 250 B.C. After Parker, R.A. (1974) "Ancient Egyptian Astronomy" in *Place of Astronomy in the Ancient World*, p. 62.

Fig.33 Graeco-Babylonian Zodiac of Twelve-Fold division, and other constellations. Equinoxes at 560 C.E. Adapted from a drawing by Albrecht Durer.

Fig.34 THE MANAZIL AL-QAMAR OF PRE-ISLAMIC ARAB ASTRO-
NOMY

Equinoxes placed at 560 C.E. After Weinstock, S. (1949) "Lunar Mansions and Early Calendars", *Journal of Hellenic Studies*, Vol. 69, pp. 69 ff.

Fig.35 THE LUNAR MANSIONS OF BYZANTINE ASTRONOMY

Equinoxes placed at 560 C.E. After Weinstock (1949), *Ibid.*

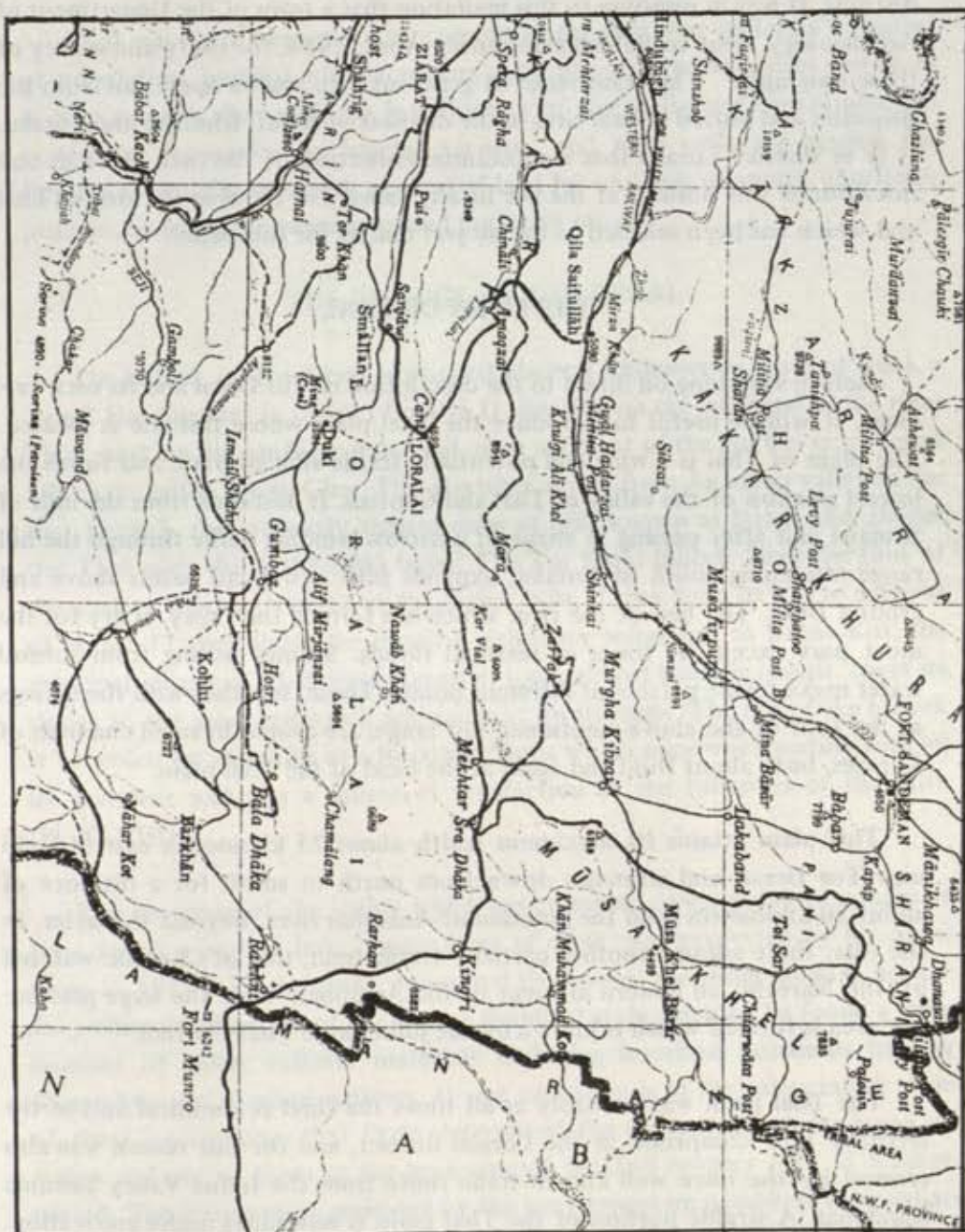
Fig.36 Old World Constellations Identified with Iconography and Pictographs on Harappan Seals . Equinoxes placed at 2400 B.C.

ROCK CARVINGS AND INSCRIPTIONS FROM
TOR-DERAI (DISTRICT LORALAI)

by
MIAN SAID QAMAR

(Plates: XLVIII – LIV)

Rock carvings and inscriptions have been reported from several places in Pakistan. The first discovery was made by De Terra and Paterson at the site of Mandori and Gandab in Attock District.¹ Later, Colonel D.H. Gordon fixed their chronology on the basis of the neighbouring kharoshthi inscription and defined its cultural context². The Italian Archaeological Mission in Pakistan discovered rock carvings at Gogdara in Swat district and determined their date on the stylistic comparison of the wheeled chariot found there³. Occasional carvings and inscriptions have also been reported from Northern Waziristan and Baluchistan⁴. But neither their chronology is discussed nor a single photograph of them is published. The most exciting work in this field is, however, that of the Pak-German Study Group who recently have discovered thousands of rock carvings and inscriptions in the Northern Areas of Pakistan⁵. They not only unfold an unknown and obscure history of this hilly region, but also constitute one of the world's largest epigraphical records. A partial study of these has revealed that their history starts from the prehistoric period of neolithic era and continues up to the late historic time. It is this dazzling discovery of the Pak-German Study Group that has created interest both among the scholars and the laymen. Brigadier Muhammad Usman⁶ is the first example from such group who did explore similar archaeological remains at Tor Deraï, district Loralai and at many other sites in district Kharan.



Map showing District Loralai

It goes to the credit of Brigadier Usman that he took keen interest in the subject of ancient carvings and inscriptions observed by him in Baluchistan. Recognizing, however, his shortcomings in the field, he invited the Department of Archaeology to undertake a preliminary study of the epigraphs in various districts. It was in response to this invitation that a team of the Department of Archaeology went to Baluchistan during April, 1984, for study and survey of these epigraphs⁷. The team received generous help and co-operation from the Brigadier and visited several sites in the districts of Kalat, Khuzdar and Loralai. It is in district Loralai that a substantial collection of the rock carvings and inscriptions was noticed at the site locally called Tor Deraï in the area of Thal and which has been selected as the subject matter for this paper.

THE PLAIN OF THAL

Before switching on direct to the description of Tor Deraï and its rock carvings, it will be useful to introduce the Thal plain where this site is located. The plain of Thal is a wide and potentially fertile alluvial tract, and forms the lowest portion of the valley of Thal and Chotiali. It descends from the hills of Sanjawi and after passing in shape of a narrow winding defile through the hill range stretching south of Loralai, expands into two small basins above and around Duki. The bed of the river which has formed the valley, is dry for the most part except at times of seasonal floods. Springs issuing from subsoil water make fertile patches at different points. These, together with the springs at the foot of the above-mentioned hill range, are caught in small channels of Karezes, both about Duki and again at the head of the Thal plain.

This plain attains its maximum width about 25 kilometres east of Duki near Tor Deraï, and stretches down from north to south for a distance of about 20 kilometres upto the junction of Anambar river. Beyond the latter, to the east, there adjoins another partially fertile tract, that of Chotiali, watered by the Narechi, an eastern affluent of the Anambar. Thus the large plateau-like area is formed which is known by the joint name Thal-Chotiali.

The Thal plain was probably at all times the chief economical unit of the territory now comprised in the Loralai district, and for this reason was also crossed by the once well known trade route from the Indus Valley towards Kandahar. A sizable portion of the Thal plain is nowadays under cultivation. But much more land could be tilled with the help of flood and rain only, as is done over a great portion of Duki Tehsil where no permanent sources of irri-

gation are available. Taking into consideration the presence of large numbers of archaeological mounds in this area it looks possible that it had substantially more population in the past than its meagre economic resources would allow at present.

Thal may have been quite prosperous in the past, but indicates a decline of population, perhaps with increasing desiccation in the historical period. It is only recently that with the introduction of electricity and communication system its prosperity has started reviving, and tube wells are helping the farmers to reclaim hundreds of acres of land for orchards of apples, apricots, peaches, almonds, pomegranates and mulberry etc.

THE HILLOCK OF TOR DERAİ

The hillock of Tor Deraï is situated about 12 kilometres south of Duki, a Tehsil Headquarter in district Loralai. It rises just on the left hand of the river Thal, marking the southern-most end of an offshoot of the low but very rugged hill chain called Toran Ghar. This stretches across from Anambar valley in the east towards the curiously shaped mass of hills known as Dabar and divides the Thal plain from the Duki basin. The Tor Deraï hillock faces the foot of the eastern most extremity of the Dabar hills. It rises from its top to a height of about 77 feet above the canals which carry water fast to Dabar Kot, the principal village of Thal. Bare masses of rock, almost black in colour, cover its slopes to the west and south and account for its name. The top of the hillock is occupied by the ruins of a Buddhist Stupa which once was standing with all its grandeur and was a source of satisfaction to the followers of the faith (Pl. XLVIII).

The structure of the stupa, which has crumbled down owing to ravages of time and has turned into a mere heap of earth, was excavated by Sir Aurel Stein in 1927⁸. He, however, uncovered the base of the stupa showing beautiful architectural details of the Graeco Buddhist style. Besides, he found a large number of other cultural materials including inscribed potsherds bearing Kharoshthi and Brahmi writings. It was on the basis of the paleographic style of these inscriptions, that Stein determined the chronology of the stupa remains and placed them in the beginning of the 2nd century A.D. of Kushan period. The information provided by the inscriptions on potsherds revealed an interesting record of the dedication of a *prapa* (a watering place) for men and beasts by one Shahi Yola Mira in connection with his own vihara where Buddhist monks of Sarvasti-vadin school were in residence. Thus Tor Deraï

was the first station where travellers, coming from the side of Duki could obtain drinking water after traversing for about 12 km. of an utterly arid waste of bare clay, rock and detritus. As is evident from the title "Shahi" the pious donor was perhaps a local governor under the Scytho-Parthians but must have continued under the Kushans with the same name.

In his report, Stein mentions two stones. One, he says, depicts scrawled writing resembling early Nagari characters but not readable. On the second stone, he saw coarsely scratched figures of horsemen and swastikas⁹. But a careful survey of the site by the archaeological team has brought to light a bulk of carvings and inscriptions, engraved on rocks numbering more than two dozens. Some of the carvings were so dim to the view, that it was difficult to take their photographs. But a good number of these have been photographed successfully which show the pictures of humans, animals and horse riders. Symbols of swastikas and dotted lines carved individually or shown among the groups of other figures are also noticed. Three boulders on the site bear lengthy inscriptions in Kharoshthi script, depicting a bold stylised form of Kushan writings.

So far as the Nagari script mentioned by Sir Aurel Stein is concerned, nothing of such type has been found by the survey team. Whether the stone bearing Nagari writing was actually present at the site during the time of Stein's visit, or he just mistook one of the boulders with Kharoshthi inscription for the Nagari writing, we have no answer to this question. Moreover, Stein has not published any photograph of the inscription on stone in his detailed report of the site published in his "Memoirs of the Archaeological Survey" Comparing the details of the rock-carvings and inscription which I have found on the site, with the description of Sir Aurel Stein where he mentions only two engraved stones, (one bearing Nagari inscription and the other the figures of horsemen) I momentarily felt doubtful whether it was the same site visited by Stein. But this doubt of mine was soon nullified and removed when I compared the photograph of the site which I had taken with the photograph from Stein which he had published. It was found that both the photographs present the same detail regarding the shape of the site and form and location of the rocks to the extent that hardly any difference could be noticed, despite a lapse of 57 years intervening, the photographs taken by Aurel Stein in 1927 and those by myself in 1984¹⁰

DESCRIPTION OF THE ROCK CARVINGS

The rock carvings of Tor Deraï represent pictures of humans and animals in group as well as in individual form. They have all become black owing to weather action, and looking dim to the eyes. The main technique used for making these carvings is that of pecking, for which probably a sharp pointed tool was used. The figures of some of the animals (horses) with solidly filled-in body bear almost naturalistic features. But there are many others which have long rectangular bodies and are shown in full stylistic form. The human figures on the other hand are all depicted in linear shape which are crude and primitive. The main theme which these carvings represent is a society of horse breeders who belong to a martial race and are well versed in the art of horse riding. In order to understand the details of these carvings each group, and individual of them is described as under:-

No. 1 (Pl. XLIX, a): It is a triangular shaped stone bearing carvings in congested form from top to bottom. Two natural crack-lines, one at the top and the other at the bottom divide the surface of the stone into three registers. The top register represents human figures and horsemen. The human figures are shown in linear form. But the two horses seen on the left hand side, one above the other, depict somewhat naturalistic form. The figures are seen in a spirited mood.

The middle register of the stone also shows schematic figures of humans and the horsemen. The horsemen are seen running in various directions perhaps depicting a scene of equestrian exercise.

Below the crack in the bottom is the third register which is the smallest as regard its area. The engraving seen here consists of swastikas, dotted circles and schematic human figures. The presence of so many swastikas suggests that the authors of the carvings were enamoured with belief of some magical properties of swastikas as symbols of good luck or gesture of propitiation to the deities. The possibility of swastika as symbol of their concept of cosmology cannot be ruled out.

No. 2 (Pl. XLIX, b): On this boulder is shown an unfinished human figure flanked by swastika on either side. The body of the human figure is indicated by a simple vertical line. The hands are shown by another horizontal line drawn at the top of the vertical one and curved down at both ends. The feet and the head have not been depicted.

No. 3 (Pl. L, a): On another stone is carved a stylised figure of a horse with a rider standing on its back. The rider controls the horse by holding the bridle in one hand and bears a long wooden stick on his shoulder which is probably a lance. The horse has a long parallel body and straight long legs. The tail is shown in raised and slightly carved form which is partially damaged. The figure on the whole is carved in solid form.

No. 4 (Pl. L, b): This picture presents two horsemen with stylised features of body, almost similar to the figures discussed above in No. 6. Here the men standing on the horse backs are shown with horizontally stretched hands demonstrating a sort of equestrian feat of balance as a part of their martial valour.

No. 5 (Pl. LI, a): This boulder shows the figure of another horseman in stylised form and solid filled-in body. The man on the horse back is seen holding the bridle of the horse in one hand and a sword in another and is in an up-raised form above his head. The horse is depicted in a galloping posture as is evident from its raised up carved tail.

No. 6 (Pl. LI, b): This is a crude picture of a horse having a short stylised body, long legs and short carved tail raised above. The figure of the rider on the horse back is not visible clearly.

No. 7 (Pl. LII, a): This is another crude picture of a horseman in much stylised form. The horse has a short body, long legs and a raised up carved tail. The man standing on its back holds the bridle in his right hand, and the horse is seen in a galloping posture.

No. 8 (Pl. LII, b): This boulder contains several figures of the horsemen shown in a highly schematic form. Their bodies are depicted by simple lines. The top right hand side corner of the stone presents only one picture of a horseman, the body of which is shown in an elongated carved form. The rider who is leaning towards the back is seen at the point from where the front legs of the horse descend.

Below in the central part of the stone some more pictures are visible within an enclosure formed by a line of a natural crack in the rock. The figure on the right hand is that of a horse with a man standing on its back. The horse has a straight short body and a hook shaped head. The rider on the horse-back

is shown by a simple vertical line crossed at the top by another horizontal one. On the left hand side is seen a trisul which is a Hinduistic symbol. The presence of this figure among the carvings showing quite a different theme is inexplicable.

At the rock, below a natural crack-line, there are seen several crudely carved figures of human and a horse which look dim but bear the same style as described above.

No. 9 (Pl. LIII, a): This is a human picture with much stylised features of body. Here the style adopted is that of triangularism which is a special feature of the early rock art. The upper part of the body is presented by a triangle from which the two legs emerge and descend down apart. The head is depicted by a round dot and the hands by simple carved line. Several other similar pictures were also noticed on the nearby stones, but they were too dim to be photographed.

No. 10 (Pl. LIII, b): This stone presents some remarkable engravings of dots running in double rows up and then turning and descending downward. These were perhaps meant to create some ornamental figure. But the work seems to have been left unfinished. Such dotted designs used for creating ornamental pictures are also abundantly seen among the rock carvings in Chilas in the Northern Areas of Pakistan.

No. 11 (Pl. LIV): On this stone are seen kharoshthi inscriptions from top to bottom. Owing to extremely black colour of the stone the letters on it were not fully visible to the eyes hence not a good photograph. However, details of a few letters preserved in the picture are enough to show its paleographic style which is definitely Kushan, but are hardly sufficient to tell about its subject matter. Similar kharoshthi inscriptions were noted on two more boulders (not in the picture) which also had become black owing to atmospheric action and the writing on them was hardly visible from a distance. Decipherment of these inscriptions by some specialist in palaeography may reveal important information regarding secular events of the region or about the religious significance of the site itself.

CHRONOLOGY AND CONCLUSION

The engravings from Tor Deraï consist of two groups. One is that of kharoshthi inscriptions (Pl. LIV), which are similar to those pottery inscriptions which are dated by Sir Aurel Stein to Kushan period (1st century to 3rd century A.D.) But do these writings have any relation with the Buddhist stupa of the same site excavated by Sir Aurel Stein, or did these writings exist before the stupa was constructed are moot points to be decided. Do they contain any religious instructions or declare some military conquest? These problems can only be ascertained when the inscriptions are fully read and deciphered.

The second group is that of the carvings which depict human figures and the horsemen in group as well as in individual form. (Pl. XLIX – LIII) As regard to their style, the human figures bear a close comparison with the many archaic human pictures seen on the rocks at different sites in Chilas¹¹. The human figures in Chilas are normally found accompanied by animals such as ibexes, goat and sheep, which in most cases represent hunting scenes. Several quartz flakes were also found in sand where these pictures occur on the rocks. An examination of these flakes revealed that they have been chipped from the cores to make microlith tools of non-geometric shape. The collection consists of scrapers and points mostly triangular in form. The general features of these tools suggest Mesolithic hunters. It is on the basis of these tools plus a comparative study of the rock art that Professor A.H. Dani has been inclined to date the archaic engravings in Chilas around 5000 to 3000 B.C.¹².

The human figures in the rock carvings of Tor Deraï on the other hand present quite a different background as regard their theme and subject. The animals shown in their company are horses instead of ibexes and goats. Here we come across a more developed and well organised society which has left far behind the stage of pastoral life. It is a society of a brave martial race well versed in the art of horse riding. Moreover, the figure of the horse so far we know, does not appear in the sub-continent or anywhere else in South Asia before the 2nd millenium B.C. Hence the rock carvings of Tor Deraï though bear stylistic similarity in case of the human figures with the engravings in Chilas, may not be placed earlier than the middle of the 2nd millenium B.C. The stylistic resemblance between the engravings of the two areas may be nothing more than a continuation and survival of the early rock art tradition in the later period.

It is also interesting to note that around 1800 B.C. the Aryan race was moving towards west and south west from Central Asia and Iran towards the plain of Peshawar and the Indus valley in Sind and the Punjab. The site of Tor Derai also happens to be on a famous ancient route connecting Kandahar with the Indus valley which may possibly had been used by the Aryans during their migration. The engravings at Tor Derai seen in conjunction with those at Gogdara¹³ and Hathiano Kandao¹⁴ in Swat and Malakand Agency respectively, strongly suggest the episodes of migration of the Aryan tribes at the western outskirts of the South Asian sub-continent at the beginning of the 2nd millennium B.C. But, of course, before drawing any hasty conclusions, it is necessary that the cultural ensemble at Tor Derai and adjacent areas of Baluchistan should be thoroughly investigated.

FOOT NOTES AND REFERENCES

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(The writer could not consult the above books in original but the references have been recorded from Mr. Nazir Khan's Article "Rockcarvings from Hathiano kandao" published in journal of Central Asia, Islamabad, Vol. VI. Number 2, December, 1983. pp. 59-62).

3. "East and West", Vol. 27 Nos 1-2. 1977 pp. 92-93
4. Sir Aurel Stein "Memoirs of the Archaeological Survey of India" No. 37, An Archaeological Tour in Waziristan and Northern Baluchistan, Calcutta, 1929, pp. 16, 64, 79.
5. Main publications on the Rock carvings and inscriptions of the Northern Areas of Pakistan are

(a) Sir Aurel Stein

"Archaeological Notes from the Hindukush" Published in the Journal of the Royal Asiatic Society, 1944, pp. 5-24.

- (b) A.H. Dani "Chilas the City of Nanga Purvat (Dyamar)", Islamabad, 1983.
 - (c) A.H. Dani "Human Records on the Karakurram Highway", Islamabad, 1983.
 - (d) Karl Jettmar "Rock carvings and inscriptions in the Northern Areas of Pakistan" Islamabad, 1982.
6. Brigadier Muhammad Usman is Secretary of Agriculture to the Government of Baluchistan.
 7. The Team of the Department of Archaeology comprised the following members:
 - (a) Mian Said Qamar, Assistant Director (Epigraphy).
 - (b) Mr. Khan Muhammad, Assistant Director, Sub-Regional Office, Quetta.
 - (c) Mr. Muhammad Nasimul Haque, Epigraphical Foreman.
 8. Sir Aurel Stein "Memoirs of the Archaeological Survey of India" No. 37, 1929.

An Archaeological Tour in Waziristan and Northern Baluchistan, pp. 64-70.
 9. Ibid. p. 64.
 10. Ibid. p. 66 (figure-22).
 11. A.H. Dani "Chilas The City of Nanga Parvat" (Dyamar)
See photographs on pp. 25, 27, 29, 33, 35, 39, 41.
 12. Ibid. pp. 16-18.
 13. "East and West", Vol. 27, 1977, pp. 92-93.
 14. Nazir Khan "Rock carvings from Hathiano Kandao" the Journal of Central Asia, Islamabad, December, 1983, pp. 59-62.

PERSIAN INSCRIPTIONS FROM THE
TOMB OF NOOR MOHAMMAD KALHORA

by
AFZAL AHMED

(Plates: LV—LV11)

The province of Sind is richly endowed with inscriptional wealth of the Muslim period from the earliest centuries of the advent of Islam in the South Asia Sub-continent to the dismal days when it came under the British rule. The inscriptions elaborately carved in stone with arabesque, floral or geometrical patterns adorn the ancient graves and tombs of tribal chieftains, ruling potentates and their family members, the shrines of saints and sufis, and occasionally the mosques and forts. The importance of inscriptions in archaeological studies of an area and in the reconstruction of its history can hardly be over-emphasized. It is true that on many an occasion a chance discovery of an authentic inscription has pushed further the frontier of the known history or helped in bridging the lacunae in continuity of events by providing important clues. Even the inscriptions consisting simply of Quranic verses or panegyrics in poetic strain, give at least the indication of the religious devotion of the time, the literary taste of the bards and the artistic talents of the engravers. All these factors are clearly discernible in the inscriptions seen affixed to graves, tombs, shrines, mosques and forts in the province of Sind, and provide an opportunity of consistent study of the social, cultural and historical changes from eighth to nineteenth centuries A.D.

It is an unfortunate fact that epigraphical studies in Sind have not attracted the amount of attention they deserved. So far, no systematic and concerted efforts have been made to compile a corpus of inscriptions of the province, and even a thorough survey of the surviving inscriptions has not yet been attempted. Some of the inscriptions with relatively easy access had been studied in the eighteenth and nineteenth centuries, by the British scholars and are referred to in various District Gazetteers. Since Independence a number of our great scholars, historians and enthusiasts of the Muslim history have also taken pains to publish some of the important inscriptions; to name late Pir Hussamuddin Shah Rashidi¹, late Dr. Moulvi Mohammad Shafi², Dr. M.A. Ghafur³, Moulvi Shamsuddin Ahmed⁴ and others. Lately the Epigraphy Branch of the Department of Archaeology and Museums has come up to this important work and has on top of its list the stupendous job of compiling a corpus of historic inscriptions from the Makli monuments having a bearing on the cultural history of Sind.

It was during a preliminary survey of the group of historic monuments, when I happened to be at a small village named "Noor Muhammad" in Taluka Moro, Nawab Shah District. On the north western outskirts of this village there is a large graveyard extending over an area of about 3 acres. In this graveyard is located a complex of monuments consisting of tombs and graves of Noor Muhammad Kalhora, his friends, relatives, courtiers and servants in addition to dilapidated structure of a mosque.

Among these ruins the tomb of Noor Muhammad Kalhora stands out prominently (Plate LV,a). The nearest town, Shahpur Jahanian, on Grand Trunk Road, is about six miles from the monument. Its gigantic dome as well as palatial enclosure walls is visible from miles away. The enclosure wall has an entrance on the east through a vestibule. There are two Persian inscriptions, one on either side of the entrance. Both the inscriptions are in *Nastaliq* script on yellow sand stone. After passing through an extensive courtyard, one finds on the extreme west, the burial chamber of Noor Muhammad Kalhora on a raised platform. It has a door on the east. Its facade is profusely decorated with colourful tiles. The entrance arch and the lintel are of wood which are carved with "*Ayat-ul-Kursi*" and "*Kalma-e-Tayyaba*" (Plate LV1). On the northern side of this door there is yet another persian inscription in *Thulth* script on yellow sand stone. This elegant edifice is crowned by a huge dome and a finial post. The outer surface of the tomb was once richly decorated with floral designs in colours. The interior walls, *Mehrab*s, and dome have

been profusely decorated with colourfully painted floral designs. The entire structure stands on a high plinth of yellow sand stone, which has been suitably decorated with engraved floral designs. The rest of the building is in burnt bricks with a layer of plaster. In later times more graves were added inside the enclosure. The superstructures of these new graves have covered the front view of the tomb and have marred its beauty (Plate LV, b).

In the following pages I have deciphered and translated these inscriptions which have a definite historical value in the chronicles of Kalhora rule. But, before dealing with these inscriptions it would be appropriate to give in brief the life sketch of Noor Muhammad Kalhora.

Noor Muhammad Kalhora had a stormy career in life. His actual date of birth is not known. However, Maulana Ghulam Rasool Mehar⁵ has made a reasonable surmise about his age and concludes that he might have been born approximately in 1090-91 A.H. (1679-80 A.D). The Kalhora Dynasty from the time of its founder, Mian Adam Shah upto the time of Mian Yar Muhammad, the father of Noor Muhammad, was known for its spiritual qualities. It was only in the last days of Yar Muhammad Kalhora that he captured large part of Sind by his personal valour and got the title of *Khuda Yar Khandi* from the Mughal Court at Delhi. Thus, this spiritual family got temporal power. However, most of the historians consider that the Kalhora rule virtually started from the time of Noor Muhammad⁶.

Noor Muhammad during his princehood remained a hostage in the court of Mehrab Khan, the ruler of Kalat⁷. It was an eventful time in his life which witnessed attempt for freedom, heroic escape and unfortunate arrest. On release from Kalat, prince Noor Muhammad assisted his father Mian Yar Muhammad Kalhora, in various important state affairs, such as a campaign against highway robbers and marauders of Thatta, streamlining the administration of Sibi and Dhadar, and his services at Multan which adorn the pages of history⁸. In addition to these services. He was also appointed as *Naib Faujdar* of Sehwan by the Imperial court of Delhi⁹.

After ruling for eighteen years, Yar Muhammad died on 15th *Dhilquadh* 1131 A.H.¹⁰ and Noor Muhammad Kalhora was accessioned to the throne on the 11th of *Muharram* 1132 A.H. (13th November, 1719 A.D.)¹¹. There must have been a plausible explanation for the gap of two months between the time of the death of his father and his accession to the throne. In *Guldasta-e-Nauras Bahar*, however, the date of his ascending the throne is given as 1131

A.H. which makes the controversy irrelevant¹².

After accession to the throne, Noor Muhammad had the tedious job of consolidating the state of his father, maintaining law and order in it and extending Kalhora rule to the east of Indus. However, his ambitions received a setback due to the treacherous expeditions of Nadir Shah and Ahmed Shah Abdali. As a result of Nadir Shah's expedition two of his sons, namely Muradyab Khan and Ghulam Shah were kept as hostages in Iran¹³. After the death of Nadir Shah and during the family feuds of his relatives, the two sons of Noor Mohammad Kalhora, managed to return to their country. The crown prince, Muradyab Khan, reached Sind in 1164 A.H.¹⁴ On this occasion the joy of Noor Muhammad was so great that he gave to Muradyab Khan the royal court and offices, settled him at Khudabad and he himself went to Muhammadabad, a new city founded by him¹⁵.

But, it appears that Noor Muhammad was not satisfied with the administration of Murad, hence he once again ruled the country till at last driven out by Ahmad Shah. He died in exile at Jaisalmer on 12th Safar 1167 A.H. (9th December, 1753 A.D.). His corpse was brought to Muhammadabad and was buried there¹⁶. The contemporary sources and other historical accounts do not provide sufficient information about Muhammadabad although it has been referred to many times¹⁷. This city now exists only in the form of a small village in Taluka Moro. In this regard, Ijaz-ul-Haq Quddusi, has simply stated that Muhammadabad was founded by Noor Muhammad and it was a beautiful city¹⁸. About the tomb of Noor Muhammad he mentions that it was probably built in the reign of Muradyab Khan¹⁹.

In this uncertain state of our knowledge about Muhammadabad, and builder of Noor Muhammad Kalhora's tomb, it is hoped that following text and translation of the inscriptions which have definite bearings on these unknown points, will be of sufficient interest.

1. INSCRIPTION ON THE NORTH OF ENTRANCE
DOOR AT DAHLEEZ. (PLATE LV11,a)

- ۱- چون شد تمام از تعمیر روضه اقدس
ز کار داری باقر محب خاص شهبان
- ۲- ز سال فوت چو تاریخ خواستم دل گفت
حبیب و نور محمد ولی خلد مکان
- ۳- بخواب رفته، فیل زمان عباسی
درین مقام و در روضه بهشت نشان
- ۴- بناز مصرع تاریخ تازه شد صابر
از خلد وزیده به طوف مردان
- ۵- خوش آنکس که چون مردان دین ز ملک جهان
سفر کند سو دار بقا بشوق جهان

Translation

1. When this most sacred mausoleum was completed by the good service of Baqar, the favourite of the kings.
2. I reckoned the year of his (Noor Muhammad Kalhora's) death and the heart said "Beloved saint Noor Muhammad found abode in Heavens."
3. That elephant of the world, Abbasi has fallen asleep in this place and in this mausoleum which is emblem of paradise.
4. "Sabir" improvised a verse for its date which has descended from the heaven to adorn these graves.

5. Happy is he who is pious and travels from this ephemeral to the eternal world in the desire of paradise.

This inscription gives names of "Baqaar and Sabir" which have been dealt with some-where else in this article. The word *Vali* (Saint) appearing in the second verse indicates that even after gaining the temporal power Noor Muhammad preferred to be known as a spiritual person. Even today his devotees prefer to be buried in the Noor Muhammad Kalhora graveyard. Issue-less people still come to his grave with bequeaths for a child and it is believed that they get twins which are called *سایق جوتاند* (Bulls of the saint). They are presented at the *mazar* with a model yoke on their necks. After the rituals are over the happy parents take their twins, while the yokes are left at the *mazar*. The author found a number of such yokes lying at the *mazar*, and the *Mutawalli* explained their importance. It may, however, be mentioned that Kalhoras were originally *Zamindars* (Landlords). Their interest in agriculture is indicated by the fact that they dug canals for irrigation. The *Noor Wah*, named after Noor Muhammad, shows his definite interest in agriculture. My friend Syed Hakim Ali Shah Bukhari, Assistant Director, Department of Archaeology & Museums, who hails from district Dadu, is of the opinion that these model yokes might also indicate Noor Muhammad Kalhora's interest in agricultural development of Sind. In support of his views he has quoted an instance from the tomb of Yar Muhammad Kalhora, father of Noor Muhammad. On his *mazar* at Khudabad in District Dadu, devotees hang wooden batons as mark of their bequests. A "*Danda*" or wooden baton is undoubtedly an emblem of power, as a yoke is an emblem of agriculture. In whatever sense these model yokes and wooden batons might be taken by the devotees of Kalhoras, they still denote a personal quality of the saints. Therefore, the model yokes may indicate that originally these were liked most by Noor Mohammad and in later times used as a cult for winning his favour.

The word *Abbassi* in the third verse, is due to the fact that Kalhoras claim their descent from the uncle of Holy Prophet (may peace be upon him) namely *Hazrat Abbas*. Therefore, they use *Abbassi* as their surname, Maulana Ghulam Rasool Mehar, has discussed this point in detail with the help of all the geneological tables which could possibly be collected²⁰.

The word *مرقدان* appearing in the fourth verse has got a special significance. It is plural form of *مرقد* which shows that there were more than one grave when these couplets were composed. It, therefore, indicates that the

mausoleum was not completed even after the death of Murad, who is also buried on the platform in front of Noor Muhammad Kalhora's tomb. Murad-yab Khan, died in Shawal, 1171 A.H.²¹ (June, 1757 A.D.) as such, it seems more probable that these couplets were composed and the inscription was installed after that date.

2. INSCRIPTION ON THE SOUTH OF THE
ENTRANCE AT THE DAHLEEZ. (PLATE-LV11,b)

۱- ولی عہدی و جانشین وارث ملک
غلام شاہ سخاوت دان عالیشان
۲- امیر و پیران صاحب کرم خصلت
عدو شکار و نظر کردہ شہ سردان
۳- چون سرفراز شد از عطائی مصطفوی
نمود روضہ ز تعمیر روضہ رضوان
۴- چہ روضہ منزل و آرامگاہ اہل بہشت
کہ پر ز نور و تجلا است ظاہر و پنهان
۵- زیر نورش دل اہل نظر ارد روش شد
چون دید از درودیوار و بام نور افشان

Translation

- 1-3. When by the grace of Mustafa (may peace be upon him) crown prince, heir apparent and lord of the country Ghulam Shah who is an excellent liberal, a benevolent Amir (king), a benefactor of (his) nobles, terror for (his) enemies and appreciator of brave persons became exalted (i.e. became king) then he built this tomb on the pattern of heavens.
4. What a destination and abode for the people of paradise is this tomb that it is full of light and reflection of God manifestly and concealedly.
5. Under its rays the heart of onlooker is suffused with light emanating from its walls, doorways and stairs.

Mian Ghulam Shah Kalhora, referred to in the first verse of the inscription was the son of Noor Muhammad and the founder of Hyderabad. He was very fond of constructing elegant buildings. The tomb of Shah Boharo at Larkana, Tomb of Adam Shah at Sukkur, Tomb of Shahal Muhammad at Kamber, Tomb of Shah Abdul Latif Bhitai at Bhit Shah Hala, were also constructed by him²².

INSCRIPTION ON THE NORTH SIDE DOOR AT THE
BURIAL CHAMBER. (PLATE-LV11,C)

- ۱- همیشه زنده بود سر که نام نیک گذاشت
که روشن است مزارش (۱) ز رحمت یزدان
- ۲- چون در هزار و صد و شصت و هفت در بحری
وفات یافت والی شد گشته روان
- ۳- مرو بر روضه و آهسته تر خرام صبا
شگوفه ریز مبادا شود گل رحمان
- ۴- ز فراقش دل ارباب دین که خون کردید
چکد از مژه چون اشک در جگر جان (۱)

Translation

1. The person who leaves a good name (in the world after his death) becomes immortal (because his) grave gets light from the benevolence of God.
2. In the year one thousand one hundred and sixty seven of Hijra the king of Sind passed away.
3. O breeze do not rush over his grave, but move slowly lest the buds of lily should be shaken down.

4. On his sad departure the hearts of pious people have become blood which flows from their eyes instead of tears.

These inscriptions are of great historical importance. The inscription on the north side of the burial chamber (PI-LV11.C) gives the date of Noor Muhammad Kalhora's death as 1167 A.H. (1754 A.D.) which conforms with the contemporary sources and historical narratives²⁴.

The inscription on the north side of the entrance door at the *Dahleez* (Plate-LV11,a) also gives versified date of founding in the verse which gives a date 1167 A.H. (1754 A.D.) Another chronogram gives a date of 1166 A.H.²³ (1753 A.D.) which is apparently the date of the beginning of the construction of the mausoleum. It means that at least the construction of this tomb was started in the life time of Noor Muhammad Kalhora. A tradition current among the local people is that this tomb was built by Noor Muhammad Kalhora. A critical examination of this tradition reveals its correctness in historical perspective. We know from *Tuhfat-ul-Kiram* that on receiving confirmed news of Ahmed Shah's expedition, Noor Muhammad Kalhora departed from Muhammadabad towards Jaisalmer on the fourth of *Muharram* 1167 A.H. Where he died on the 12th of *Safar*, the same year. It confirms the tradition that the tomb was built, or at least its construction was started, by Noor Muhammad. The work must have been incomplete when Noor Muhammad had to leave Muhammadabad under fear of Ahmed Shah²⁴.

This inscription also gives the name of "*Baqar*" who was engaged for the construction of the tomb. The inscription does not give any clue whether he was an engineer, architect, or superintendent of construction. The pen name "*Sabir*" occurring in the inscription indicates that he was the author of these couplets. "*Sabir Ali Sabir*" is a wellknown figure of Kalhora period. He is, however, not the author of these couplets because he died in 1286 A.H. i.e. 119 years after the construction of this mausoleum. It is, however, for the historiographers and research scholars to ascertain further particulars of "*Baqar*" and "*Sabir*" mentioned in this inscription.

The inscription on the south of the entrance at the *Dahleez* (PI-LV11,b) is an eulogy on Ghulam Shah Kalhora, who is said to have constructed the tomb. Keeping in view the great zeal with which he had constructed a number of other buildings, we are inclined to believe that he should have completed the tomb of his father.

The study of these inscriptions has, therefore, thrown new light on the history of Kalhoras. We know for certain that Noor Muhammad Kalhora died at Jaisalmer in 1167 A.H. (1754 A.D.) while driven by Ahmed Shah Abdali. He was succeeded by his son Murad who ruled from 1167 to 1170 A.H.²⁶ (1754 to 1757 A.D.). The ceremony of his accession was performed in a camp near Nasarpur, where he founded a new city called Muradabad in 1754 A.D. It was washed away by floods after sometime and now it does not exist at all²⁷.

According to the inscription on the south at *Dahleez*, Ghulam Shah is the builder of this tomb. Ghulam Shah held the reigns from 1170 to 1186 A.H. (1756-57 to 1772 A.D.). He is said to have founded another new city Allahabad near Muhammadabad of Noor Muhammad Kalhora²⁶. It is, therefore, improbable that Noor Muhammad Kalhora should have been buried at village Noor Muhammad in preference to the place of his death i.e. Jaisalmer or his capital at Khudabad or one of the cities founded by himself and his son Muhammad Murad, namely Muhammadabad and Muradabad, unless we accept that the suburbs of the present village Noor Muhammad indicate the location of a forgotten city Muhammadabad, which was founded by Noor Muhammad Kalhora and where according to historical accounts he was buried after his death at Jaisalmer. The presence of a dry river bed nearby is an indication of the probable reason for the abandonment of Muhammadabad. By the passage of time Muhammadabad, having lost its importance, might have been forgotten and existing graveyard with the tomb of Noor Muhammad still reminds us of the glorious days when there was a prosperous city, Muhammadabad.

We may, therefore, safely conclude that the study of these inscriptions has provided authentic information which is helpful in removing the lacunae in history as to the date of the construction of Noor Muhammad Kalhora's tomb, name of its builder and location of a non-existent city Muhammadabad which was founded by Noor Muhammad. Now we know that Noor Muhammad Kalhora had started the construction of his tomb at Muhammadabad in his own life time viz, in 1166 A.H. The tomb was not completed even after the burial of Noor Muhammad Kalhora and his son Muradyab. Ghulam Shah having completed the tomb got the credit for its construction. Moreover, the tomb of Noor Muhammad Kalhora indicates the site of an abandoned and forgotten city Muhammadabad.

FOOT NOTES

1. (i) Rashidi, Syed Hussamuddin, edition of Makli Namah, Ali Sher Qan'ay Thattvi, Persian 'Sindhi', Sindhi Adabi Board, Hyderabad, 1967, pp 722-723 ff.
- (ii) Rashidi, Syed Hussamuddin, Edition of Tuhfat-ul-Kiram, Ali Sher Qan'ay Thattavi Persian, Sindhi Adabi Board, Hyderabad, 1971, pp 135, 165, 514-16, 518-19.
2. Muhammad Shafi, Dr. Khan Bahadur, Maulvi, Sanadid-e-Sind, (Edited by Ahmed Rabbani) English, Urdu, Persian, Nawa-e-Waqt Printers, Lahore (The entire book deals with the inscriptions of Sind).
3. Ghafur, M.A., Dr., The Calligraphers of Thatta, English, Pakistan-Iran-Cultural Association, Karachi, 1968, pp 63-73 ff.
4. Shamsuddin Ahmed, Maulvi, A Guide to Thatta and the Makli Hills, Government of Pakistan Press, 1952, pp 24-25.
5. Mehar, Ghulam Rasool, Tarikh-e-Sind, Vol. VI (Ahed-e-Kalhora) Part 1, Urdu, Sindhi Adabi Board, Karachi. pp. 538-539.
6. Baloch, N.A. edition of Lubb-e-Tarikh-e-Sind, K.B. Khudad Khan, English & Persian, Sindhi Adabi Board, Hyderabad 1959, page 121 (Persian).
7. Tarikh-e-Sind, Mehar, opcit pp 359-360.
8. Ibid, page 361.
9. Ibid, page 363.
10. Tuhfat-ul-Kiram, opcit pp 443-444.
11. Tarikh-e-Sind, Mehar, opcit page 354.
12. Ibid, page 355.
13. Ibid, page 451.

14. Ibid, pp 525-26.
15. Tuhfat-ul-Kiram, Rashidi edition, opcit page 459.
16. Quddusi, Ijaz-ul-Haq, Tarikh-e-Sind, Markazi Urdu Board, Lahore, 1974, Part II, page 446.
17. Ibid, page 1085.
18. Tarikh-e-Sind, Quddusi opcit page 591.
19. Ibid, Page 593.
20. Tarikh-e-Sind, Part I, Mehar, opcit pp 35-60.
21. Tarikh-e-Sind, Mehar, opcit Part II, page 592.
22. Tarikh-e-Sind, Quddusi opcit Part II, page 592.
23. A number of other chronograms about the death of Noor Muhammad Kalhora have been collected by Maulana Ghulam Rasool Mehar, opcit page 539.
24. Tuhfat-ul-Kiram, opcit pp. 459 & 460.
25. Tarikh-e-Sind, Quddusi, opcit Part II, page 646.
26. Ibid, page 458.
27. Tarikh-e-Sind, Mehar, opcit, pp. 1085-86.

ROCK ART AS CLUE TO THE CULTURAL HISTORY OF NORTH PAKISTAN

by

Dr. Prof. Karl Jettmar

Rock-paintings and rock-carvings occur practically in every continent of the world, but only in the last twenty years they have been systematically documented and studied by international organisations, many of them sponsored by the UNESCO. Experts have counted more than 800 'provinces' of this primordial art, 144 are considered as main provinces which have more than 10,000 figures in a restricted area.

But no province is so extremely interesting for so many scholars as the one discovered in Pakistan beyond the main Himalayan range, i.e., in the Northern Areas and in the northern most part of Indus-Kohistan.

The main concentration is to be found in the Indus valley. After some attempts coming to a standstill I discovered it in 1973, when I could use the natural surface road completed by Army Engineers who had "hacked their way through rock and bulldozed through earth and gravel" from Thakot up to Chilas (as, for example, aptly described by Major General S. Shahid Hamid). Systematic study became possible after the transformation into the broad all-weather-road called Karakorum Highway and its final opening in 1978. Scientific work was organized as a joint programme by the Pak-German Study Group headed by Prof. A.H. Dani and myself. The Department

of Archaeology and Museums Government of Pakistan joined in and is represented by Mian Said Qamar.

Our findings include rock carvings of a special quality. During the first Millennium A.D. they were made by artists of high qualification, trained in the great cultural centres outside the mountains, between Gandhara and Kashmir, but also in the Northwest (coming via Badakhshan) and in the North, in the areas behind the Karakorum range.

Historical sources of this period - many of them written in Chinese and translated already in the 19th Century by European scholars - allow an interpretation.

Part of the carvings was made by artists travelling to the rich towns in Sinkiang situated along the 'Silk Road'. Others were bound for China where artists representing the famous art of Gandhara were highly appreciated and well-paid. They were engaged in the decoration of Buddhist sanctuaries by paintings, sculptures and reliefs. So they had an enormous influence on the incipient Buddhist art of Korea and Japan. The shortest approach for them was through the gorges of the Indus, then called the 'hanging' (or better 'sloping') passages and further on via Gilgit, finally crossing the passes over the main Karakorum Range. During this highly difficult journey they needed places of rest and recovery where they were supported and boarded by the rulers of the mountain principalities. The princes had become Buddhists in the time when the whole area was under the sway of the Kushan Empire. So in return, their guests made pious manuscripts like those found near Gilgit where a whole library was hidden in a hollow stupa later on (which was opened and robbed in the thirties of our century). But they also decorated the rocks around the sacred places of the Buddhists by making carvings. The proper technique was learnt from the local population. Especially in the Indus valley the barren rocks are covered by desert varnish. This is a brown to black (or bluish) coat, very thin, that forms on exposed rock surfaces in arid regions. Although clay minerals make up most of the cover, its striking characteristics are due to iron and manganese oxides contained in the dust windblown to the rock surfaces. By chipping through this cover it is easy to make bright and distinct figures. Since repatination generally takes 3,000-5,000 years(!), petroglyphs from the Buddhist period are still visible at quite a distance.

Already in 1979 I stressed the connection of the petroglyphs with a sort of proto-Karakorum Highway. I explained them as the work of by-travelling artists, some of them monks, missionaries, or pilgrims.

In the meantime, however, more than 2,000 inscriptions were discerned and deciphered to a large degree on the part of the British. The area was also between Hunza and Nagar, and great numbers of the inscriptions were found in 1979 inscriptions near Kohistan. The inscriptions were found in the area where they tell another story.

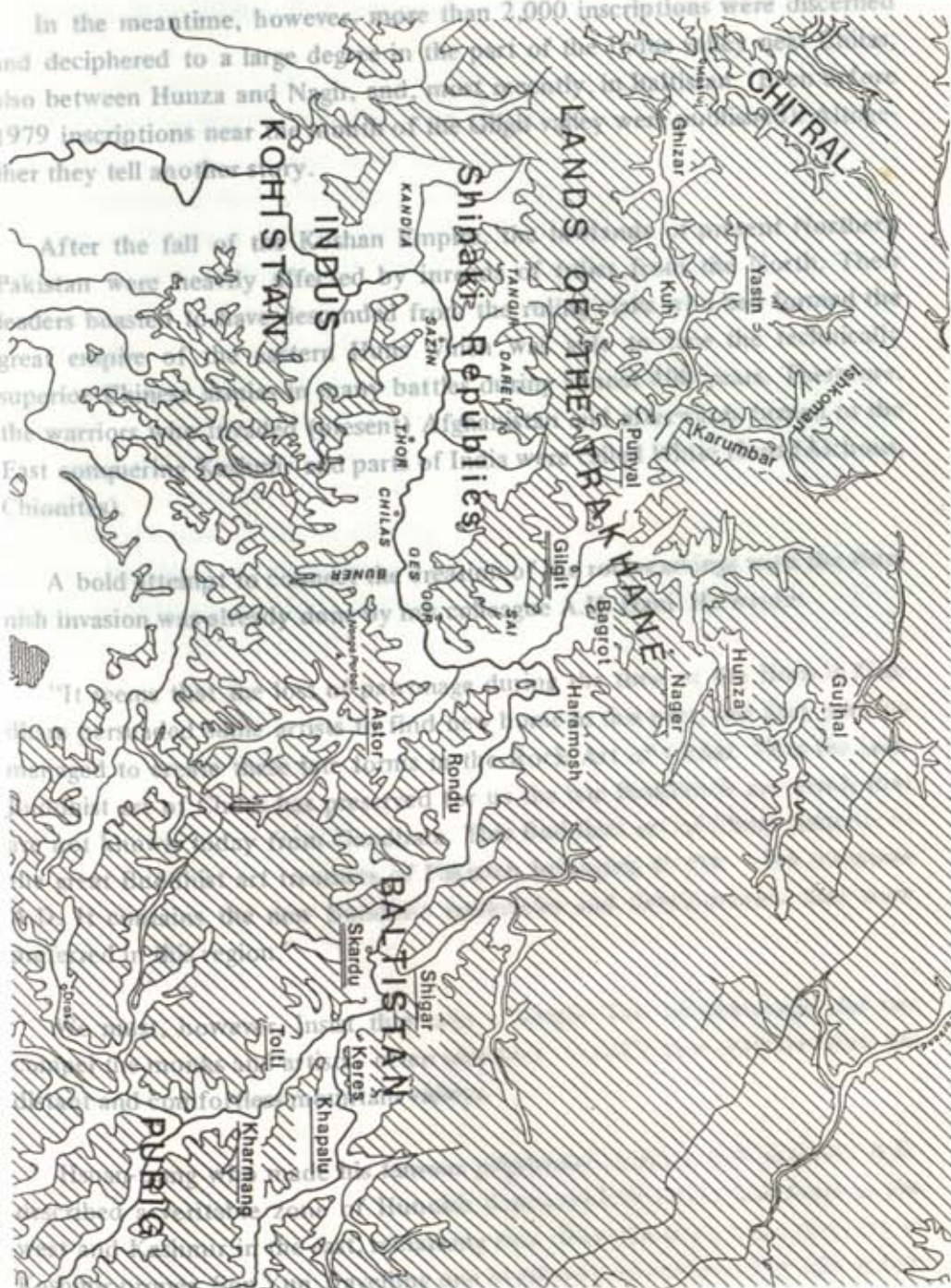


Fig.37. Map showing Northern Areas of Pakistan

had only seen the beginning of this disaster before we had

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In the meantime, however, more than 2,000 inscriptions were discerned and deciphered to a large degree in the part of the Indus valley near Chilas, also between Hunza and Nagir, and, most recently, in Baltistan. (Even before 1979 inscriptions near the mouth of the Gilgit valley were published). Altogether they tell another story.

After the fall of the Kushan Empire, the lowlands of present Northern Pakistan were heavily affected by inroads of tribes from the North. Their leaders boasted to have descended from the ruling clans who had formed the great empire of the eastern Huns which was able to face the technically superior Chinese armies in many battles during almost 400 years. Therefore, the warriors who invaded (present) Afghanistan and afterwards turned to the East conquering Kashmir and parts of India were called White Huns (Alchons, Chionites).

A bold attempt to connect the creation of the rock-carvings with the Hunnish invasion was already done by my colleague A.H. Dani. He wrote:

"It seems that the loss of patronage during the time of the Huns in Gandhara persuaded some artists to find new home in this part, and they perhaps managed to create these late forms in the Rock Art of Chilas. Thus the later Buddhist art of Chilas has preserved for us the late Buddhistic art trends that are not known today from Gandhara. This Buddhist art of Chilas presents us the great Buddhist art treasures of Pakistan belonging to 5th – 8th centuries A.D. It contains the new Buddhist tendencies and developments that were preferred in this region."

We must, however, insist that only a simple 'loss of patronage' did not compel the monks and artists - often identical - to shift their activities into the distant and comfortless mountain valleys.

Hsuan-tsang who made his famous pilgrimage between 629 and 645 A.D. described a veritable zone of Hunnish destruction between Gandhara in the west and Kashmir in the east, remarking that there had been some recovery in Kashmir proper. Son Yun, travelling one hundred years earlier (518-255 A.D.), had only seen the beginning of this disaster for the Buddhist communities.

Especially bad was the fate of the Buddhists living east of the Indus. Near Taxila, instead of a famous sanctuary he found deserted and overgrown ruins inhabited by a few confused monks. At Simhapura the situation was not much better: the monastery near a famous stupa had been given up, no monks were left. In Urasha, most people were pagans. A Buddhist centre had only a few disciples.

In the golden days of Buddhism, Swat boasted of 1400 monasteries with 18,000 monks. Only a few were left, and these had "no great understanding for the holy text". I may add that this evidence is now confirmed by the result of the Italian excavation at Butkara. After radical destruction, the great stupa was restored by using the spoils of the earlier buildings in a more than primitive way.

As interesting is the fact that the independence of the smaller states in the outer hills found an end. They had subsided the once flowering monasteries.

An inscription at Chilas, recently deciphered by O. von Hinuber, says clearly that the Maharaja of the Daradas was the overlord in the Indus valley. Chilas was one of his districts. Maybe, just this kingdom escaped the general onslaught because its capital was hidden in the mountains on the upper course of the Nilum river. Thither the Daradas had retreated under pressure, would be another explanation. Anyhow, they remained as an intact power - as Buddhists, as we learn from the same inscription.

Therefore we may suppose that many artists in the Indus valley were refugees who had arrived from all sides to practise the artistic heritage of several larger or smaller kingdoms between Gandhara and Kashmir. In exile they even accepted the strange and barbarous technique to decorate rocks. Others moved deeper into the mountains, to Gilgit and Baltistan then united in the state of Bolor.

Another refuge of this kind was certainly Bamiyan. In this kingdom Buddhism was not impaired. Thousand monks were still practising there in the time of Hsüan-tsang. So similarities to the artistic production in the Indus valley may prove the acceptance of emigrants from the same area.

If my conjecture is correct, then we find indeed "the final stage of Buddhist Art of Gandharan origin" radiating from otherwise destroyed centres in Northern Pakistan, in the Indus valley. Nothing could be more interesting for the historian of art, even when the concrete places of reference are still doubtful in most cases.

Systematic excavations in the Hazara District and Azad Kashmir are necessary in order to solve the relevant problems.

We must add that the inscriptions tell a lot about the ethnicity of refugees who found shelter in the mountain valleys not only as artists and religious teachers but also as clerks and officials in the service of different statelets. Some of them came from the Far West, from Parthian and Sasanian territories, others arrived from Bactria (North Afghanistan). The script used by them was of Greek origin(!) Others started from Sogdiana which now corresponds to Soviet Uzbekistan. But the Sogdian script and language were also used by merchants, and these had apparently a trading post near Shatial Bridge in the Indus valley, as we have 500 Sogdian inscriptions there in a restricted area.

We also find several names in Chinese characters, some of them may belong to permanent settlers since a noble Chinaman is mentioned in one of the votive inscriptions. Besides, there is a script which cannot be deciphered, and on the other hand there are clearly readable Brahmi and Kharosthi graffiti, but in an unknown language. Maybe this one was the 'ancestor' of the language of Hunza, Nagir, Yasin, i.e., the non-Indo-European Burushaski?

So there is an enormous challenge to linguists and historians. For a Pakistani citizen it must be thrilling to learn that a part of his country was an area of refuge already more than one thousand years ago.

THE SOGDIAN INSCRIPTIONS OF THE UPPER INDUS: A PRELIMINARY REPORT

by

Nicholas Sims Williams

During September 1985 I had the opportunity to join the Pak-German team in Chilas in order to study the inscriptions in Middle Iranian languages found at various sites chiefly on the banks of the Indus.¹ I was able to visit all such sites so far discovered (except for a single inscription at an inaccessible location opposite Chilas II). Altogether I recorded about 610 Middle Iranian inscriptions of which about ten are in Bactrian, two Parthian, one or two Middle Persian, and the rest Sogdian. The most important site by far is Shatial I, with about 560 Iranian inscriptions.²

About one-third of this material was published previously by Helmut Humbach.³ Considering that Humbach was working solely from photographs, many of them general views of the rocks rather than details of the inscriptions, his decipherment is on the whole remarkably accurate. Nevertheless, the readings can in many cases be improved by direct examination of the stones themselves. Moreover, since the same names often recur, the new material often solves problems in the reading of the published inscriptions. However, a considerable part of the total corpus must be regarded as wholly or partly illegible.

The additional material is of the same type as that described and published by Humbach. Almost all the inscriptions are very short, generally consisting of a personal name, often with the addition of a patronymic. A typical example is nnyprn ZK nnyβntk BRY "Nanefarn the son of Nanevandak" (105-10 = Nr. 84; also 55-3). This "ideal" formula may be abbreviated by the omission of either or both of the words ZK "the" and BRY "son" as in the following examples: nnyprn ZK nnyβntk (106-1); nn'rs'r Kypcp'y BRY (31-85 = Nr. 75; cf. nn'rt'r^{sic} ZK kypcp'y BRY, 36-33);⁴ βrzyr'k m'mryc (34-70; cf. βrzyr'k ZK m'ymryc BRY, 31-57 = Nr. 59a, and βrzyr'k 'βy' mnβntk Zky m'ymryc BRYN "Varzirak (and) Avyamanvandak the sons of Maymarghch", 31-63 = Nr. 65c). In at least one case the name of the grandfather is added after that of the father: rwo'kk ZK mnoryny(?) sytywnk(?) np'ys⁵ "Rodhak the (son of) Manthrene(?), grandson of Shetghonak(?)" (36-67 = Nr. 87b). In view of the frequent omission of BRY "son", one may presumably reckon with the omission of np'ys(n) "grandson" in an inscription such as wxwsōβ'r ZK wxwsβntk n'p'ns'k "Wakhush-dhvar the (son of) Wakhushvandak, (grandson of) Nafansak" (36-86). Here there is other evidence to indicate that Nafansak is a personal name, cf. n'p'ns'k ZK syr'ponk BR[Y] nr'y●●(?) (8-2 = Nr. 63b). Humbach's attractive suggestion that the final element in certain inscriptions may be a clan-name or an indication of the author's place of origin is unfortunately difficult to prove, since such words are not uncommonly employed as personal names. Thus, wn'yptβntk ZK krzt'yk m'ymryc (31-86 = Nr. 70d)⁶ seems as likely to mean "Wanepatvandak the (son of) Karztik, (grandson of) Maymarghch" (cf. m'ymryc as personal name in 34-70 etc.) as "W. the (son of) K. from Maymargh".⁷

Inscriptions containing elements other than those already discussed are very rare. Exceptionally full are two identical inscriptions which read: 'pzymyo "yt nnyβntk ZK γwsprn BRY "The day before yesterday(?) came Nanevandak the son of Ghoshfarn" (34-115 and 105-8). The longest inscription of all (36-38 = Nr. 126) can be only partially interpreted: nnyβntk ZK nrsβ "γtkym kw 10⁸ 'HRZY MN k'rt βγncytk y'n pt'yst 't xrbśn⁹ twxtr pr'ys'n rty ZKw 'HY pr syr wyn'n 'M wγs "I, Nanevandak the (son of) Narisaf, have some on (the) ten (th day) (?) and (have) begged (as) a boon from the spirit of the sacred place, K'rt, that ... I may arrive (home) more quickly and may see (my) brother in good (health) with joy". Here the word k'rt appears to be a name, either of the βγn-sacred place"¹⁰ (presumably the Shatial site) or of its "spirit".

The Sogdian inscriptions contain a number of Western Iranian names, both Parthian and Middle Persian, including such well-known names as Sasan (s's'n, 53-4), Papak (p'p'kk, 17-18 = Nr. 11sb), Shapur (s'p'wr, 20-2; cf. Parthian shypwhry, 39-105 = Nr. 20, and Bactrian saboro, 54-31 = Nr. 115), Kartir (krt'yr, 39-32 = Nr. 23; cf. Sanskrit kirdira, 30-2 = Nr. 93, etc.), and the specifically Parthian form Narisaf (nrsβ, 36-38 = Nr. 126; 36-85). Ethnic terms occurring as personal names include xwn "Hun" (passim), yntwk "Indian"¹¹ (31-97 = Nr. 69; variants yntwk, Khanbari, and yntwk'k, 33-12), and kws'n "Kushan" (17-18 = Nr. 112b; 31-40; the apparent derivatives kws'nk'n, Thor North, and kws'nk'nk(?), 34-86 = Nr. 99c, are possibly used as tribal or family names). Humbach's reading twrm'n in 50-3 (= Nr. 7) and his comparison of this name with that of the Hephthalite Toramana are quite uncertain.¹²

The occurrence of names such as those just mentioned provides only the most general of chronological hints, pointing towards the Sasanian period. Since none of the Iranian inscriptions is dated, the chief hope of defining their date with rather greater precision would seem to lie in palaeographic analysis. As Humbach has rightly observed,¹³ the style of writing - at least of the clearest and most carefully written inscriptions - is very close to that of the Sogdian "Ancient Letters", for which W.B. Henning's date of ca. 312 A.D. has been confirmed by the most recent study.¹⁴ Some inscriptions display a more cursive or irregular style, which may indicate that they are not the work of professional scribes, not necessarily that any of the inscriptions are as late as the documents from Mt. Mug (early eighth century), the next major group of Sogdian manuscripts after the "Ancient Letters". On this basis, the inscriptions seem most likely to belong to the fourth to sixth centuries A.D., or to some part of that period, although it must be emphasized that this is only a preliminary and tentative conclusion.

Despite of formulaic nature of the inscriptions, they are not without linguistic interest. The texts contain a number of previously unknown Sogdian words, of which pzymyo "day before yesterday" (?) (cf. zyy myo "yesterday" in the "Ancient Letters")¹⁵ and pt'yst "begged" (past stem of Buddhist Sogdian pt'yo "to beg") have already been cited. New items of vocabulary occurring as personal names or name-elements include myon "dwelling" (in prnmyon, 31-46 and 31-51, cf. Avestan maeθana- etc.), sp'oxrs "army-leader" (31-59 and 34-87, ultimately a calque on Greek strategos like Khotanese hinaysa-),¹⁶ and ox "man, male" (cf. Khotanese daha-, Wakhi oay),

which is found as a name in itself (34-108 = Nr. 49c; 39-96; 39-99; also ox', 29-2 = Nr. 41) and in the compound oxz'tk (34-90 = Nr. 92b; 36-81; Oshibat). A particularly interesting form is xsro "power, rule" from Old Iranian xsarā, which displays an unusual phonetic development of *xs to xs,¹⁷ and which occurs in a large number of derivatives: xsro'k (5-29 = Nr. 78b; 36-75) and xsro'kk (31-88 = Nr. 71c; 31-89), xsromyw(?) (34-62), wxsro (47-9 = Nr. 38b), wnwnxsro (50-8 = Nr. 4b), y'nxro (53-28), and mwxsro (Thor North).

Probably the main importance of the material lies in the large number of personal names which it attests. For the first time it provides a corpus of sogdian names large enough to be regarded as a typical cross-section-at least, of names used by males of a particular social group. The "heroic" style is one of the favourite types of name. Here belong names such as ox (see above) and its synonym mrty "man" (36-96 = Nr. 109a; 36-97 = Nr. 109b; 48-2; 50-27 = Nr. 10; Oshibat), as well as compound names using elements such as 'sp "horse", myw "tiger", rzm "line of battle", sp'o "army", wnwn "victorious", and xns "strong", e.g. st'sp (34-85 = Nr. 99b), 'rwmyw (53-17), prnmyw (31-51), rzmnwn (50-17 = Nr. 123), 'sp'oprn (40-16), .nytsp'o (34-74 = Nr. 52b), rywxns (for references see below, fn. 20). Theophoric names are even more common, the most frequently named divinities being Nane and Wakhush(u) "the Oxus". Humbach has given a list of names consisting of a divine name plus βntk "slave",¹⁸ to which one can now add 'βy' mnβntk (31-63 = Nr. 65c; 50-7; 50-27 = Nr. 10; miswritten 'βy'mββntk, 36-91; cf. also 'βy'mnyw(?), 36-92, and 'βy'mnyw'k, 53-29),¹⁹ rywβntk "slave of the Rich One" (36-100; of. rywōβ'r, 31-60, 36-101 = Nr. 85, 39-99, and βγrywβntk, 30-6 = Nr. 60, 34-96 = Nr. 113, 47-13 = Nr. 36b),²⁰ and tyorβntk "slave of Tishtriya" (39-96).²¹ Ahura Mazda is referred to in xwrmztot (26-1; a possible variant 'xwrmzt't(?) in 36-93, where the letters 'xwr- have been added subsequently in smaller writing) and mzt'kk (36-45 = Nr. 44; cf. Bactrian mozdo, 34-120), while oyw (generally "demon") retains its older sense "god" in oywn'm (Thor North) as in some other Sogdian personal names.²² The total absence of the god Mithra from the onomastics is noteworthy, and could be taken to lend some support to the theory that he was commonly referred to in Sogdiana merely as Baga "the god",²³ cf. the names βγ'βy'rt (31-99 = Nr. 77a; 114-2), βγ'βy'rt (5-31; 31-98 = Nr. 76), βγβntky (Thor North = Nr. 137),²⁴ and βγyoβ'r (31-53(?); 39-80 = Nr. 17k).

REFERENCES AND NOTES

¹ I take this opportunity to express my grateful thanks to Professor Karl Jettmar for inviting me to take part in the expedition; to Dr Volker Thewalt and the rest of the team for making me so welcome and for their invaluable cooperation in the recording of the Iranian inscriptions; and to the British Academy, which (through the *Corpus Inscriptionum Iranicarum*) funded my visit to Pakistan.

² Inscriptions from Shatial I will here be cited by their serial numbers (e.g. 34-70, that is, Rock 34, Inscription 70), those from elsewhere by the name of the site alone.

³ H. Humbach, "Die sogdischen Inschriftenfunde vom oberen Indus (Pakistan)", *Allgemeine und vergleichende Archäologie, Beiträge [des Deutschen Archäologischen Instituts]*, Bd. 2, 1980, 201-228. For ease of comparison, the numbers assigned by Humbach (Nr. 1 to Nr. 137) will be cited here whenever reference is made to an already published inscription.

⁴ The correct spelling of nn'rs'r (so written also in 17-16) or nn'rt'r (so also in 32-1) is uncertain. At least 36-33 makes it clear that kypcp'y is a single word, solving an apparent problem to which Humbach (art. cit., 202) has drawn attention: "Auffallend ist der Gebruach von ky in x'rs'r ky pcp'y BRY".

⁵ Or possibly np'ysn, in agreement with the form of this word found elsewhere in Sogdian (cf. I. Gershevitch, *Philologia Iranica*, Wiesbaden, 1985, 265 and 277 n. 5).

⁶ At the end of this inscription Humbach reads B[RY], but the supposed B is in fact part of another inscription.

⁷ See the discussion by Humbach, art. cit., 202-3.

⁸ Uncertain; could also be read kwo.

⁹ Or xrβntn.

¹⁰ On the range of meaning of βγn- (Manichean "temple", Christian "altar") see Sims-Williams, *The Christian Sogdian manuscript C2* (Berliner Turfantexte XII), Berlin, 1985, 61-2.

¹¹ Recognized by V.A. Livsic apud Humbach, art. cit., 226.

¹² Humbach, art. cit., 205.

¹³ Ibid., 201.

¹⁴ W.B. Henning, "The date of the Sogdian Ancient Letters", BSOAS, 12/2, 1948, 601-615; F. Grenet and N. Sims-Williams, "The historical context of the Sogdian Ancient Letters" (forthcoming in the Proceedings of the Symposium "Transition periods in Iranian history", Freiburg im Breisgau, May 22-24, 1985).

¹⁵ See Henning, art. cit., 606 n. 4.

¹⁶ Cf. T. Burrow, BSOS, 7/3, 1934, 514, and H.W. Bailey, BSOS, 8/2-3, 1936, 790-791.

¹⁷ As in 'xs'yn'k "greenish, blueish", cf. D. Weber, Die Stellung der sog. Inchoative im Mitteliranischen, Cöttingen, 1970, 154.

¹⁸ Humbach, art. cit. 203-4.

¹⁹ The same shadowy divinity is later attested by the Manichean personal name by'mnwrz, on which see Sims-Williams, The Christian Sogdian manuscript C2, 164.

²⁰ One need not assume that ryw "rich" in personal names (for which cf. also rywxns 53-26, rywprn ZK(?) rywxns BRY, 34-40(?) and 40-19 = Nr. 34a) always refers to a divinity, but these examples seem unambiguous. Humbach, art. cit., 203, followed more tentatively by S. Zimmer, MSS, 43, 1984, 198, identifies the "rich god" as the Moon, but there are other possibilities to be considered, including, most obviously, Mithra: cf. Avestan miθro raeuua corresponding to Vedic mitrasya revatah (see B. Schlerath, Awesta-Worterbuch, Vorarbeiten II, Wiesbaden, 1968, 162a), Middle Persian Rew-mihran as a family-name (H.S. Nyberg, A manual of Pahlavi, II, Wiesbaden, 1974, 169b, citing also Greek Rheomithres).

²¹ It is possible to understand tyor- as a pseudo-historical spelling for tys- (cf. Weber, IF, 77/2-3, 1972, 199-200) from tistriya-, probably based on the genuinely historical spelling myor- beside mys- < miθra-.

²² Cf. Henning. BSOAS, 28, 1965, 253-4, and Y. Yoshida, Studia Iranica, 13, 1984, 149.

²³ This theory, propounded as long ago as 1896 by J. Marquart, Untersuchungen zur Geschichte von Eran, I, Gottingen, 63-65, but still controversial, cannot be discussed here. The most important literature on this subject is cited in my article on "Baga in Old and Middle Iranian", forth-coming in Encyclopaedia Iranica. (Cf. also fn. 20 above.)

²⁴ In Humbach's edition, art. cit., 224, the captions to the photographs of Nr. 137 and Nr. 135 have been accidentally exchanged.

THE CHINESE INSCRIPTION OF THE "DA WEI" ENVOY ON THE "SACRED ROCK OF HUNZA"

by
Ma Yong

The Northern part of Pakistan lies to the south of the Pamirs and is bounded by the south-western Xinjiang of China. The Indus and the Gilgit Rivers meet within the boundary where lie the Karakorum and the Himalayas. Here the snow peaks tower to the sky and the sparkling glacier dazzle the eyes. Deep canyons are the only passageways for the people to get to and fro. Owing to rushing current and precipitous banks the chain bridge, which is the so-called "Suspended Crossing" in Chinese traditions, is still in common use in the upper reaches of the Indus. During the period from Han to Tang dynasty, however, when the "Silk Road" was prosperous enough, the area was a hub of an important route from China to Central, Western and Southern Asia through which envoys, merchants, monks and the like went and came in an endless stream and left many relics and inscriptions. After the middle period of Tang (from the 8th to 9th century), however, the decline of the route started. Since then the area had been cut off from the outside world for over a thousand years and became known as "mysterious" area of the world. As a result, the historical remains remained in oblivion. The isolated area did not re-open to the outside world until the sixties of the present century when over 800 kilometres long highway, the Karakorum Road, was built up by Pakistan

in cooperation with China, which starts from Tashkurgan of Xinjiang, crosses over the Khunjab pass, with an elevation of more than 4,600 metres, and extends down south along the Hunza, the Gilgit and the Indus up to Islamabad.

The highway approximately follows the ancient "Ji-bin route (罽賓道)" of the "Silk Road". Many inscriptions carved on rocks by the ancient travelers were found in addition to a lot of rock-frescoes of different period and inscriptions of various kinds of languages along the highway during its construction. Since 1979 the Pak-German Archaeological Team organized by Prof. Ahmad Hasan Dani of Quaid-i-Azam University, Pakistan and Prof. Dr. Karl Jettmar of Heidelberg University, F.R.G., had made an on-the-spot investigation of these inscriptions along the highway, for over three years. They investigated and sorted out a vast quantity of materials and relics which are of great value not only for studying the history of northern Pakistan, but also for studying the history of the whole of Central Asia and the intercourses between China and Central, Western and Southern Asia in ancient times. The languages used in these inscriptions are of various kinds among which the Brahmi, Kharosthi and Sogdian are used most frequently. What we are particularly interested in is the inscriptions written with the Chinese and Tibetan.

In order to promote the study of these treasurable archaeological remains by the scholars of various countries, an international academic meeting, International Conference on Karakorum Culture, was held at Gilgit, the capital of the northern part of Pakistan, in September, 1983. During the meeting all the participants, among whom the author was lucky to be one, made an investigative tour along the Karakorum Highway which started from Islamabad and stopped on the Sino-Pakistan boundary. As a Chinese, the author paid special attention to those Chinese inscriptions. All I have learned about them is reported briefly in this paper and the author has studied tentatively the most important one which was carved by the envoy of dynasty called "Da Wei (大魏, Great Wei)".

Up to now four Chinese inscriptions have been found along the Karakorum Highway.

One is on the southern banks of the Indus near Shatial where the Indus coming from the east turns down south. Since the ancient times an important ferry with relatively long iron-chain bridge crosses the river at this spot. On the southern bank the rocks and large stones lie one on top of another on

which there exist many inscriptions. Obviously, this is the place where the travellers of the ancient times took a rest. The Chinese inscription is carved on a lonely rock. Unfortunately, it has been damaged too seriously to be read out except to distinguish them as Chinese. On the rocks nearby there are hundreds of Sogdian inscriptions among which many have the name of travellers who went to China.¹ Thus it can be seen that this is just right a spot one had to pass on the ancient "Ji-bin route (罽賓道)".

The other Chinese inscription is at Chilas in the east, not far from the above spot. Chilas is a basin across which the Indus flows. The place is relatively densely populated. There are many inscriptions on both banks, especially on the south. The inscriptions at the eastern gate of Chilas basin are numbered as "Chilas I" by the archaeologists. The Karakorum Highway passes through the gate, by its northern side is the riverbeach, and by its southern the precipice. There are many inscriptions on both sides. The Chinese inscription is on a rock at the height of hill slope by the southern side of the Highway.² There seem to be five characters written vertically in two lines on the rock. Two out of the five words are too blurred to be distinguished, thus in the right line it reads "Zhang ru (張 如)," the left "Gao 高)." They must be names of two travellers and have no other contents. The characters were written squarily and the calligraphy style is between the kai-shu (楷書) and the li-shu (隸書). According to their penmanship the time of carving the inscription can not be later than Tang dynasty.

The third Chinese inscription is at Thalpan which is situated by the northern bank of the Indus in Chilas basin. The inscriptions here are just opposite to those by the southern bank of the Indus. Among the inscriptions numbered Thalpan IV there is a Chinese one which has only two characters and is beside an engraved stupa.³ I can not say anything more about it because it is not on our travelling way and I have not seen it myself.

The fourth Chinese inscription, which is situated towards the northern most side of all the four, is the most important one that we are going to discuss in the paper. It is by the Hunza river not far from the Chinese boundary. The Hunza rises in glaciers at the Sino-Pakistan boundary, flows westward and then southward, at Haldeikish it turns again to west and flows into the central area of a country which was formerly called Hunza State and ruled by

a royal family who had held the Mirship for a long time. The palace of Mir Hunza is at Baltit. At Haldeikish there towers a precipice by the southern bank of the Hunza river where the Mir Hunza held sacrificial rite while going for hunting. So it is called "Sacred Rock of Hunza". There are thousands of inscriptions which cover the period from the first century B.C. to the 15th century A.D. and have very rich contents. There are a lot of Kharosthi inscriptions of Kushan period and Brahmi inscriptions of Gupta period in addition to many Sogdian ones (a few of them have Tibetan words). Many historical facts that remained unknown before, have been brought to light by these inscriptions.⁴ The Chinese one is carved on a rock facing the river to the south on a feeder line of the Karakorum Highway and belongs to "Sacred Rock of Hunza II" inscriptions.

The rock on which the inscription was carved is several metres high. The inscription seems to be carved with some kind of sharp metal instrument because the scar is not so wide but deep. It has one vertical line consisting of twelve characters, most of which are still distinct to be read.

Text

大魏使谷巍龍今向迷密使去
[da] [wei] [shi] [gu] [wei] [long] [jin] [xiang] [mi] [mi] [shi] [qu]

Great Wei envoy Gu Wei-Long now towards Mi-mi dispatch to

Among them the character "谷" is flatter than others. The rock surface above it is damaged, so it may be "容". Here it is still read as "谷" for there is no reliable evidence for "容". The character "今" in the inscription can only be distinguished as "△" owing to the damage. But there is no other word that is suitable to the context except for "今". The lower part of the character "密" is undistinguishable but the upper is quite clear. Because "Mi-mi" is a place name which is mentioned in the traditions, it can be ascertained as "密". The character "去" is not so clear in the picture, but I my-

self have touched it by hands. It is “去” without question. The other characters are quite distinct and need no further explanation.

Thus the content of the inscription is quite clear.

Translation:

Gu Wei-Long, envoy of Great Wei, is dispatched to Mi-mi now.

Obviously, it is not a formal inscription but carved casually by the envoy when he passed by the Sacred Rock of Hunza. So there is neither date nor other contents in the inscription. And we can not find any records about Envoy Gu Wei-long in the extant sources.

Although the penmanship of the characters is of the kai shu (楷書), there seems to be a little calligraphic style of the li-shu (隸書). The style is simple and unsophisticated while the structure of the characters is unaffected and straight-forward.

To the right of the characters “龍今” there is a horizontal line of Brahmi, the left end of which covers over the Chinese inscription. Obviously, the date of the Brahmi inscription is later than that of the Chinese. According to Prof. Dani's research this Brahmi inscription belongs to the Gupta period, i.e. between the later years of the fourth century A.D. and the middle of the sixth.⁵ That is to say that the date of the Chinese inscription can not be later than the middle of the sixth century, either.

There were two dynasties which might be called “Great Wei” in Chinese history preceding the above-date. The first is the Cao's Wei Dynasty (曹魏) (A.D. 220-265) during the period of the Three States, and the second is the North Wei Dynasty (A.D. 386-556). Both of the two Dynasties had dispatched envoys to the countries in Western Regions and all these envoys might take the way which passed by the Hunza River.⁶ It is difficult to fix whether the inscription belongs to the Cao's or the North Wei from the penmanship because the kai-shu calligraphy with a little style of li-shu could be often seen both in the two Weis. However, we find the key out of the place name “Mi-mi” to ascertain the date of the inscription.

The name "Mi-mi" which is the transliteration of a country in Western Regions had never appeared in any Chinese sources before the period of the North Wei. Wei shu ch.4B, Shizu ji (《魏書·世祖紀》) records that in the first month of the initial year of Zheng-ping (正平) (A.D. 451), "The states of Fergana, Ji-bin and Mi-mi send envoys to the court to present tributes respectively". Bei shi ch.97, Xiyu Zhuan (《北史·西域傳》) records, "The state of Mi-mi : The seat of the King's government is at the town of Mi-mi which is to the west of Zhe-zhi-ba (者至拔) and is distant by 12,100 li from Dai (代). In the initial year of Zheng-ping, the state dispatched its envoy to present a black dromedary [to the North Wei]. To the east of the state there is a mountain called Yu-xi-man (郁悉滿) which produces gold, jade and is rich of iron ore." The description of Mi-mi in Wei shu ch. 102, Xiyu Zhuan (《魏書·西域傳》) is transcribed from the above record of Bei shi⁷, so the contents of the two are just the same but with the exception of that the sentence "... is distant by 12,100 li from Dai" of the later is taken down as "... is distant by 12,600 li from Dai" in the former. I hold that "12,600 li" of Wei shu is correct but "12,100 li" of Bei shi is wrong because "6" and "1" are written in Chinese as "六" and "一" respectively, so it is not impossible for one to take "六" for "一" if the former has been damaged or undistinguished. This will be discussed in detail in a passage later on.

The name "Mi-mi" was only seen in the time of the North Wei Dynasty. Though the state still kept a close relation with China after that time, the transliteration of its name was changed to "Mi" (米) as seen in Shui shu ch.83, Xiyu Zhuan (《隋書·西域傳》). In Bei shi, Xiyu Zhuan both the states of "Mi-mi" and "Mi" were taken down. The former was probably transcribed from the original of Wei shu, the latter from Shui shu. Li Yan-shou (李延壽), the author of Bei shi knew little about the geography of Western Regions. He had no idea that the two names referred to the same

place and took them down respectively, thus made a mistake of taking one state as two. The name of the state is transliterated as "Mi-mo-he (彌末賀)" and has a note that "it is also called the state of Mi by the Tang people" in

Xuan Zhuang (玄奘)'s *Da Tang Xiyu Ji* (《大唐西域記》). In *Jiu Tang shu* ch.196, *Xirong Zhuan* (《舊唐書·西戎傳》), there is no item of "the state of Mi", but it is seen under the headline of "the state of Kang (康).

Xin Tang shu ch.221B, *Xiyu Zhuan* (《新唐書·西域傳》) reads, "Mi is also called Mi-mo (彌末) or Mi-mo-he." It seems to us that the transliteration of the state name as "Mi-mi" had been forgotten from the time of Shui Dynasty on.

So I do think that the name "Mi-mi" was only used during the North Wei Dynasty and it is beyond doubt that the "Da Wei" (the Great Wei) in the inscription by the Hunza River referred to the North Wei.

From the extant sources we know that the envoy from the state of Mi-mi came to China only one time during the North Wei Dynasty in the initial year of Zheng-ping. So it should be before or not long after this year the Envoy of the North Wei, Gu Wei-long, went to Mi-mi. There are two possibilities: the first, Wei Dynasty sent Gu Wei-long to Mi-mi first and in return Mi-mi dispatched envoy(s) following Gu to Wei and presented a dromedary. Such things were common in the ancient times. If so, the dispatch of Gu Wei-long to Mi-mi should be one or two years earlier at least before the initial year of Zheng-ping, because it took one year or so to go and come. We know that Mi-mi's envoy arrived at Dai in the first month of the initial year of Zheng-ping (A.D. 451), thus Gu Wei-long's going to Mi-mi should not be later than the

tenth year of Tai-ping-zhen-jun (太平真君) (A.D. 449). In *Wei shu* ch.4B, *Shi-zu ji* we see that in the third month of the fifth year of Tai-ping-zhen-jun (A.D. 444), "(Wei Dynasty) dispatched envoys to the Western Regions four times." There is no records about sending envoys to the Western Regions in the sources during the period from the third month of the fifth year to the tenth year of Tai-ping-zhen-jun. So it is very probably that Gu Wei-long belonged to these envoys dispatched in A.D. 444. Six years from the fifth

year of Tai-ping-zhen-jun to the initial year of Zheng-ping is not so long for envoys to go to and fro between Dai and Mi-mi if we think of the long distance they had to travel, the hardships of the communications at that time and the times needed for rest and reorganization on their way.

The other possibility is that Mi-mi's envoy came to China first and then the North Wei Dynasty dispatched Gu Wei-long to send the envoy back home, which is also often seen in history. According to China's regulation in ancient times, no foreign envoys were allowed to stay in capital for a long time under ordinary circumstances. If Gu Wei-long had been dispatched to send Mi-mi's envoy back home, they should have started within one or two years after the initial year of Zheng-ping, i.e. the time when they started should not have

been later than the second year of Emperor Wen Cheng (文成帝) 's Xing-an (興安) (A.D. 453). In the light of above discussion it is a reasonable conclusion for us that Gu Wei-long went to Mi-mi during A.D. 444-453 whether the first or second possibility comes true. This is the later period of the reign of

Wei Emperor Tai Wu (太武帝) (i.e. Shizu, 世祖) by which the North Wei

Dynasty had perished the state of North Liang (北涼), defeated the Tu-yu-

hun (吐谷渾) and conquered Shan-shan, Karashahr and Kucha and gained great fame and high prestige. The "Silk Road" was thus unblocked. As a result, the North Wei Dynasty had a frequent contact with the countries of Central and Southern Asia among which Mi-mi was one. The inscription of Gu Wei-long by the Hunza River is a treasurable record of the Sino-foreign relations at that time.

From then on, the North Wei was keeping a close economical and cultural intercourses with the Western Regions. Such intercourses developed increasing-

ly after Emperor Xiao Wen (孝文帝) moved the seat of government to Luo-

yang, just as Luo Yang Jia Lan Ji (《洛陽伽藍記》) reads, "Thousands of

towns and hundreds of countries from West of Cong-ling (葱嶺) to Da-qin

(大秦) acknowledge allegiance (of Wei Dynasty) sincerely. Foreign mer-

chants flow to the frontier". Song Yun (宋雲), Hui Sheng (惠生)'s travel in the Western Regions which is well-known to all, started in the initial year of

Shen-Gui (神龜) (A.D. 518). It was over 70 years later than Gu Wei-long's being dispatched to Mi-mi.

What is worth further studying is the problem of Gu Wei-long's travelling line. Before it is solved, it is worthwhile to give a brief description of Mi-mi's geography.

Mi-mi was the Mi country (米國) of Shui and Tang period as discussed above. Mi Country was one of the Nine Zhao-wu Countries (昭武九姓國) and had frequent contact with China. The people from the country living in China, all had the surname of Mi (米). There are quite a few famous people who have such surname in Chinese traditions. The scholars who specialize in the history of Sino-foreign intercourses have quite a clear conception of the place where the country is. It was not far to the south-east of Kand Country (康國) (Today's Samarkand). Mi-mi was called "Maymurch" in classical Arabic traditions. Xuan Zhuang (玄奘)'s transliteration of it as Mi-mo-he (弭末賀) seems to be relatively preciser. The transliteration of "Mi-mi (迷密)" or "Mi-mo (彌末)" is because of omission of the consonants at suffix and is not bad. As to "Mi (米)" it is only the transliteration of its first syllable and thus it is convenient to become a Chinese surname. According to the Arabic geographers of the ancient times Maymurch was the name of a region south-east of Samarkand where the soil was fertile, the forest was dense and villages and towns spread here and there.⁸ Shui Shu. Xi Yu Zhuan (《隋書·西域傳》) records, "Mi Country is where the ancient Kang-ju (康居) Country was situated and its capital is by the western bank of the Na-mi River (那密水). There is no king in the country. The head of the city is a branch of the king of Kang Country and his surname is Zhao-wu

(昭武) and name is Bi-zhuo (閉拙). The area of its capital is two square li. There are several hundreds of persons able to bear arms. To the north-west

it is a distance of 100 li to Kang Country, 500 li to Su-dui-sha-na

(蘇對沙那, i.e. Sutrishna) Country in the east, 200 li to Shi (史, i.e.

Kesh) Country in the south-west and 6,400 li to Gua (瓜) State in the east." Under the headline of "Mi Country" in Xin Tang Shu. Xi Yu Zhuan

(《新唐書·西域傳》) it reads "(the country) is distant by 100 li to Kang Country in the north. The seat of its government is at Bo-xi-de

(鉢思德) city." Thus we can see that Mi Country is distant by 100 li to Kang Country according to the above two works. But in Bei Shi. Xi Yu Zhuan

(《北史·西域傳》) it reads, "Xi-wan-jin (悉萬斤) Country, the seat of its king's government is at Xi-wan-jin city which is to the west of Mi-mi and distant by 12,720 li to Dai." The so-called Xi-wan-jin (pronounced as Si-man-kin in Middle Chinese) is Samarkand. We have seen in the same chapter that Mi-mi is distant by 12,100 li to Dai. Thus it is a distance of 620 li from Mi-mi to Kang Country according to it. This is quite different with what Shui Shu and Xin Tang Shu record. In the extant Wei Shu. Xi Yu Zhuan

(《魏書·西域傳》) which was transcribed from Bei Shi, however, the distance between Mi-mi and Xi-wan-jin is just the same with Bei Shi but that from Mi-mi "to Dai is 12,600 li". According to this the distance between Mi-mi and Xi-wan-jin is only 120 li, which is almost identical with what is taken down in Shui Shu and Xin Tang Shu. This proves that the character

'ㄣ' (one) of "Yi-bai (一百, one hundred)" li in Bei Shi is a corruption of the character 六 (six)... The Na-mi River is today's Zarafshan River. The capital of Mi-mi Country, Mi-mi city, in Wei dynasty should be by the southern bank of Zarafshan River and must be the so-called "Bo-xi-de city" in Tang period. There are two theories about the seat of "Bo-xi-de city". One is that Bo-xi-de is at today's Guma-a-Bazar; the other takes it at today's Maghin (or

Moughian). According to the latest research of Mr. Ma Xiao-he (馬小鶴) Bo-xi-de city must be the famous Penjkent. His argument is strong and convincing. I wholly agree with him.

Gu Wei-long left Dai (today's Da-tong), capital of North Wei, for Penjkent of Mi-mi and passed the Hunza River where the inscription was carved. Obviously, his travelling line did not pass Yarkand and Tashkurgan of Xinjiang. If he had followed the usual south route of the "Silk Road" which led westward to Yarkand and then turned down south-west to Tashkurgan, he would have gone straight to the west and entered the Yakhan Corridor and then travelled along the Amu-Darya to Mi-mi, he would not have turned down south at Tashkurgan and taken a roundabout way to the Hunza Valley. In the light of Gu Wei-long's inscription we suppose that it is probable that Gu Wei-long

turned down to the south-west at Pi-shan (皮山) of Xinjiang and went upstream along the Tasihong River. After passing Tuzklak Daban, he turned westward to Aghzi Daban, where he took the line of today's highway and went up stream the Harastan River to Mazar, where he went north-west again at Arasal and crossed today's Sino-Pakistan boundary to Shimshal where he travelled to the west along the Shimshal River till "Sacred Rock of Hunza".

The line he took is the old route from China to Ji-bin (尉賓) and Wu-i-shan li (烏弋山離) in Han period.

The so-called "Ji-bin route (尉賓道)" in Han period is a branch of the south route of the "Silk Road". The branch did not pass Yarkand but went another way from Pi-shan. Under the headline of "Pi-shan Country" in Han Shu. Xi Yu Zhuan it reads, "To the south-west it (Pi-shan Country) is a distance of 1340 li to the state of Wu-cha (烏託). To the south it adjoins

Tian-du (天竺, i.e. Hindu). To the north it is a distance of 1450 li to Gu-mo (姑墨). To the south-west it is situated on the Ji-bin and Wu-i-shan-li

route. To the north-west there is communication with Suo-ju (莎車) i.e. Yarkand, at a distance of 380 li". In the description of Han Shu. Xi Yu Zhuan there is a strict distinction between "situated on the route" or "not situated on the route". In the above description Pi-shan" is situated on the Ji-bin and Wu-i-shan-li route to the south-west", which refers to the route from Pi-shan to Ji-bin and Wu-i-shan-li, while "to the north-west there is communication with Suo-ju". Thus it can be seen that the two routes to Ji-bin and to Suo-ju led to different directions and Pi-shan was the point where

they departed for each other. One can have a clearer understanding from Du

Qin (杜欽)'s description cited under the head-line of "Ji-bin Country" in the same chapter, of the routes Han's envoys took when escorting the tributaries from Ji-bin back home. It reads, "Starting in the area south of Pi-shan, one passes through some four or five states which are not subject to Han... In addition, they pass over the ranges [Known as the hills of the] Greater and the Lesser Headache, and the slopes of the Red Earth and the Fever of the Body. These cause a man to suffer fever; he has no colour, his head aches and he vomits; asses and stock animals all suffer in this way. Furthermore there are the Three Pools and the Great Rock Slopes, with a path that is a foot and six or seven inches wide, but leads forward for a length of thirty li, overlooking a precipice whose depth is unfathomed. Travellers passing on horse on foot hold on to one another and pull each other along with ropes; and only after a journey of more than two thousand li do they reach the Suspended Crossing." Du Qin also suggested, "Those of our envoys who have already received their emblems of authority should be permitted to proceed as far as Pi-shan and then to return."

Hou Han Shu. Xi Yu Zhuan also records, "one starts in the south-west of Pi-shan, passes through Wu-cha, crosses the Suspended Crossing, passes through Ji-bin and then arrives in Wu-i-shan-li Country after travelling for over 60 days." The route described is just the same as described in Han Shu.

Thus it proves that the branch to Ji-bin of the south route started from Pi-shan and never passed Suo-ju both in Former and Latter Han Dynasties. According to Han Shu. Xi Yu Zhuan in the west of Pi-shan there was Xi-ye

(西夜) Country which is situated in valleys to the south-west of today's

Ye-cheng (葉城) County of Xinjiang; in the west of Xi-ye there was Pu-li

(蒲犁) Country which is situated near today's Tashkurgan of Xinjiang. Both Xi-ye and Pu-li are subject to Han's Protector General of the Western — Regions. But Du Qin said that starting from Pi-shan south-westward to Ji-bin, one should pass through four or five mountain countries which were not subject to Han Dynasty. Thus it can be seen that the route did not pass through Xi-ye and Pu-li but turned straight to the south-west from Pi-shan and extended over today's Sino-Pakistan boundary just as described above. This route was surely to pass through the Hunza Valley and was that taken by

Envoy Gu Wei-long of North Wei. But from the Hunza Valley on the Ji-bin route of Han Dynasty extended southward along the Gilgit River and then the upper Indus River, which takes generally the same line of today's Karakorum Highway. It seems, however, that Gu Wei-long turned to the northwest from the Hunza Valley and took the way to Chitral. He surmounted the Hindukush, crossed the Amu-Darya and advanced in the direction of Samarkand to Mi-mi. This line that he took is not in the same direction with the Ji-bin route of Han Dynasty.

From the Hunza Valley down to south there have been discovered many inscriptions along the Karakorum Highway, among which there are quite a number carved by the travellers. This provides a strong proof that the way is the so-called Ji-bin route since Han Dynasty.¹⁰ The inscriptions in the Hunza Valley are those situated northern mostly in the Northern Region of Pakistan. Here the density of the inscriptions, the richness of their contents, the length of the time they covered are enough to prove that the spot was an important post on the ancient communication line. My private view is that the post is Wu-cha Country during Han period.

From Han Shu.Xi Yu Zhuan and Hou Han Shu.Xi Yu Zhuan we know that there was an important post—Wu-cha Country—on the way from Pi-shan south-westward to Ji-bin.

Han Shu.Xi Yu Zhuang records: it is a distance of 1,340 li from Pi-shan to Wu-cha and of 1,450 li from Pi-shan to Gu-mo (姑墨) near today's Aksu of Xinjiang). The distances from Pi-shan to Wu-cha and Gu-mo are relatively close. According to our estimation in the light of the proportion, the seat of Wu-cha Country should rightly be in the Hunza Valley.

Opinions on where Wu-cha Country was, always vary among scholars. In general, there are about 7 theories on Wu-cha's seat: Sarikol (= Taoshkurgan), Uddiyana, Aktash, Ladakh, Kafirstan, Badakshan area and in the Hindukush.¹¹ But I feel all the above theories can hardly be identified with what is taken down in Han Shu.

The theories vary so much because of the textual research depending only on pronunciation but denying the geographical facts, or fixing eyes on the later traditions but not in accordance with Han Shu itself. So they are not

worth being taken as authoritative. Prof. Qin Zhongmian (岑仲勉) prevailed over all the other dissenting reviews and held the theory of Uddiyana. His arguments against those theories can hold water. But in return, it is not convincing that the seat of Wu-cha is at Uddiyana. Qin suggested that the

centre of Wu-cha during East Jin (東晉) Dynasty was at Gilgit but not in Swat Valley, i.e. he thought Wu-cha during Han Dynasty was also at Gilgit.¹² Under the head-line of "Wu-cha Country" in Han Shu. Xi Yu Zhuan, however,

it reads, "It (Wu-cha) adjoins Zi-he (子合) and Pu-li (蒲犁) in the north and Nan-dou (犂鞬) in the west. (The habitants) live in the mountains and cultivate the land that lies among the rocks. There is white grass, and they build dwellings by piling up stones on one another. The habitants drink by joining their hands together. Here produces the short-pacing horse. To the west there is the Suspended Crossing ... what is termed the Suspended Crossing is a rocky mountain; the valley is impenetrable, so people had to traverse the place by pulling each other across with ropes." When I made an investigation in the northern part of Pakistan, I found that the geographical environment of Gilgit is absolutely different with that of "Wu-cha Country" described above. Gilgit is a basin surrounded with rocky mountains on which neither wood nor grass grow and the people can not live. All the habitants dwell on the lowland in the valley but not "live in the mountains". The farms are also distributed in the basin but not "among the rocks." The Gilgit River and the Hunza River meet in the basin and the banks are low. So it is unnecessary for the people to "drink by joining hands together". But the geographical environment of the valley in the middle reaches of the Hunza River — the central region of the Hunza Kingdom — is quite similar with what is described in Han Shu. Xi Yu Zhuan about Wu-cha Country. The place faces the easternmost ranges of the Hindukush to the north and in its west there is the westernmost part of the Karakorum. The valley is narrow and banks are high and steep. There are forest and grassland on the mountains. The habitants dwell at the height of the hillside or on the top of the cliff by the river. This is just in keeping with "living in the mountains". All the lands are opened up on the mountains. This tallies with "cultivate the land that lies among the rocks". Because the riversides are high and precipitous, it is probable for the ancient people to drink by joining hands together.

Studying from the point of view of pronunciation, the word "Hunza" is very probably developed from the word "Wu-cha". Under the headline of

"Wu-cha Country" in Zheng (鄭) said, 'Wu-cha is pronounced as An-na (鵑拏)'. But Shi-gu says, '烏 is pronounced as [ya], 拏 is pronounced as [zha]. If the words Wu-cha are uttered out quickly, they sound like An-na (鵑拏). But this is not the correct pronunciation'. Yan's explanation is right. But the pronunciation of "拏 [zha]" is far different with that of "拏 [na]". There is no reason to pronounce them the same way. Perhaps the word "na" is a corruption. According to Yan's phonetic notation, the ancient pronunciation of (烏) [Wu] is the same with that of [YA] (鵑) or [A]. So Wu-cha should be pronounced as YAZHA (or AZHA). The words "YA" or "A" and "AN (鵑)" are interchangeable, so YAZHA (or AZHA) can also be pronounced as ANZHA. There is no problem to develop ANZHA into HUNZA. If so, we can still find the ancient pronunciation of "Wu-cha" in today's place name "Hunza". Prof Qin Zhong-mian held that Zheng (鄭)'s phonetic notation of "An-na" should be combined with "Wu-cha" and thus pronounced as "WUCHA-ANNA" (烏拏鵑拏), which is the transliteration of Uddiyana.¹³ His arguments were set forth ingeniously. But it can hardly be true because there is no evidence favourable to it from any editions.

To sum up, we can conclude that this small mountain state Wu-cha must be in the valley that lies in the middle reaches of the Hunza River, where North Wei's Envoy Gu Wei-long passed and made his inscription, in accordance with the country's seat, distance to the other countries, natural geographical environment and the living conditions of the habitants as described in Han Shu. Xi Yu Zhuan and the phonetic development of the word "Wu-cha".

Of course, at the time when Gu Wei-long was sent on a diplomatic mission to Mi-mi, the political situation of Central Asia was quite different with that during Han Period. Pi-shan Country was annexed by Yu-tian (Khotan) Country early in the middle of the second century A.D. Though Gu Wei-long still took the old route of Pi-shan, we should say that he started from Yu-tian to the south-west. In Wei period, the travellers to Central and Southern Asia usually went by way of Yu-tian. When passing through the East Han-mi

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Fig 38 The Chinese Inscription

(東捍戍) city of Yu-tian, Song Yun (宋雲) saw that in the Great Temple in the south of the city "there are hundred-thousands pieces of variegated silks and streamers hanging in the hall, of which those presented by Wei constitute over half." 14 We can gather how many people came to Yu-tian from the territory of Wei Dynasty. Wu-cha Country probably also disappeared in North Wei Dynasty. The history of the place at that time is not so clear up to now. It can not be ascertained whether it was within the sphere of Hephthalitan influence or submitted to other conquerors. But so many inscriptions of the "Sacred Rock of Hunza" will surely provide treasurable materials for solving the problem.

NOTES

- (1) A.H. Dani, Human Records on Karakorum Highway, Islamabad, 1983, pp. 26-28.
- (2) A.H. Dani, Chilas, Islamabad, 1983, p.52, photo No. 39, p.59.
- (3) *ibid*, p.235.
- (4) *ibid*, pp.84-85.
- (5) *ibid*.
- (6) In San Guo Zhi.Wei Shu.Wen Di Ji (《三國志·魏書·文帝紀》) there is an imperial edict in the third year of Huang Chu (黃初). (A.D.222). It reads, "Now (the envoys from) the countries of the Western Regions all gather at Sai (塞, frontier fortress) and ask to become appendages to Wei. His Majesty sends envoys (to these countries) to placate them". This proves that the Wei Dynasty of Cao's royal family had dispatched envoys to the countries in the Western Regions. In Ming Di Ji (《明帝紀》) of the same book we are told that on the date of Gui-Mao (癸卯) of December in the third year of Tai-he (太和) (A.D.229) King of Great Yueh-chih Bo-diao sent envoy to present tribute and His Majesty conferred upon the King a title of "King of Great Yueh-chih Intimate with Wei." Bo-diao was a transliteration of Kushan Emporor Vasudeva.

Since Chao Wei conferred upon him a title, it should send envoy(s) to Kushan court. It is probably that the envoy(s) passed through the Hunza River.

- (7) Bei Shi (《北史》) written by Li Yan-sho (李延壽) was transferred from Wei Shu (《魏書》), Bei Qi Shu (《北齊書》), Zhou Shu (《周書》) and Shui Shu (《隋書》). But "Xi Yu Zhuan (《西域傳》)" of Wei Shu was lost later. So some people picked out those descriptions relative to the Northern Wei period to complete Wei Shu. Xi Yu Zhuan. When we quote materials from the work, we first depend on Bei Shi and the proof-read Wei Shu because there is discrepancy between a few sentences and words of the two works, which we can make use of in ascertaining editions.
- (8) G. Le Strange, *The Lands of the Eastern Caliphate*, London, 1966, p.465.
- See Ma Xiao-he, "On Bo-xi-de City of Mi Country" (米國鉢息德城考), *Journal of Central Asia Studies* (《中亞學刊》), Beijing, Vol. II. (in the press)
- (9) Ma Xiao-he, *ibid.*
- (10) Opinions on the seat of Ji-bin Country during Han period vary so much among the academic circles. But it is unnecessary to go into details of these opinions because Prof. Qin Zhong-Mian (岑仲勉) has enumerated many of them. See his (《漢書西域傳地理校釋》) (Check And Comment on the Geography and Distance Described in Han Shu Xi Yu Zhuan), Zhong Hua Press, Beijing, 1981, vol. I, pp. 150-164. Of those Qin has not enumerated or gone into details, see the following works and papers. W.W. Tarn, *The Greeks in Bactria and India*, Cambridge, 1951 (2nd ed.), pp. 469-473; L. Petech, *Northern India According to the Shui-Ching-Chu* (《水經注》), Roma, 1950, pp.63-80; A.F.P. Hulsewe, *China full support and co-operation. in Central Asia*, Leiden, 1979, p.104, note 203. I myself am deeply con-

vinced that Ji-bin in Han period referred to the area south of the Hindu-kush and west of the Indus River with the valleys of the lower reaches of the Kabul River and its branches being its central region, including Kapisa, Gandhara, Taxila, Uddiyana (Swat).

- (11) 白鳥庫吉 New achievement on the Research of the western Regions

History (西域史上の新研究), Studies of the Western Regions History (《西域史研究》), Tokyo, 1981. vol.I, pp.140-149. Qin Zhong-mian has made a detailed discussion on the subject. *ibid*, pp. 97-106; Also see, L.Petech, *ibid*, pp.18,69; A.F.P. Hulsewe, *ibid*, pp.98-99.

- (12) Qin Zhong-mian, *ibid*, vol, I, P.98.

- (13) *ibid*.

- (14) Yang Xuan-zhi (楊衒之): Luo Yang Jia Lan Ji (《洛陽伽藍記》),

checked and commented by Zhou Zhu-mo (周祖謨), Zhong Hua Press, Beijing, 1963, p.187.

III

CONSERVATION:

LAHORE FORT: CONSERVATION AND PROBLEMS

by

Ihsan H. Nadiem

(Plates: LVIII – LXXXIV)

The origin of Lahore is lost in the mysteries of the past. Its early history is attributed only to tradition and mythical personages. The location of Lahore in the fertile plains of the Punjab is, however, such that the land-route from Central Asia to the heart of India or further south, would usually let it play host to the northern invaders. It appears in the annals more frequently after the invasions of Sabuktigin and his son Mahmud of Ghazna. The latter's lieutenant, Ayaz, is said to have built a fort here¹ The scientific excavations carried out in the Lahore Fort, on a limited scale, by the Department of Archaeology and Museums in 1959², with the sole intention of unveiling the earliest period of the place, did not help much in that direction. Although a host of information was added to the existing knowledge on the stronghold yet the excavators could not strike on any definite conclusion.

Of the earliest period of Lahore virtually nothing survives above the ground. Nevertheless, it is studded with some of the architectural jewels of the Muslim period. These specimens of building art include monuments of religious and secular nature, standing out as inspiring accomplishments of strength with enduring beauty created by our ancestors. The monuments of Mughal period by far are the most significant land-marks in the glorious cultural heritage of Pakistan. Two of these gems, the Lahore Fort and Shalamar

Gardens, have already received universal recognition and have been inscribed on the world Heritage List³.

Situated at the north-western corner of the walled city, the Lahore Fort has its roots in the legendary period of pre-Islamic days. However, beginning with the Ghaznavid period (1021 A.D.), the fort has figured frequently in the succeeding dynastic rules of the Ghaurids (1186-1206 A.D.), Delhi Sultans (1206-1526 A.D.), the Mughals (1526-1759 A.D.) and the Sikhs during the 18th and 19th centuries. The existing buildings in the Fort essentially date from the Mughal period and represent architectural marvels of the Mughal Emperors namely Akbar (1556-1605), Jahangir (1605-1627) Shah Jahan (1628-1658) and Aurangzeb (1658-1707). It perhaps has the singular honour of portraying such a lengthy period of the Mughal architectural history, without a break at one single place, covering a period from sixteenth to eighteenth century.

The Fort has some 21 different monuments situated within its walls, of which the *Shish Mahal*, the *Diwan-e-Khas*, *Diwan-e-Am*, *Jahangir's Quadrangle* and *Alamgiri Gate* are among the most outstanding edifices. The Lahore Fort, with all its details, is too well known to be described here. It would suffice to have, at an appropriate place, a look on such structures which were the main venues of conservation work undertaken by the Department of Archaeology.

NEED FOR CONSERVATION:

Built more than three hundred years ago, these monuments have witnessed many vicissitudes of time. They were the worst victims of shabby treatment by its occupants who owned them after the Mughals. The Sikh rule in the Punjab wrought havoc upon these marvellous monuments which were stripped off their decorative elements. The ruthless plunder of old buildings at their hands left them not only denuded and in dilapidated condition, but also affected their capacity to withstand the onslaught of natural destructive agents such as rain, fluctuations of temperature and winds. The incongruous additions and alterations in these buildings carried out by the Sikhs and later on by the British, to suit their own ends, marred their beauty and changed many of their original features. Sikh rulers are mainly responsible for most of this pillage and also spoiling the delicate beauty by erecting unsightly structures and executing crude form of decorative art.

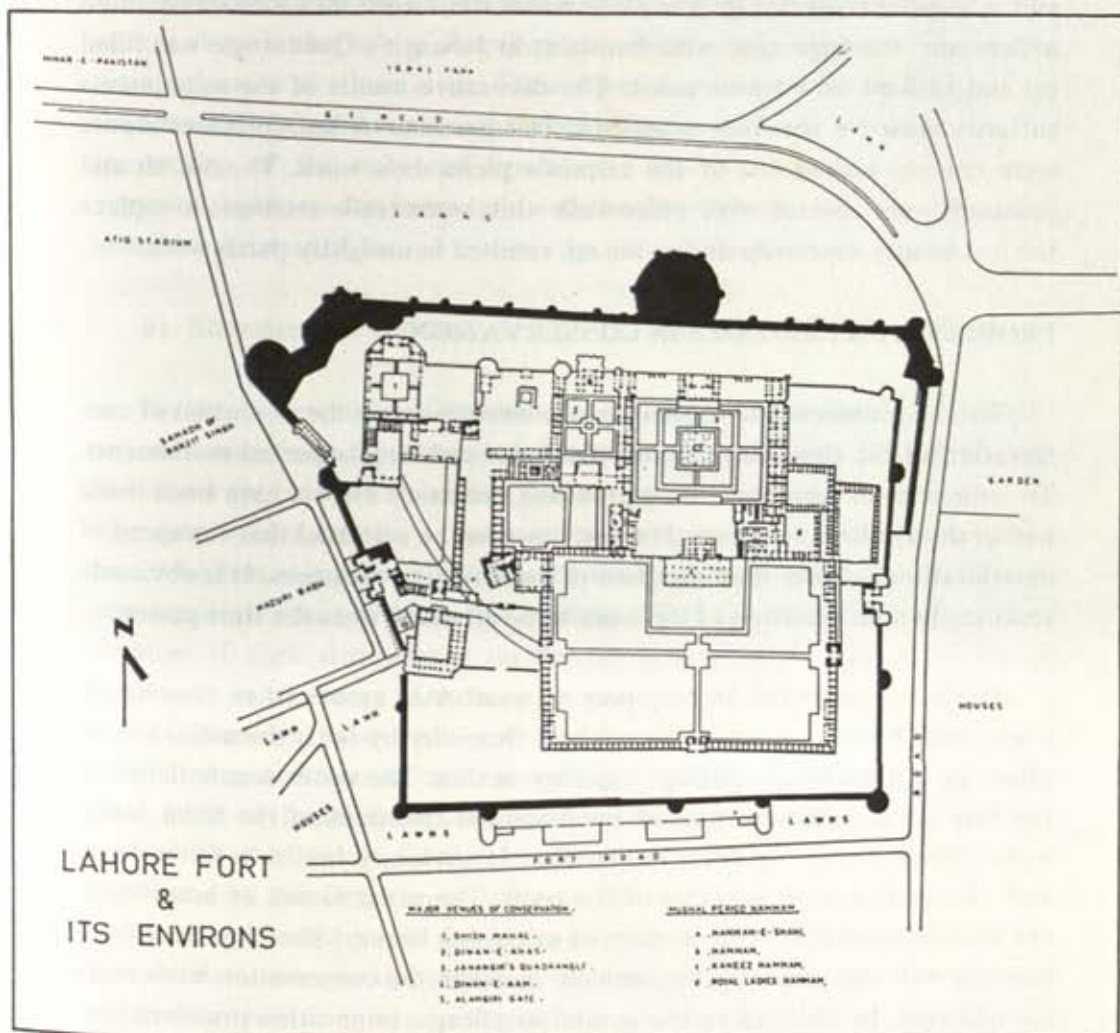


Fig: 37 Lahore Fort and its Environs.

The period of the Great Anarchy after the death of Ranjeet Singh saw the Fort being fired with cannon balls which shattered the roof of *Diwan-e-Am*, in addition to causing damages to a number of other buildings, especially in the western area. The British army erected several barracks and structures inside the Fort. The *Diwan-e-Khas* and *Diwan-e-Am* were converted into a chapel and a hospital respectively. The *Shish Mahal* was turned into a residence of an officer and the large tank with fountains in Jahangir's Quadrangle was filled up and utilised as a tennis court. The decorative motifs of the monuments suffered most by the Sikh vandalism. The precious or semi-precious stones were crudely picked out of the exquisite pietra dura work. The murals and paintings were covered with white wash while some crude attempts to replace the lost beauty especially during the *raj*, resulted in unsightly patch work.

PROBLEMS/DIFFICULTIES IN CONSERVATION:

Serious problems and difficulties are being faced in the execution of conservation to the time-worn, human-plundered and long-neglected monuments. To overcome or surmount these problems, relentless efforts have been made within the available resources. It must, however, be admitted that the speed of deterioration is faster than the pace of conservation measures. It is obviously resulting in multiplication of the work to be attended to as the time passes.

The monuments fall an easy prey to weathering agents when time has already dealt a severe blow to their fabric. Humidity by far is the major enemy attacking the buildings through capillary action. The water accumulating in the very thick walls and roofs of the basement chambers of the *Shish Mahal* mainly finds its way out from the facades. It obviously results in faster decay and disintegration of the faces of the walls. The worst victim of humidity is the wall decorated with tile mosaics of surpassing beauty. The chunks of fortification wall also give way occasionally to make the conservation work more complicated. In addition to the natural handicaps, some other problems confronted in the field of conservation/preservation of these monuments are as follows:

i) Paucity of Financial Resources

The monumental buildings when given to the charge of the Department of Archaeology, were mostly in very bad shape. Human vandalism and gradual decay over a long period of their survival had left deep scars on their faces. In a number of cases, the very fabric of the buildings had tottered. Therefore,

efforts could be confined only to the worst hit portions as the financial allocations did not permit launching of comprehensive schemes of conservation. For many years, just a paltry sum continued to be allocated on yearly basis, which hardly met even the bare minimum cost of their maintenance. The approval of a Development Scheme in 1973 made it possible to attend to a few principal buildings. Realising the importance of the cultural heritage in the life of the nation vis-a-vis the rate of deterioration, the fund allocations for Lahore Fort were enhanced at a later stage. These amounts, however, fell short of the total requirements of each monument when taken as a whole. Moreover, much of the utility of the enhanced funds were neutralised by the inflation that appeared between the formulation of the Development Scheme, its approval and the execution.

ii) Shortage of Craftsmen

As the conservation of monuments is a very specialised operation completely different from the repairs of structures of recent date, craftsmen trained in this art are required to achieve desired results. The Department of Archaeology employed a number of persons belonging to the families of such craftsmen who had migrated to Pakistan at the time of independence in 1947. The remuneration was not attractive to them. They also found the jobs insecure because of their dependency on the yearly budgets. It was, therefore, not possible to retain many of them on permanent basis. Since there was no incentive for them in their trade, the experienced craftsmen avoided to bring up their next generation or train some other workers. The situation would not have been so hopeless if more lucrative prospects for them had not been opened by the Middle Eastern countries. It is, indeed, ironical that an old craftsman of the Department after getting the coveted President's Pride of Performance Award would leave the country immediately to get his share of petro-dollars, completely forgetting his obligation to the nation. He also manipulated to take along some other good craftsmen, thus leaving a wide vacuum difficult for the Department to fill. The problem can only be solved if these craftsmen are offered a secure and prosperous future in the Department of Archaeology within the country.

iii) Shortage of trained personnel

The Department mainly depends upon the old and trained personnel who have acquired sufficient skill and experience in the conservation field over the past years. These technical jobs are not as attractive in the Department as else-

where. Serious difficulties are encountered in employing new recruits who would fill the place of the old professionals in due course. The resultant effect is obvious. The Department now has shortage of technical personnel, especially at the lower echelon, making it difficult to cope with the ever-increasing demands of the profession.

iv) Non-Availability/Shortage of required material

In the preservation and restoration of the monuments most of the material used may be termed as of non-conventional class. The stones of different kinds and colours including precious and semi-precious ones, *kankar lime*, *surkhi* etc. are not commonly used now-a-days and as such not freely available in the market. Some material is not available within the country. Sporadic procurement of this material from some odd sources brings with it many difficulties and variations in quality, not to speak of the high charges. To overcome such hurdles, bulk supplies are sometimes acquired but experience has shown tht it is not practicable on every occasion and in all the cases.

CONSERVATION MEASURES

In view of the havoc played with the monuments by human vandalism and natural calamities, the task of their conservation and restoration, on scientific lines is quite challenging, especially so when the conservation and restoration of the monuments involved intricate processess, completely different in form and spirit from those applied in the repair of new buildings. The primary objective of conservation is not only to preserve the original components of a monument but also to take such measures as would give them a longer lease of life and maintain their authenticity unimpaired. The restoration, where necessary, is to be carried out in the technique and materials used by the original builders. The complete reconstruction of an antiquity is the least-wished job in restoring the ancient structures.

The Department of Archaeology and Museums, Government of Pakistan, accepts this challenge and is endeavouring to do its best to (i) check their further decay; (ii) conserve/preserve existing monuments with their original features and (iii) restore the elements essential for their proper understanding and strengthening the dilapidated portions.

In addition to the normal steps in this direction special development scheme was formulated for the Lahore Fort in 1973. The Master Plan was

originally estimated to cost Rs. 10 millions⁴ aimed at completing the job within stipulated period of five years. However, the funds could not flow evenly and as planned. This and other odds, of course, affected the over all progress especially in the face of rising costs. This had necessitated the revision of this Master Plan. The revised scheme has already been prepared and is estimated to cost Rs. 3.77 millions⁵, spreading over five years. If the funds are made available according to the planned programme, there is no reason why the Lahore Fort should not have much-strengthened fabric alongwith revival of its pristine glory in decoration.

The architectural marvels of the Lahore Fort are currently being attended within the available resources. Many of the targets as envisaged in the Master Plan for the conservation and preservation of Lahore Fort have been achieved. More concerted and ceaseless efforts are required to catch up with the speed of decay which, according to the UNESCO experts, is faster than the pace of conservation works. Whatever has been done so far has given a new lease of life to the Fort. The present state of preservation vis-a-vis the conditions prevailing prior to the commencement of these plans, bears an eloquent testimony to the improvement brought about.

a) Shish Mahal

Located in the north-western corner, the *Shish Mahal* (Hall of Mirrors) is one of the unique and most profusely decorated palaces of the Mughal period. Built by Emperor Shah Jahan in 1631-32 A.C. the palace consists of a spacious lofty hall with smaller rooms. The north or back wall in the central chamber consists of large marble screen tastefully carved out in tendril design.

The main decorative features are (i) the *Aienakari* or the mosaic work in convex mirror glass (the so-called Aleppo glass) with *Munabat Kari* or stucco tracery, (ii) gilt work, (iii) *pietra-dura*, specially in the spandrels of the arches and on the bases of the double columns carrying superb multicusped arches, and (iv) the marble screens of extra-ordinary beauty and perfection skillfully carved in geometrical and tendril designs. The chambers were originally decorated with fresco paintings and gilding but later on glass-mosaic work was executed on the wall.

Naulakha Pavilion, located on the western side of the *Shish Mahal* court, consists of a single rectangular room with curvilinear roof and a perforated marble screen on the back. It is famous for its chaste workmanship of minute

and delicate *pietra-dura* work.

The interior of the Hall of the *Shish Mahal* profusely decorated with convex mirrors fixed on plaster base is in fair state of preservation. During rainy season, however, the high relative humidity in the atmosphere, affects the ornamented surface and as a result, few mirrors here and there get loose. This is a natural phenomenon and being aware of the process, the conservation staff remains alert and attends to the loosened mirrors promptly.

The roof of the building although suffering a lot, withstood the ravages of time. In order to save it from avoidable damages and to give an additional lease of life, it has been provided with a "second-defence-line" of G.I. sheets⁶. Some of these sheets which are showing ageing signs, are now planned for replacement.

The semi-precious stones used in *pietra-dura* work on the columns of *Shish Mahal* were badly plundered during the Sikh and British times. The *pietra-dura* work has been repaired or redone in some portions, but the work is visibly slow since not only is it intricate and delicate but also the few craftsmen trained in this highly specialised work were lured away to the Middle East. It would be interesting to note that the damage as seen over the designs of flower petals, etc. shows so vividly the treatment meted out by Sikhs or the British soldiers in the past. No attention was paid to this work during pre-independence days. The work is now being attended to, but it will take some time before the whole damage is rectified.

The paintings exposed after the removal of overlying layers of plaster in the niches of verandah have been kept under covers of transparent perspex sheets ever-since their recovery to save them from any further damage.

New marble *Jalis* (screens) in original geometric designs and decorative motifs have been provided on the north of *Naulakha* Pavilion. Other damaged portions are also being taken care of gradually.

The *Shish Mahal* being one of the most important buildings of the Mughal period is looked after with extra care, and ceaseless efforts are made to improve its standard of maintenance. Some of the items of work included in the Master Plan comprise restoration of *sange-badal* flooring in compound, tessellated flooring in the verandah, redoing the *pietra-dura* work on the columns bases, fresco paintings, marble *mahtabi* in the centre of the com-

pound, repairs to mirror work, restoration of the underground chambers etc.

b) Basement Chambers

The basement chambers of the *Shish Mahal* were used by the Mughals as "*Sard Khana*" or summer house. They had long been neglected as they remained in possession of the Civil Defence Department even after the cultural importance of the Fort had been realized. At long last the chambers were handed over to the Department of Archaeology in 1973. Based on a careful study, conservation strategy was then devised. The conservation work required a great deal of patience as thick layers of white-wash had concealed the fresco paintings of the Mughal and the Sikh periods. These layers were removed carefully with the result that original paintings have been recovered at many places. Original fountains and beautiful cascades have also come to light during the course of conservation in these basements. The floor of the chambers has been restored in terraced *kankar* lime while the walls have been plastered with similar material. The large cracks appearing in the roofs, which incidentally serve as the ground for *Shish Mahal* complex, have been grouted and well finished. The *Jalis* (screens) in their western openings are planned to be provided.

c) Diwan-e-Am

The lofty hall of forty pillars, the *Diwan-e-Am* or Hall of public audience was added by Shah Jahan in 1631-32 to the Akbar period '*Daulatkhana-e-Khas-o-Am*' with its *Jharoka* or the Royal Balcony. The Hall also had its share of destruction during the Sikh anarchy when it was hit by fire of cannons mounted on the *Badshahi* Mosque minarets. It was rebuilt by the British to serve as an hospital.

Traces of railing in marble around the Hall and that of red sand stone on three sides of the platform suggested the exquisite beauty of the decorative elements. The red-sand stone railing, originally in the technique of carpentry – in Buddhist style – has been redone, bringing back much of the grandeur of the high-rising Hall in the back. The task not only required a factual visualization of the whole arrangement of the railing which had a striking similarity with that of Feroz Shah Tughlaq's Tomb (1285 A.D.) but also a mastery in stone craftsmanship. This difficult project, included in the Master Plan, has almost been completed very successfully.

d) Jahangir's Quadrangle

The work on the construction of a quadrangle was commenced by Akbar the Great and completed by his son and successor, Jahangir in 1617-18 A.C. It is now known after the latter's name. This spacious quadrangle is bound by a row of chambers in its east as well as on west. The frontage of these chambers is in red sand stone with richly carved columns and elaborately sculptured stone brackets. This quadrangle also could not escape the vandalism of the Sikhs and indiscriminate use by the British military.

The Master Plan prepared by the Department of Archaeology and Museums envisaged at correcting the damage done by the inconsiderate alien forces. A sizeable work on restoring the missing eaves (*chhajjas*), stone-brackets depicting animals, carved lintels, replacing of damaged roofs has been completed. The Master Plan provides for filling the gaps in the eastern and western rows by constructing new chambers on original patterns to give the monument a look of completeness. The red sand-stone screens are being provided at their original places.

e) Diwan-e-Khas

Due attention is also being paid to other buildings in the Fort from within resources available to the Department of Archaeology. The outstanding among them is *Diwan-e-Khas*. Built in chaste white marble by Shah Jahan in 1645 A.C., it lies to the east of the *Lal Burj* in Shah Jahan's Quadrangle. In addition to its graceful shape of arches, the pavilion, *Diwan-e-Khas*, is embellished with exquisite inlay work, tastefully carved white marble screens and marble floor in intersia of different colours in geometric designs. The marble ceiling of the building is also very attractive.

The monument is now in good state of preservation. The whiteness of the marble has slightly lost its brightness due to the effect of atmospheric agents like smoke dust, etc. To save it from alkaline or acidic action, the *Diwan-e-Khas*, like other marble buildings, is periodically washed with glycerine soap and distilled water.

f) Alamgiri Gate

Another important conservation work in the Fort was the strengthening of the structure of the *Alamgiri Gate*. Built by Aurangzeb Alamgir, the Gate

had seen many ups and downs of history right upto the creation of Pakitan. In view of its dangerous condition it remained closed for over thirty years. Major conservation measures taken at and around the monument made it possible to reopen it as the main entrance, so imposing for a gigantic fort.

g) Environs of the Fort

In order to save further decay and destruction at the hands of encroachers, laying of green lawns with Iron-grill boundary was provided in the Master Plan. The work has since been completed and has proved helpful in safeguarding the exterior of the Fort.

While talking of the conservation/restoration of the monuments in the Lahore Fort it should clearly be kept in mind that these structures were erected by the emperors with virtually immense imperial treasures, and perhaps without the like of present-day restraints. It would certainly require resources on a still larger scale, especially in the face of multitude of problems, as already discussed, to keep them in presentable condition with sound fabric.

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IV

MISCELLANEOUS:

PROTECTION OF MOVABLE CULTURAL HERITAGE

by

Shaikh Khurshid Hasan

The Cultural Heritage of a country serves as a mirror through which one can peep into its hoary past. The Cultural Heritage thus not only enables us to determine the achievements of a nation in the field of art and culture but also serves as a stimulus for the present generation to follow the foot-prints of their fore-fathers and take the nation as a whole to the path of progress and prosperity. Every civilized nation, therefore, takes pride in the preservation of its Cultural Heritage and treats it as a sacred trust. In this context the memorable words of Sir Winston Churchill are so relevant to be remembered.

'The Cultural Heritage has considerable influence upon the psychological, political, cultural and religious life of the people. To check this change, Mr. Churchill told the people of England 'not to demolish the bombarded house of Parliament, but to re-build it in its original architectural style'. For he said, 'we first change the structures, then structure changes us'.

The man is, however, the worst enemy of its own Cultural Heritage. These hard words might appear to be an exaggeration, but they have a grain of truth in them. The last two World Wars played an havoc with the Cultural Heritage. The destruction of Cultural Property during the World Wars and its pillage at the human hands has led the nations to think of devising positive measures to

avert this danger. The most comprehensive international instrument on the protection of Cultural Property in the event of armed conflict was adopted in 1954. It is popularly known as the Hague Convention of 1954 and is complementary to the earlier Conventions of 1899 and 1907. In terms of the Protocol of this Convention, the contracting parties undertake to prevent the exportation of Cultural Property from a territory occupied by them during the wars. Similarly they undertake to keep in their custody Cultural Property imported into their territory and to return, at the close of the War, to the competent authorities of the territory previously occupied. The provisions contained in the Hague Convention of 1954 do not meet the situation in peace time. Hence there was a need to prepare an international instrument which could afford due protection to the Cultural Property in normal conditions.

The first attempt in this direction was made in 1933 when the International Committee on Intellectual Cooperation had prepared a draft Convention on the repatriation of objects of artistic, historical or scientific interest which had been lost, stolen, or illegally exported and submitted it to the member States of the League of Nations. It contained extensive provisions for the protection of national heritage but its implementation was fraught with certain legal complications. Moreover, it was liable to have created difficulties in international trade. Many a government objected to it for these reasons. It had therefore to be given up. Again a draft Convention on 'Protection of national, historic or artistic treasures' was prepared. This draft Convention recognized the right of every other State to claim the repatriation of all objects of archaeological, historical and artistic interest which were in its territory but were lost, stolen, alienated or exported contrary to the laws of the claimant State. This draft Convention was also considered by Cairo Conference in 1937 but could not make any headway. For the third time, another effort was made to draft a new Convention in 1935. It related to the protection of national collection of art and history. But the outbreak of 1939 War prevented the adoption of this draft Convention. Between 1933 and 1935, a treaty on the protection of movable property of historical value was drafted by the Pan American Union and signed in Washington on 15th April, 1935. The Treaty was ratified by Chile, El Salvador, Guatemala, Mexico and Nicaragua. The main provisions of Washington Treaty 1935 were :-

- (a) Before the antiquities as defined in the Treaty can be imported into a signatory country, the Custom Officials must require the importer to produce official documents authorising export from the country of

origin if the latter is party to the Treaty.

- (b) The Custom Official of a country into whose territory an attempt is being made to import movable antiquities belonging to a signatory without the required authorization, should confiscate such objects and hand them over to the Government of the country of origin so that the latter may impose the penalties provided for in the case of illicit export.
- (c) A signatory Government cognizant of the illicit export of an object of cultural value from its territory may approach the Government of the country to which it has been transferred so that the latter can take appropriate steps to have the objects restored to the country from which it was improperly removed. and
- (d) The signatories to the Treaty also declared that movable antiquities are never to be treated as war booty.

The Washington Treaty of 1935 was, however, of a restrictive nature. Its area of operation was limited. Moreover, this Treaty was hardly applied in practice. The need for an international instrument was still being felt. The General Conference of UNESCO at its 9th Session (1956) adopted a recommendation on International Principles applicable to Archaeological Excavations. Though it relates primarily to archaeological excavations, yet it also contains certain recommendations so as to check clandestine trade in antiquities and illicit export of archaeological finds. Some of its main provisions are:-

- (a) Each member State should consider the adoption of regulations to govern the trade in antiquities, so as to ensure that this trade does not encourage smuggling of archaeological material.
- (b) The museums to which archaeological objects are offered for sale should ascertain that there is no reason to believe that these objects have been procured by clandestine excavations, theft or any other method regarded as illicit by the competent authorities of the country of origin. Any suspicious offer and all details thereof should be brought to the notice of the services concerned. When archaeological objects have been acquired by museums, adequate details allowing them to be identified and indicating the manner of their acquisition should be published as soon as possible. and

- (c) Excavation Services and museums should lend one another assistance in order to ensure or facilitate the recovery of objects derived from clandestine excavations or theft and all objects exported in infringement of the legislation of the country of origin.

This 'Recommendation' too did not meet the situation as it covered only one aspect of the Cultural Property. Another positive step was, therefore, taken by UNESCO at its General Conference (13th Session) held in November, 1964, when it adopted an International recommendation on the means of prohibiting and preventing the illicit export, import and transfer of ownership of Cultural Property. This was followed by an International Convention on the same subject which was adopted by the General Conference of UNESCO at its 16th Session in November, 1970. The essence of the Recommendations and Convention is that the country of origin accepts the burden of obligation to preserve and protect its Cultural Heritage through the establishment of appropriate national services and the maintenance of export controls while the importing countries would support these measures through certain important areas of cooperation. These measures include :-

- (a) The obligation of each country to prohibit the import of Cultural Property stolen from a museum, public monument, of similar institution in another country and, upon request, to recover and return such stolen property.
- (b) Any country whose Cultural Heritage is put in jeopardy by pillage of archaeological or ethnological materials may call upon other affected countries to participate in a concerted international effort to determine and to carry out necessary concrete measures including the control of exports and imports and international commerce in the specific materials concerned. Participating countries would take measures to prevent injury to the Cultural Heritage of the requesting country.
- (c) The countries agree to provide for legal actions for the recovery of Cultural Property by or on behalf of the rightful owner. and
- (d) The countries would take necessary measures to prevent institutions from acquiring cultural property illegally exported from another country.

The International Council of Museums also adopted a Code of Ethic for the Museums (1971), which, inter-alia, contains the following provisions :-

- (a) With due regard to legal requirements and UNESCO Recommendations and Conventions, the museum which has reason to doubt the licit quality of a previously acquired object should contact the museum or other professional organization in the country of origin with a view to examining in each particular case, the steps what should be taken to best preserve the interest of both parties.
- (b) If a museum is offered objects, the licit quality of which it has reason to doubt, it will contact the competent authorities of the country of origin in an effort to help this country safe-guard its National Heritage. and
- (c) Gifts and bequests should only be accepted with a provision that in the event of any object proving to have been illicitly exported from another country, the authorities of the museums should be empowered to take action as above.

The growing threat to the Cultural Property through illicit trade was considered by the International Council of Museums' (ICOM) meeting of Experts on the Protection of Cultural Property in Southeast Asia, held in Malacca, Malaysia, on 12th and 13th December, 1972. The recommendations to stop the illicit trafficking in Cultural Property include (a) posting at all entry and exit points summaries of laws regarding the restrictions on export of antiquities and cultural materials, (b) issuance of circulars to all foreign missions, international and other foreign organizations calling to their attention the existence of such laws and further instill in their own diplomatic corps the awareness that the preservation and protection of the Cultural Heritage is the concern of everyone, (c) inclusion of relevant provisions of law or summaries of such provisions in all tourist brochures and in official travel documents such as immigration forms and landing cards which are given to tourists and others, (d) increase in the administrative staff in order to ensure effective implementation of the enactments regarding the protection of Cultural Property, (e) maintenance of illustrated registers of all their holdings of Cultural Property, published catalogues to establish proof of ownership and publicise such objects, using all available means, including the mass media; and further, that similar provisions be applied to private collections when feasible,

(f) licencing of dealers in antique and art objects by the National Museums or appropriate Government Agencies, so that a strict check may be kept on them to prevent illegal transactions, especially exportation of Cultural Property, (g) review of the existing acquisition budgets and acquisitions policies of their museums and take urgent steps to acquire directly from all sources such Cultural Property deemed to be of national or local, historic and aesthetic importance, for the benefit of future generations, (h) all antiquities and other Cultural Property permitted to be exported should be adequately documented by relevant authorities and that importing countries check these documents in consultation with National Museums or other appropriate authorities, when necessary, (i) Government Agencies concerned with the issue of export licenses be requested to inform their National Museums of items of Cultural Property proposed to be exported before they are lost to the nation concerned, (j) all countries in Southeast Asia inform each other of their relevant export licence procedures to ensure that illegal transactions in Cultural Property are prevented, (k) formulation of bi-lateral agreements with their neighbouring countries and the major importing countries to prevent illicit trafficking in Cultural Property, (l) Notification to International Council of Museums, Paris, and each other, of dealers known to conduct illicit trade in cultural property, (m) use of all available means, including the mass-media, to educate their people on the importance of protection of cultural property and further especially educate those relevant authorities, such as the Customs Service and the Police, on the importance of protection of Cultural Property, so as to allow for the development of an effective policing force to preserve the national Cultural Heritage.

The International Charter on the Conservation and Restoration of Monuments and Sites (Venice, 1964) also makes it incumbent on the comity of nations to take appropriate measures for the protection of Cultural Heritage. The depredation of movable Cultural Property like antiquities and works of art still continues despite the UNESCO Convention and Recommendations on illicit Import, Export and Transfer of ownership of Cultural Property (1970). The ICOM Ethical Acquisition Code in no way remedied the situation.

The United Nations Social Defence Research Institute, Rome (UNSDRI) has conducted some studies on the protection of the artistic and archaeological heritage. The studies are based on the researches carried-out in India and Italy. The Italian study gives an account of existing legislation and practices and focuses its attention on art and archaeological assets of the community. The Indian study on the other hand deals more directly with the problem of

thefts and illegal exports and on the measures taken on the enforcement of law. It reveals serious deficiencies of the control system, partly attributable to lack of resources and partly due to the inadequacy of international co-operation at the normative level. The studies have revealed that in Italy 1329 cases of thefts had occurred from 1st January 1970 to 30th June 1973. In India, the situation was also not satisfactory where 1640 theft cases were registered between 1969 and 1973. In India, the thefts were attributed to the following factors:-

- (a) Adequate surveying and cataloguing were important pre-requisites not only to give scholars and the public real access to the artistic and archaeological patrimony, but also to allow the identification and tracing of stolen objects. It was observed that specific description of the stolen objects essential to allow Police and Custom authorities to trace them were rarely available.
- (b) It was reported that surveillance in museums and on archaeological sites was quite deficient. Part-time attendants were appointed. They took the job lightly and were generally found absent from duty. The museums are under-staffed to the extent that sometime there were no guards on duty during lunch hours.
- (c) There were delays in reporting thefts to the Police. This obviously affects the ability of the Police to take early action and at times to recover the stolen items before they leave the country.
- (d) The Care-takers and Guards are under-paid and can thus more easily be bribed by the thieves. and
- (e) Defective licensing system to allow export of antiquities and objects of art.

The Study, based on the conditions prevalent in India, considered the following steps necessary to minimize the theft of antiquities and art objects:-

- (a) All articles of cultural importance which are easily portable should be removed to some secure places under the direct supervision of a responsible officer.

- (b) Indelible or light coloured paint should be used as a distinguishing mark on the more valuable and rare pieces to allow their subsequent identification in case of theft.
- (c) Roads, hotels and aerodromes concerned with un-lawful activities touching cultural property should be watched by the Police and full particulars including photographs of notorious art-thieves be given adequate publicity.
- (d) In-service training should be given to the Custom Staff so as to enable them to identify antiquities.
- (e) Every case of theft and recovery of cultural property should be made a special report case.
- (f) Involvement of local population both in the administration and protection of their artistic and archaeological assets. and
- (g) The Interpol Headquarters should be in close contact with its branches throughout the world and maintain a register of stolen art objects which should be periodically circulated to all the countries in the world. Besides, Interpol should also keep a list of suspected art dealers and bring out a journal circulating all the major thefts of antiquities in the world.

The Government of India is contemplating to make a provision in the Act administering the protection of monuments, corresponding to that contained in the 'Unlawful Possession (Telegraph Wires) Act'. Such a provision would in fact reverse the burden of proof. Any person found in possession of antiquities would be held to have committed an offence under the Act unless he could satisfactorily establish the innocence of his possession.

The Government of India have enacted a new legislation 'The Antiquities and Art Treasures Act 1972' which is in replacement of the earlier Act of 1947. The purpose of the Act is primarily to regulate the export trade in antiquities and Art treasures and to provide for the prevention of smuggling of and fraudulent dealing in antiquities. According to the Act, no person can himself or through an intermediary carry on the business of selling or offering for sale any antiquity except under licence. The licences are issued for a period of three years and can be revoked prior to their expiry. No licence is

granted to those persons who are convicted under the Act, for a period of ten years after their conviction. Licensed dealers are required to maintain records, photographs and registers of antiquities in the prescribed forms. The dealer is under obligation to mention identification marks, material, size and age. The UNSDRI have suggested that weight of an object should also be indicated. The dealers are further required to file monthly returns indicating the name of the persons to whom antiquities have been sold.

According to the view of an Italian Expert, the damage caused by theft to works of art is not limited to their economic values alone. Even when an article of modest value is taken away, a part of the historical fabric of the country disappears, thus damaging not only the artistic heritage but also the environment and the background of the work itself which analytically loses part of its importance. The UNSDRI was of the view that the various countries should ratify the UNESCO "Convention on the means of prohibiting and preventing the illicit Import, Export and Transfer of ownership of Cultural Property". However, this step will be effective only if the Convention is ratified not only by exporting countries but also by importing and transit countries. It has also been suggested that bilateral agreement for recovery and return of stolen archaeological, historical and cultural property should be encouraged. The instance of the bilateral treaty signed between U.S.A. and Mexico (1971) is cited. On the face of it, the suggestion appears to be very good. But it also involves practical difficulties. In case of U.S.A., institution of civil proceedings is rather difficult in view of lawyer's high fee and a possible problem of limitation. Moreover, under U.S. Customs legislation, unless it is proved that the importer actually knew that the piece was stolen, only then the Court can take cognizance of the offence. Such a positive proof is rather difficult to produce.

The view of the participants of a Workshop held in Sicily (1975) was that art had a role to play beyond its place of origin, thus Greek and other east mediterranean art brought to Rome had a major effect on the development of Roman culture. The same could be said for Egyptian, West African and Japanese art in modern Europe. So it was desirable to sell or authorize the export of minor or duplicate objects rather than incur the risk that they be transferred by illegal means. The UNSDRI also holds the similar view. In its opinion, by acquiring an art object, the Foreign Museums were in fact saving valuable cultural assets which if left to the guardianship of the State, would be exposed to certain deterioration or oblivion. This view does not, however, have any moral support.

While commenting upon the UNESCO draft Convention (1970), the Curators of the University Museum, Pennsylvania in a Press release dated 1.4.1970 observed:-

"Practically all countries now have strict controls on the export of antiquities, but it is clear that such controls do not stop the looting and destructions of archaeological sites, probably because of high prices paid for antiquities in the international market made it impossible for the countries of origin to stop the movement across their borders.

It is the considered opinion of the University Museum group of archaeologists and anthropologists who work in many countries throughout the world that import controls in the importing countries will be no more effective than the export controls in the exporting countries. Probably the only effective way to stop this wholesale destruction of archaeological sites is to regulate the trade in cultural objects within each country just as most countries in the world today regulate domestic trade in food-stuffs, drugs, securities and other commodities. The looting of sites is naturally done by the nationals of each country and the illicit trade is carried out by them and by the nationals of many countries. Hence the preservation of the Cultural Heritage for mankind as a whole is, infact, a domestic problem for all nations."

The growing consciousness all-over the world towards the preservation of the Cultural Property prompted UNESCO to adopt yet another Recommendation for the protection of movable Cultural Property at 20th Session of its General Conference held at Paris on 28th November, 1978. In pursuance of these Recommendations, member countries are required to undertake, inter-alia, the following steps :-

- (i) Systematic inventorying and cataloguing of Cultural Property.
- (ii) Prevention of risks by a comprehensive system of practical security measures and technical installations.
- (iii) Conservation of movable Cultural Property in accordance with the techniques and the most advanced scientific methods and technology.
- (iv) Arrangements for regular training of the staff engaged on protection, conservation and security of Cultural Property.

These recommendations also urge upon the member countries to ensure the preservation of collections in private hands. This may be done by providing facilities to the owners to make inventories of their collections, financial benefits to those who donate or bequeath Cultural Property to museums, incentive to the owners for the conservation of items listed in national inventories. A number of other measures have also been listed, including governmental guarantees in certain cases.

The second Asian Regional Assembly of ICOM held at Bangkok (December 10 - 15, 1979) also made a number of recommendations most important among which is enactment of a legislation by all countries in Asia, prohibiting the re-export of objects illegally taken from neighbouring countries.

To sum-up, it is the considered view of the Experts that every country should make its own endeavours to control the destructive trade in antiquities. Once an art object has crossed the national borders it is difficult to retrieve it to the country of origin without the moral and active support of the international community. A study published in 1939 by the International Institute of Intellectual Cooperation rightly remarked that :

"It is the accepted view among the general public today, and the same view is reflected in the attitude of governments, that countries in possession of artistic treasures are merely the repositories of such property and are hence accountable to the community for it. The principles corollary to this general truth are immediately apparent; any damage inflicted on this heritage, either by those who have it in their keeping and fail to tend it as required for its preservation, or by those who, for whatsoever reason, destroy or tamper with any part of such property or fail to make it available for the general enjoyment or of study, is prejudicial to mankind as a whole, present and future generations included".

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MUGHAL PERIOD HAMMAMS IN THE CITY OF LAHORE

by

Ali Muhammad Khan Lundkhwar

(Plates LXXVIII–LXXX)

INTRODUCTION

In this paper the word "bath" is taken to mean a receptacle or a house for exposing the body to water vapour or hot dry air for the purpose of cleanliness or of cure. Baths are, therefore, institutions for the promotion of health and cleanliness and are an essential part of house and town planning. Thus the bath, private or public, aims also at privacy, though bathing in the open, in streams, tanks and rivers has also remained popular especially in tropical countries. Besides the main function of promoting health, the baths developed in many countries into places of luxury or social contact and were provided with gardens or stadia.

Fragmentary remains of baths have come to light in the Egyptian palaces, in the city of Moenjodaro of the Indus Valley Civilization (2300-1700 B.C.), but it is the Aegean civilization that provides the earliest well preserved ones in the palaces of Conosus and Phaistos (C 1700-1400 B.C.). Though baths were constructed everywhere and in every period, it was in the organising genius and love of luxury of the Romans that the technique of bathing developed to a degree never to be excelled.

Among the Muslims, bath-architecture developed further as in Islam great value is attached to the use of water, not only for religious and ablutionary purposes, but also in city and social life. Baths, fountains, reservoirs and aqueducts of great beauty were built throughout the Islamic world. The architecture developed either from the primitive eastern bath tradition or through the adoption of the Roman system. It is more than likely that Muslim bath architecture developed through the merging of the two.

Traces of early Muslim baths have been recovered in the little *Umayyad* palaces of *Qusayr Amr* and *Hammam As-Sarakh*. *Qasayr Amr* stands on the southern edge of the bed of the *Wadi Butm* in the desert east of the northern end of the Dead Sea and about fifty miles east of Aman. The baths of *Qasayr-Amr* and *Hammam As-Sarakh* are identical in plan having three chambers. These early Muslim baths bear close resemblance to two pre-Muslim local examples at *Abda* and *Ruhabya*.¹ In these early Muslim and pre-Muslim baths not only is the number of rooms the same, but also the method of roofing is identical; viz. A tunnelvault for the epodyterium, a crossvault for the tepidarium and a dome for the calidarium.

Baths or Hammams² of many Muslim dynasties are still intact and throw sufficient light on their architecture at different times and in various regions of the Islamic world. In the baths of the *Seljuk* period at *Konya*, the *Ottoman* period at *Istanbul*, or the *Mughal* period at *Delhi* and *Agra*, the central plan is more or less the same with a disrobing room, a warm room and the Roman hypocaust technique.

The hammams in the city of *Lahore* are in disuse and, therefore, the interior are unattractive today. To give a fairly good idea of their interiors and functions, N.M. Fenzers description of Sultan's bath (*Hunkar Hammami*) in the city of *Seraglie* is recorded.

"It consists of the usual three rooms, the general scheme throughout being one of brightness and lightness, white marble and tall narrow columns with stalactite capitals being employed. On entering from the corridor there is a small room now almost entirely devoid of decoration so that it is difficult for the imagination to clothe the wall with gorgeous golden hangings encrusted with myriads of pearls like these still to be seen in the *Seraglie* Museum. Heavy Persian rug covered the floors, and low sofas upholstered in

gold and silver embroidery and piled with cushions lined the walls. A bejewelled *nargileh* and coffee-set more or less completed the furniture in which one recognizes the undressing and rest-room. In 1934, a rather pathetic attempt was made to enable tourists to recognise the original function of the room by installing a sofa with white hangings along the right hand side.

On the left, is a small lavatory of the usual Turkish type, to the right of which another doorway leads into the *Hunkar sofasi*. The second room is the tepidarium. From a central corridor small rooms lead off on either side, the entrance to each being flanked with slender white columns. That on the left contains a marble wall fountain.

A lavish use of white marble, relieved by the introduction of gilt ironwork, makes the third and last room, the calidarium, the most beautiful of all. Here, there is little call on the imagination as everything being of marble or iron has remained *in situ*. Passing in through a finely wrought iron-gilt door, one is at once attracted by a really beautiful cascade wall fountain at the end of the room. A closer inspection shows that the boiling water was introduced from a room behind. The water fell into a marble bath beneath which, raised on a marble step, stretches the entire breadth of the central part of the wall. The bath itself is narrow and long, like ordinary western baths, and at each end is a seat with a high back and a single arm-rest facing the room and displaying a conventional decoration in a panelled surrounding. All is in white marble. In front of the bath is a movable concave stepping stone, also of white marble. In each corner of the room is a beautiful wall fountain enclosed by four tall pillars similar to those in the second room, but one, without columns, is that nearest the centre of the room.

To the left of the entrance is the chief wall fountain, where the more intimate operations of the bath were carried on. It is raised on a semicircular platform and is divided from the rest of the room by a pierced gilt partition with

a door in the centre. A small window to the right looks into the left hand corner fountain room between the four pillars. On the opposite side is a similar, though much less important, wall fountain. It does not have a separate partition, but a small window commands a view of the tepidarium.

Thus we see that the three-room arrangement of the ordinary public baths was closely followed in the royal selmilk. The hottest water would be in the long bath, and the wall fountains would be regulated at varying temperatures according to the purposes they served. In the second room the water would be much cooler, for use in closing the pores of the skin in preparation for the most wonderful part of the bath relaxation in the rest-room to the accompaniment of the soothing *nergilen*, slices of melon covered with snow, steaming black coffee in the bejewelled *finjan*, the crystal glass of delicately perfumed sherbet, or whatever else royal fancy might dictate"³.

SHAHJEHANI HAMMAM INSIDE LAHORE FORT

Historical Description

The royal bath or Hammam, adjacent to the *Shahjehani Khwabgah* was constructed on the orders of the Mughal emperor, Shahjehan, in 1843 A.H. (A.D. 1633), under the superintendence of Wazir Khan. An account of Shahjehan's repairs and construction in Lahore Fort, taken from contemporary work of Mohammad Salih Kamboh, is given below:-

Having performed these things, the Emperor turned his whole attention to repairing buildings of the palace of the capital of Lahore, which had long remained uncared for. As the buildings of the *Ghusalkhana* (bath room) and *Khwabgah* were not in reality pleasing to the Imperial mind in their plan and style, architects, versed in geometry, according to the exalted orders sketched new, wonderful and charming plans and laid them before the fastidious eye of their master. The Emperor put it under the superintendence of Wazir Khan and other overseers of Lahore to lay the foundation and execute the plan which was selected from these,

MISCELLANEOUS:

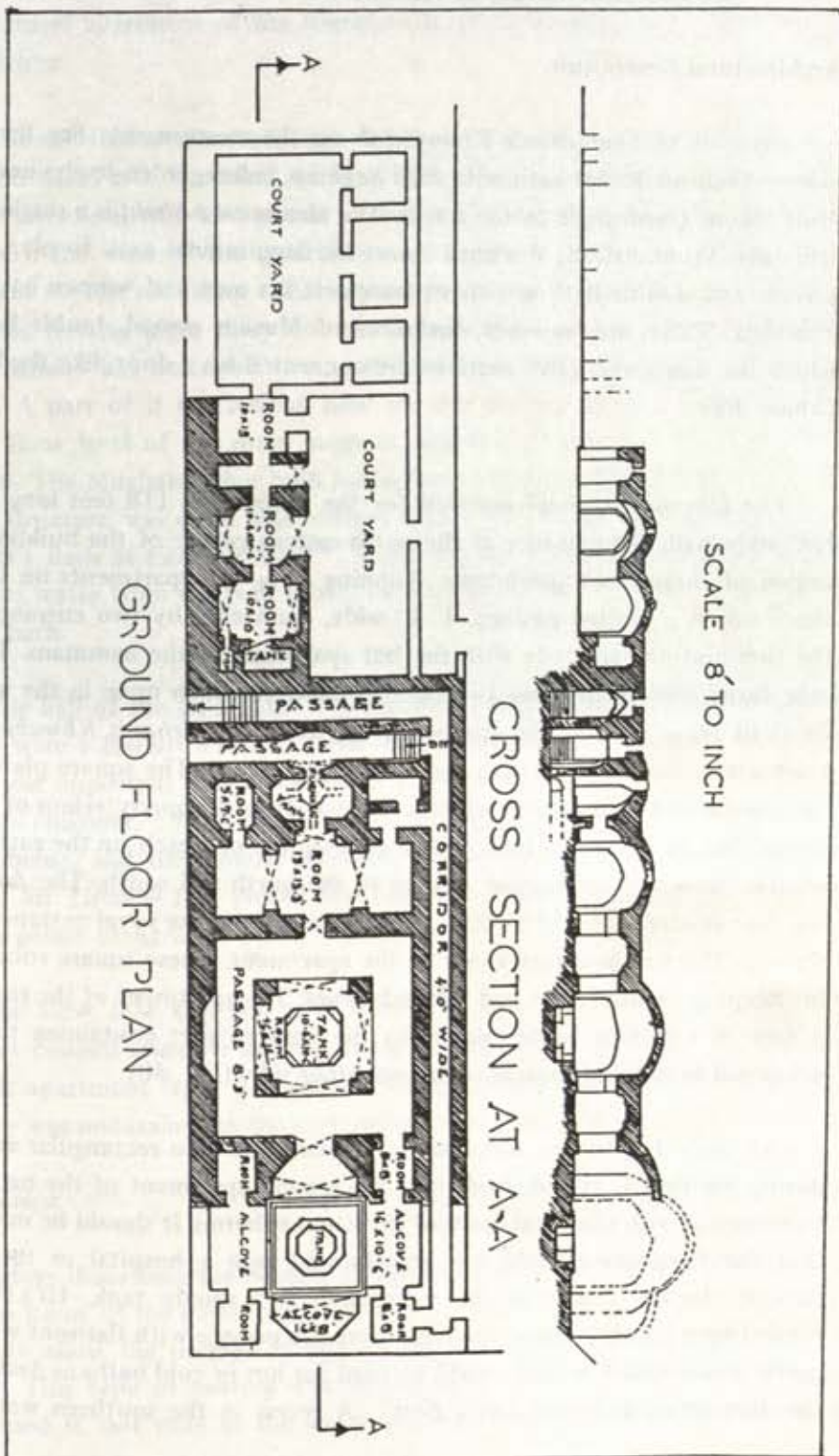


Fig: 40 Shahi Hammam inside Lahore Fort.

(ordering) that they should finish it before his return from his successful journey to Kashmir⁴.

Architectural Description

Adjacent to *Shahjehan's Khwabgah* on the western side lies the *Hammam-e-Shahi* or Royal bath with *Pien Bagh* i.e. ladies garden to the north and *Moti Masjid Quadrangle* to the south. The *Hammam-e-Shahi* is a single storey structure, symmetrically designed about the longitudinal axis. In plan, it is a private and double bath as two separate sets for men and women have been provided. There are however, instances of Muslim period double baths in which the ladies and gents sections are connected by a door, like the bath of *Orhan*⁵ *Bey*.

The *Hammam-e-Shahi* reserved for the Emperor is 118 feet long and 46 feet wide with the entrance at the north-eastern corner of the building, consisting of three main apartments. Running along the apartments on the northern side is a vaulted passage, 4' 4" wide, connected by two entrances with the first and one entrance with the last apartment of the hammam. The passage turns and divides into two parallel passages which open in the south in front of *Moti Masjid*. The apartment adjoining *Shahjehan's Khwabgah*, was known as *Jamakhana* (dressing and undressing room). The square platform in the middle of the *Jamakhana* which corresponds to the apodyterium of Roman thermae has an octagonal tank with a semi-dome, one each on the eastern and western sides and rectangular alcoves to the north and south. The *Jamakhana* has four square rooms (8½' x 8½') at each corner and the royal entrance passes through the north eastern room of the apartment. These square rooms were for keeping royal clothes and refreshments. The apartment of the royal bath is now in a ruinous state except for the western part containing the semi-octagonal alcove with square rooms on either side. (Fig. 40).

An arched entrance, blocked and divided into two rectangular entrances during the British period, leads into the second apartment of the bath which corresponds with the tepidarium of the Roman thermae. It should be mentioned that the *Hammam-e-Shahi* was transformed into a hospital in the British period⁶. In the centre of the tepidarium is a square tank, 10'x10' 3'-8", topped by a dome. Around the tank there is a passage with flat-roof which has partly collapsed. The tank could be used for hot or cold baths as desired, like the *Hamam-e-Shahi* and *Delhi Fort*⁷. A recess in the southern wall of the

tapidarium indicates that the space was occupied by a couch of pleasing design for the repose of the Emperor. Such a couch of marble still exists in the central apartment of the Hammam inside the Delhi Fort⁸, also built by Shahjehan.

The third or western-most apartment, corresponding to the caliderium of Roman bath, is a three bay spacious hall (37'-6" x 13'-4") built in a north-south direction, with two rooms at the south western and north-western corners. To the west of the central bay is a reservoir for water with a furnace beneath it. The rooms on either side of the reservoir are hot baths to which metallic feeding pipes carry hot water from the reservoir. Mohammad Wali-ullah Khan⁹ has described the north-western room as the *Baitul Khala* (latrine). A part of it was indeed, used for this purpose in later times. The original floor level of the room suggests that this portion was raised at a later period. The Mughals either built independent latrines or else the laterine in the bath structure was quite independent entity of the bathing apartments as in *Hakim's bath at Fatehpur Sikri*¹⁰. Moreover, the existence of a metallic pipe for hot water from reservoir proves beyond doubt that the room was used for a hot bath.

The hall of the tepidarium also served the purpose of holding meetings, as baths were a favourite resort of the Mughal emperors and in them business of the most important nature was often transacted. It was also used as a cabinet council chamber.¹¹ None but nobles of the first rank were admitted into these apartments, and the Mughal emperors discoursed on different subjects with them. Sir Thomas Roe visited the Emperor Jehangir in the Shahi Hammam in the palace of Agra¹².

The view that this hall with transverse arches served the purpose of a cabinet council chamber is also strengthened by the independent entrance to this apartment from the vaulted passage. Thus, even during the meeting, privacy was maintained in the first and second apartments of the Hammam.

Hypocaust

Before describing the heating arrangement in this bath, it will be interesting to know of the development of this system. It is an open space below the floor to allow the passage of hot air and smoke in order to heat the room above. This type of heating was developed to a high degree by the Romans who used it, not only in the warm and hot rooms of the baths, but also in

private houses. The usual construction of hypocaust consisted of a layer of tiles, 2ft. square piers approximately 8'' square and about 2 ft. apart as supports and over it a floor of concrete or of large square tiles supporting a bed of concrete, on which the finished floor of marble or mosaic was laid¹³.

The Roman system was adopted by the Muslims as the earliest Muslim period bath at *Qasyar Amra* has a well developed hypocaust system constructed on exactly the same principle as in the baths of *Caracalla*¹⁴ (A.D. 212-16). The Roman hypocaust system was maintained throughout the Islamic world in private as well as public baths. The Mughals also followed this system in their *Hammams* inside Delhi Fort, Agra Fort, Lahore Fort, Fatehpur Sikri, etc.

The hypocaust system of the *Shahi Hammam* inside *Lahore Fort* is in the western wall of the tepidarium below the hot water reservoir. The furnace of the hypocaust is below the reservoir of the tepidarium, with an opening in the vaulted passage. The furnace was once covered with, perhaps, a metallic sheet, giving maximum heating to the water. Three flues of the furnace extend below the floor of the three apartments of the *hammam*, making it a hanging floor called *suspensura* in Roman baths and is supported by piers at regular short intervals, as in the floor of *Qasayr-Amra*¹⁵.

The western part of the *Hammam-e-Shahi* was reserved for ladies as this part of the hammam is near the *Haram* and is separated from the eastern one, reserved for the emperor and discussed earlier, by a partition wall in the vaulted passage. Similar passage, 7 ft. wide, also runs in alignment on the northern and western sides of the ladies' bath.

Today, its architectural character has been spoiled by subsequent additions and alterations and this set of *Shahi Hammam* is now mostly in ruins. (Pl. LXXVIII) Only two rooms in the south-eastern portion of the ladies' bath are intact and useful from the bath-architectural point of view. Room G with an arched recess in the north and south face, is the bathing chamber of the ladies' set. In the thickness of the eastern wall of this room are two reservoirs for storing cold water. This room is entered from a square domed room H, with chamfered inner angles, which in turn opens into a vaulted passage I (4'.3') running in the north-south direction.

The passage not only opens into a courtyard to the north of these chambers but also in a rectangular chamber (10'x13') to the west, now almost in ruins, thus making the three stages i.e. *Apodyterium* (undressing room) *callidarium* (hot room) and *tepidarium* (warm room), which was a standard plan in bath architecture.

Foundations of three rooms, in the north western part of the ladies' bath, with a courtyard in front, are also observed. The ladies' set had three entrances; two entrances, 4' wide each opened in the *Pien-bagh*, while the third entrance from the *Shish Mahal* was blocked by the construction of the *Sikh Gurdawara*, built by Ranjit Singh, (1799-1838 A.D.).

AQUEDUCT ARRANGEMENT.

On the southern side of the *Makatab-Khana* is a circular masonry well. The water of this well was raised to the roof of the *Makatab-Khana* with the help of persian-wheel and a water channel used to convey water to the *Shahi-Hammam*, of which traces are still intact on the top of the facade wall of the rooms between *Moti Masjid* and the *Shahi Hammam*. Further indications of the aqueduct arrangements are not traceable except for the existence of a rectangular tank on the roof. Traces of a terracotta pipe bedded in the walls are observed. This supplied water from the reservoir to the different apartments of both sets of *Hammam-e-Shahi*.

MATERIAL AND DECORATION:

The *Shahi Hammam* is built of small size bricks as used in Mughal period buildings, with lime as bonding material. The interior and exterior have been thickly plastered with *chunam* and *kankar* lime. Externally, it lays no claim to architectural beauty as it is unadorned except for thick plastering with a grim look. Although the outer aspect of the Hammam is uninviting, the interior must have been exceedingly attractive. Traces of variegated marble used in the first apartment (undressing room) along the octagonal tank are still intact. The tessellated marble flooring in the south-western and south-eastern corner rooms of the apartment suggests that the floor was tastefully laid. A similar marble pavement must have been provided in the whole of this bath, which, however, was removed during the Sikh period and some of it was used in the pavement of *Hazuri Bagh Baradari*¹⁶.

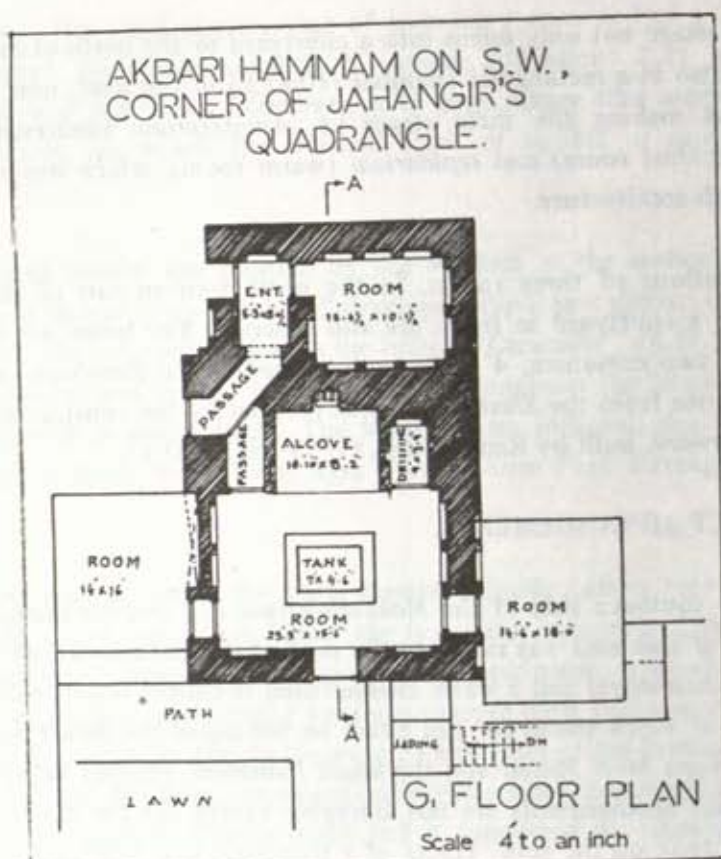


Fig: 41.A : Akbari Hammam on South-West corner of Jahangir's quadrangle.

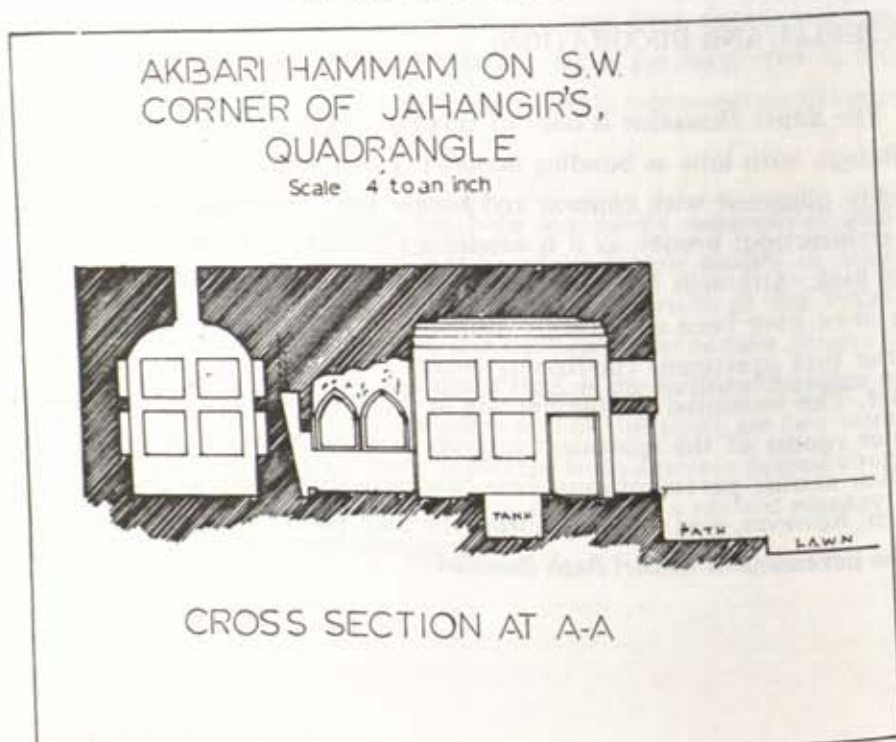


Fig: 41.B : Akbari Hammam on South-West corner of Jahangir's Quadrangle.

The whole building appears to have been unornamented although regular carved panels exist in some rooms of the bath. These rectangular and arched panels have pointed borders.

There are no windows in the walls and, like the pantheon at Rome, said to have been best lighted building in the world, light was admitted through a circular hole in the top of each dome covering the rooms. The holes were provided with gratings to keep rain out and yet to admit light to the rooms. The domes over the various apartments are very low and not visible from the outside.

AKBARI HAMMAM LAHORE FORT

HISTORICAL DESCRIPTION

In the south-western corner of the *Jehangir Quadrangle* exists (fig. 40) part of a luxurious bath, which from its location and superb decoration appears to have been for the personal use of an emperor. The bath actually has in the north-western corner of the *Daulat Khana-e-Khas-o-Am* (Hall of special and common audience) of Akbar built about 1566 A.D. No particulars regarding Akbar period buildings in Lahore Fort are available except one that contained a *Diwan-e-Am* of 114 bays (*Aaiwans*). The bays were extant in Sikh time, as shown in the old maps. However, Mullah Abdul Hamid Lahori has referred to a bath in the fort and today many scholars are of the opinion that this is the same *Akbari Hammam*.

The Moghuls termed these baths as *Ghusalkhana*. For this reason, the whole buildings of the court of *Khilwat Khana* containing the private and personal residence of the Moghul emperor was also called *Ghusal Khana*. The *Khilwat Khana* in the Lahore Fort, the *Diwan-e-Khas*, buildings inside Delhi¹⁸ gate were sometimes termed *Ghusal Khana* and Mullah Abdul Hamid Lahori remarks on this term. Its English translation is reproduced below¹⁹:-

"In the reign of his Majesty (Akbar) whose abode is heaven, between the *Diwankhana* (hall of audience) and the royal *harem* there was a room in which the emperor used to bathe. In this place some courtiers received admittance and the Prime Minister and the pay-master also, being honoured by the royal presence, presented to the Emperor

their urgent requests. In the course of time the private apartment for the reason of having a bath room built near it became known by the name *Ghusalkhana*, and so it was on the lips of the highs and low, but now it is called by the public the '*Daulatkhana-e-Khas*' as the most holy majesty has named it.

ARCHITECTURAL DESCRIPTION

The royal bath today consists of two rooms connected by a passage and lies in a north-south direction. The northern room (Fig. 40) with a rectangular entrance of red sandstone in each face, has a central cistern (7'0''x 4'6''). In the southern wall of the room is an arched alcove with a beautifully carved red sandstone cascade in the centre. To the west of the alcove is a small dressing room, (see plan) tastefully decorated, which gives a fairly good idea of the interior of a royal *hammam*. The room had tessellated marble flooring, traces of which still exist. The walls are decorated with beautiful floral and lineal motifs in frescoe, as well as with some human and angel figures, done during Sikh period (1799-1846 A.D.). The walls are plastered with fine lime mixed with marble powder giving a smooth shining surface. The semidome of the alcove is decorated with excellent *ghalib-kari* giving it a starry effect. During the British period the decorations of this beautiful room were plastered and used as a kitchen with the result that the entire interior was covered with a thick layer of soot. The superfluous plaster, white wash and blockings have now been removed to reveal all these features. The southern room having a circular hole in the centre of the roof for light is panelled in two rows without any decoration, and quite in contrast in construction and decoration to the decorated northern room.

Every *hammam* of the Muslim period, be it in Lahore, Agra, Delhi, Fatehpur Sikri, Istanbul, Busra, Sarghlio or Granada, consists of three apartments i.e. dressing room, coldroom and finally the hot room. The decorated room with a cascade is, no doubt, the central apartment of the *hammam* and is provided with cold water from the top. If we believe that the southern room is a dressing room, then the warm room should be to the north, which is impossible due to the topography of the area.

The conclusion drawn is, that the *hammam* did not lie in north-south direction but in east-west direction. The decorated room is the second or central apartment with an apartment on its east and west, remains of which are

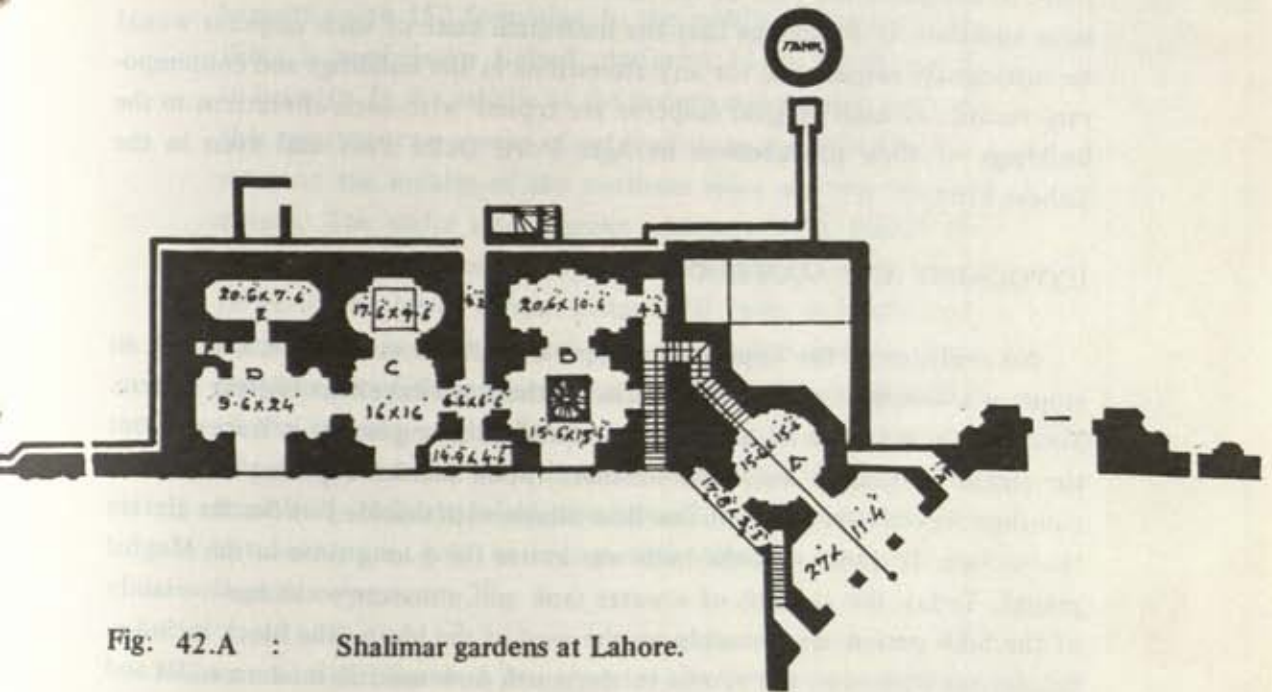


Fig: 42.A : Shalimar gardens at Lahore.

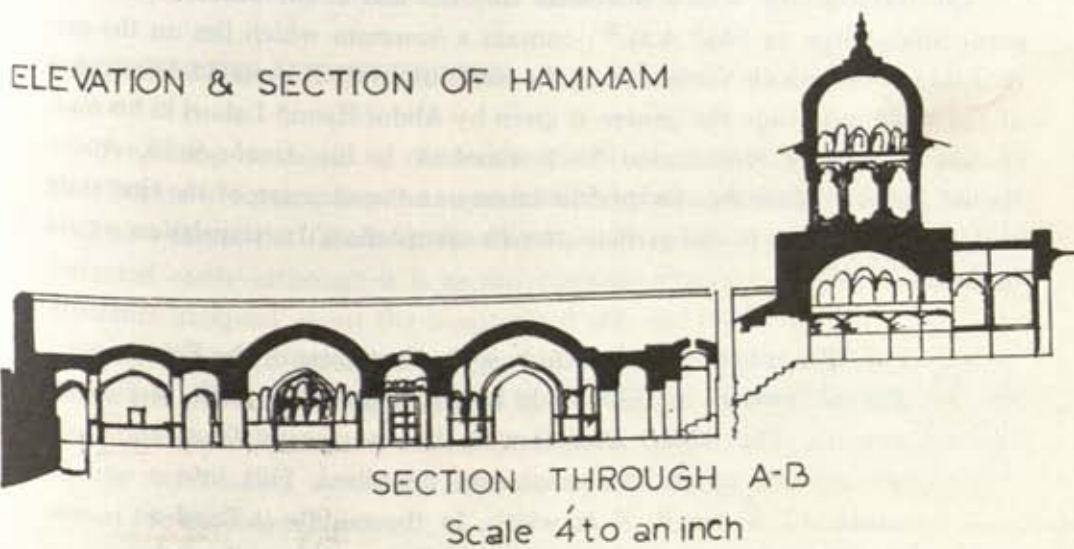


Fig: 42.B : Shalimar gardens at Lahore.

there to complete the plan of the *hammam* and thus the southern room is a later addition. It is obvious that the individual taste of each emperor would be sufficiently responsible for any alterations in the buildings and contemporary records of each Moghul emperor are replete with such alterations to the buildings of their predecessors in Agra Fort, Delhi Fort and even in the Lahore Fort.

HYPOCAUST AND AQUEDUCT

No evidence of the hypocaust system is available on the site, although an emperor's *hammam* cannot be justified without an excellent heating system. Similarly no evidence of any original aqueduct arrangement is traceable but the recent restoration inside the northern room, besides exposing the frescoe paintings, reveals six layers of fine lime mixed with marble powder for glazing the surface. It shows that the bath was in use for a long time in the Mughal period. Today the remains of a water tank and a masonry channel certainly of the Sikh period are traceable on the roof of the block (the block includes, besides the *hammam*, the rooms to the south now used as modern toilet and testify to the fact that the *hammam* was not only used in the Mughal period, but also in the Sikh period.

HAMMAM INSIDE SHALAMAR GARDENS (figs. 42 A & B)

The terraced and walled Shalamar Gardens laid at the order of the Emperor Shah-Jehan, in 1462 A.D.²⁰, contain a *hammam* which lies on the eastern side of the middle terrace along the enclosure wall. A detailed description of the buildings inside the garden is given by Abdul Hamid Lahori in his *Badshahnama* and by Mohammed Salih Kamboh in his *Amal-e-Salih*. Abdul Hamid Lahori²¹ describes the middle terrace on the occasion of the first state visit of Shah Jehan to the garden after its completion. Its translation would read as:-

"The middle terrace, which is the first stage of the *Faiz Bakhsh* garden, is 330 yards in length and 96 yards in breadth. The water, after flowing like a cascade from a seven yards square cistern already described, falls into a canal, 12' in length 8' in width. In the middle is fixed a marble seat with *chinikhanas* on all four sides, through which water is thrown up and in front of which is fixed a marble throne. (The water) then flows to the reservoir in

the middle of this stage 72 yards in length and 72 in breadth, with 152 fountains. In the middle of the reservoir there is a *chabutra* (raised platform) 11 in length and 8 in breadth. In the middle of the eastern and western sides of this reservoir two *aiwans* of red sand stone are built. On two sides of the middle of the northern sides are two marble *aiwans*. The water after passing underneath the middle of these two *aiwans* and having split itself into three cascades, flows to the lower terrace cistern, 10 yards in length and equal to the breadth of each of the other two cascades. The *chinikhanas* of these cascades are similar to the *chinikhanas* of the cascade of the *Farah Baksh* garden. On the eastern side of this terrace there is a *hammam* (bath suite), having beautifully delicate inlaid ornamentation, and comprising a hot bathroom, cold bathroom with running water; and a large dressing room."²²

Mohammad Salih Kamboh has repeated the description of Shalamar Garden in his *Amal-e-Salih*, with slight variation in language and expression. Describing the structures of the second terrace he describes the *hammam* as:

"A *Hammam* has been built on the east of this garden which is fully decorated and embellished with inlay work. The Hammam has no parallel in its beauty"²³.

ARCHITECTURAL DESCRIPTION

Projecting outward in the eastern wall of the second terrace, near its south-eastern corner, lies the royal bath. As the inner surface of the eastern wall also serves the facade of the *hammam*, therefore the structure cannot be detected easily although it is an architectural ornament. It is a single storey structure designed about the longitudinal axis and much less lofty in order to utilize the heat to better advantage. In plan, the *hammam* (Fig. 42 A, B)) is a single and private bath, approached by two entrances one from the first and the other from the second terrace. It suggests that the *hammam* was also used by the royal ladies, as one entrance opens into the upper terrace exclusively meant for the Royal Harem.

The entrance to the *Hammam* from the *Farak-Bakhsh* or royal Harem, is through a semi-octagonal alcove which leads into an octagonal chamber

(15'6" dia.) with a projecting balcony over-looking the middle terrace. This room is in the north-eastern octagonal tower of the *Farak Bakhsh*, surmounted by a sand stone pavilion and approached by flight of steps on either side of the alcove. Similar octagonal towers with sand stone pavilions exist at each corner of the first and north-east and north-west corners of the third terrace. The octagonal room of the first terrace leads through a flight of steps into a narrow passage lying in an east-west direction and having an entrance into the middle terrace. Two doorways lead from it to the first apartment of the *hammam*.

The bath consists of three main apartments running from south to north. The first or the southern most room was the *Rakht Khana*, the place for dressing, also called *Jamakan*, the apartment wherein garments were removed, corresponding to the apodyterium of the Roman Thermi. It consists of two parts. The western part, cruciform in shape, contains a square fountain basin in the centre. This domed chamber with five modern rectangular slits in the western wall for light, fresh air and an outer view, was for refreshment before and after bathing. The eastern rectangular part, with an independent opening from the passage, is the dressing room. The *Rakht Khana* is separated from the next apartment by a vaulted space, opening outside the garden on the east and now blocked. The western end of this passage terminates in a narrow rectangular room and was for the management of the *hammam* and for maintenance and cleaning with the washer coming to the notice of the residents inside the garden.

The next or central apartment, corresponding to the tepidarium of the Roman bath, also consists of two parts. The western part is a square chamber (see plan) with chamfered inner angles and arched recesses on the eastern and western side. The eastern oblong octagonal part with an arched recess in the eastern wall, contains a square water tank (8'x8'x4'3") in the centre. This tank could be used for hot or cold baths as desired. Five modern²⁴ rectangular slits in the western wall, as in the first apartment, served the purpose of access to light, fresh air and for a view of the second terrace. A rectangular opening leads from it to the last apartment of the *hammam* which corresponds to the calidarium of Roman Thermi. It is cruciform in shape with a rectangular tank in the northern arm. The tank has a marble jet at each corner, except in the south east, moulded in the shape of a lions head. This apartment has two water reservoirs of which the eastern and larger reservoir is in oblong octagonal shape with two terracotta feeding pipes, similar in shape and function to

the reservoir of the *hammam* of the Shah Jehan period in the Lahore Fort already discussed. It has a circular opening in the floor covered by a metallic sheet to ensure maximum heat from the furnace beneath the floor. The other water reservoir is in the thickness of the wall of small dimension and used to store cold water. By mixing hot and cold water of desired temperature, it was received in the tank. Such an arrangement also exists in the ladies' bath of *Shahi-Hammam* in Lahore Fort, discussed earlier.

HYPOCAUST

Traces of the hypocaust system exist in the hammam at *Shalamar garden*. It is in the eastern wall of the calidarium below the hot water reservoir with the outlet outside the garden, now almost buried in the debris. The hypocaust was similar in function and technique to that inside Lahore Fort and described in detail earlier. That the pavement of the bath is a hanging floor, can be easily detected from an opening in the passage separating the first and second apartments. The opening shows that the floor of the *hammam* and the ground are 3'7" apart. The hanging floor might have been supported by short piers at regular intervals. It might also have had flues for heating the bath, like the hammams at other places.

ACQUEDUCT ARRANGEMENT

The main supply to the garden was made by the 100 miles long *Shah Nahar* (Royal Canal), brought from a point near the village of Rajpur (Noor Pur), the result of the combined efforts of Ali Mardan Khan, a well known canal engineer, and Mulla Ala-ul-Mulk Tuni, an expert in hydrology. Additional supply was received from two large wells one to the west and the other to the east of the first terrace. The one to the west, known as *Bara-Harta* (Twelve wheeled), is still operational. The eastern well supplied water to the *Hammam* by means of a masonry channel. The masonry channel, running along the eastern wall of the *hammam*, not only supplied water to the tepidarium reservoirs but also to a spacious water tank in the south-eastern part of the *hammam*. As the masonry channel is above ground level, it was approached at two places by flight of steps. The steps and the circular well, shown in the plan of the *hammam*, built at the close of the last century, are lost now. Similarly, the eastern entrance of the vaulted passage, operating the first and second apartments, have since been closed. After feeding the *hammam*, the masonry channel takes its course on the top of the peripheral wall and reaches

the lowest terrace, similar to the water channel of *Bara-Harta* on the west. An idea of the eastern well can be had from Latif's description of *Bara-Harta* to the west of the upper terrace. He describes it thus:

"The well is quite extra-ordinary, and from its enormous size, more resemble as a tank than a well. The circumference exceeds 200 feet and the depth is very great. In the time of the Mughals, a grating of iron was fixed at some depth below the surface of the water with the object of facilitating the packing out of the earthen post (*Tinds*) with which water is drawn".²⁵

The supply of the well was either considered insufficient for the *hammam*, or it was not considered wise to depend on it solely, a water channel was arranged from *Shah-Nahar* also. The water of the canal enters into the Shalamar Garden from the south to the upper-most terrace. From here it descends gradually to the lowest terrace and proceeds to enter the *Mahtabi* garden. A water channel from the canal supplied water to the tank of the *hammam* from the first terrace which runs parallel to the boundary wall of the garden on the east.

MATERIAL AND DECORATION

The royal *hammam* is built of small size bricks, the building material used in almost all the Mughal period structures. The extensive use of brick is due to the non-availability of any kind of stone around the city. Kankar lime is the bonding material. It has no independent western facade and the interior face of the eastern wall represents it. Above the dado, the facade has been divided by a cornice in two panels, capped by battlemented merlons. Sunken cusped arches of four different dimensions in rectangular panels decorate the upper panel. The lower panel, besides the cusped arches, also contains four rectangular panels with rectangular slits for light and fresh air to the apartments. The rectangular panels containing those slits have decorative terracotta lattice work. The pleasing facade is unlike the extremely grim face of the *hammam* inside the Lahore Fort.

The western parts of the three apartments are covered with low spreading domes. The first apartment is domed in radiating courses of brick work on stalactite pendentives. The remaining two are simple type of domes, pendentive and domes are part of the same sphere. The soffits of the chambers are

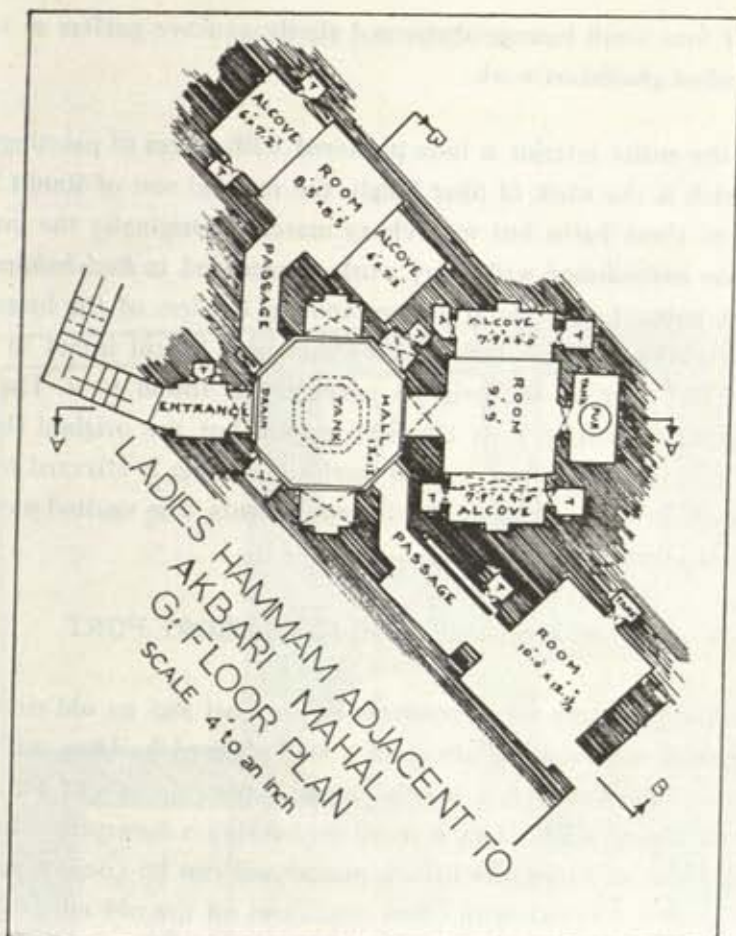


Fig: 43.A : Royal Ladies Hammam of Akbari Mahal.

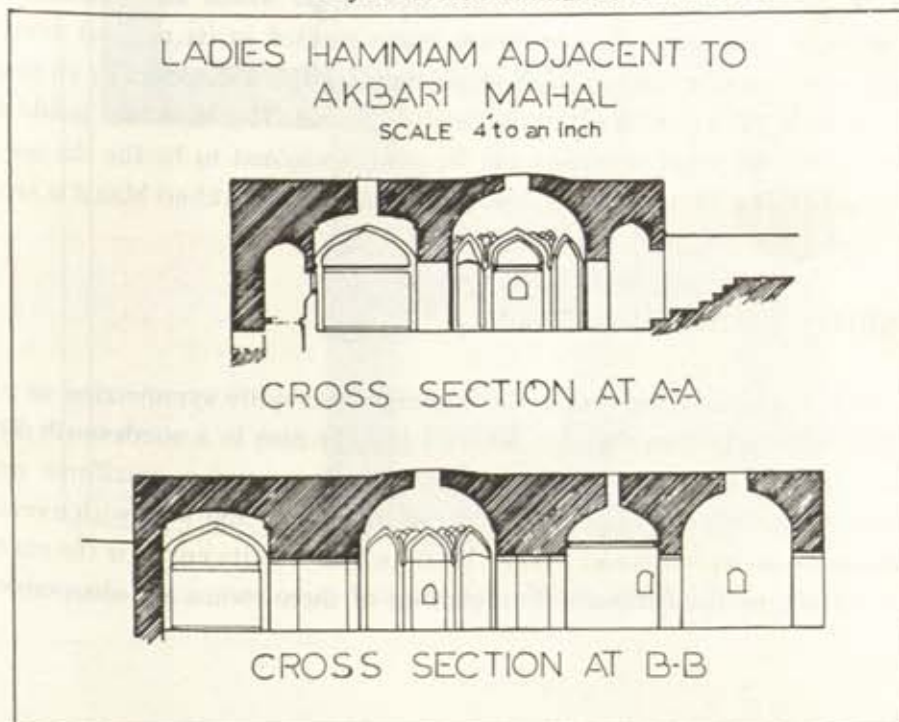


Fig: 43.B : Ladies Hammam adjacent to Akbari Mahal, Ground Floor Plan.

finished off into small lozenge shape and slightly concave goffers or lacunars; popularly called *ghalibkari* work.

Today the entire interior is lime plastered with traces of paintings, in gay colours, which is the work of Sher Singh, the reputed son of Ranjit Singh,²⁶ who restored these baths but with cheap material. Originally the interior of the bath was embellished with inlay work as recorded in *Badshahnama*. The soffits were painted with floral designs and the borders of the lozenges and lacunars were also painted, the evidence of which is still intact in the first apartment. No trace of the original pavement is found now. The present drabbed terraced flooring is of the Sikh period but the original floor must have been tastefully laid in variegated marble. Lighting is effected by rectangular openings in the western wall of the apartments. The vaulted passages are lit by circular openings in the roof.

BATH NEAR AKBARI MAHAL INSIDE THE LAHORE FORT.

Between the modern water reservoir in the Fort and an old circular well, not in use now, are the foundations of a well planned building with a water tank. As the superstructure is totally missing, the function of the structure cannot be visualised easily. This is in all probability a *hammam*. The foundations were exposed during the British period and can be conjectured only if studied in proper context with other structures on the old map of the Sikh period. The *Akbari Mahal* is an open quadrangle to the west with rooms all around. *Akbari Mahal* opens into this quadrangle which also contains the *hammam* to the south. The *hammam* when studied in its original context seems to be a part of the *mahal*. No residence, be it of a shepherd or an emperor can be complete without a bath and a kitchen. The *hammam* inside the precincts of the royal residence can be easily imagined to be for the use of royal family. As discussed earlier, no description of the *Akbari Mahal* is recorded by the contemporary chroniclers.

ARCHITECTURAL DESCRIPTION

The foundations show that the *hammam* was quite symmetrical in plan with an approach from the east, where a passage runs in a north-south direction. The *hammam* lies in an east-west direction, and a cruciform room (Fig.43,A), having a semi-octagonal alcove on its east and west with a rectangular alcove to its south and a tank (15'6" x 9'6") to its north, is the controlling feature of the *hammam*. Foundations of three rooms are observable to

ROYAL LADIES HAMMAM OF
AKBARI MAHAL
SCALE = 4 to an inch

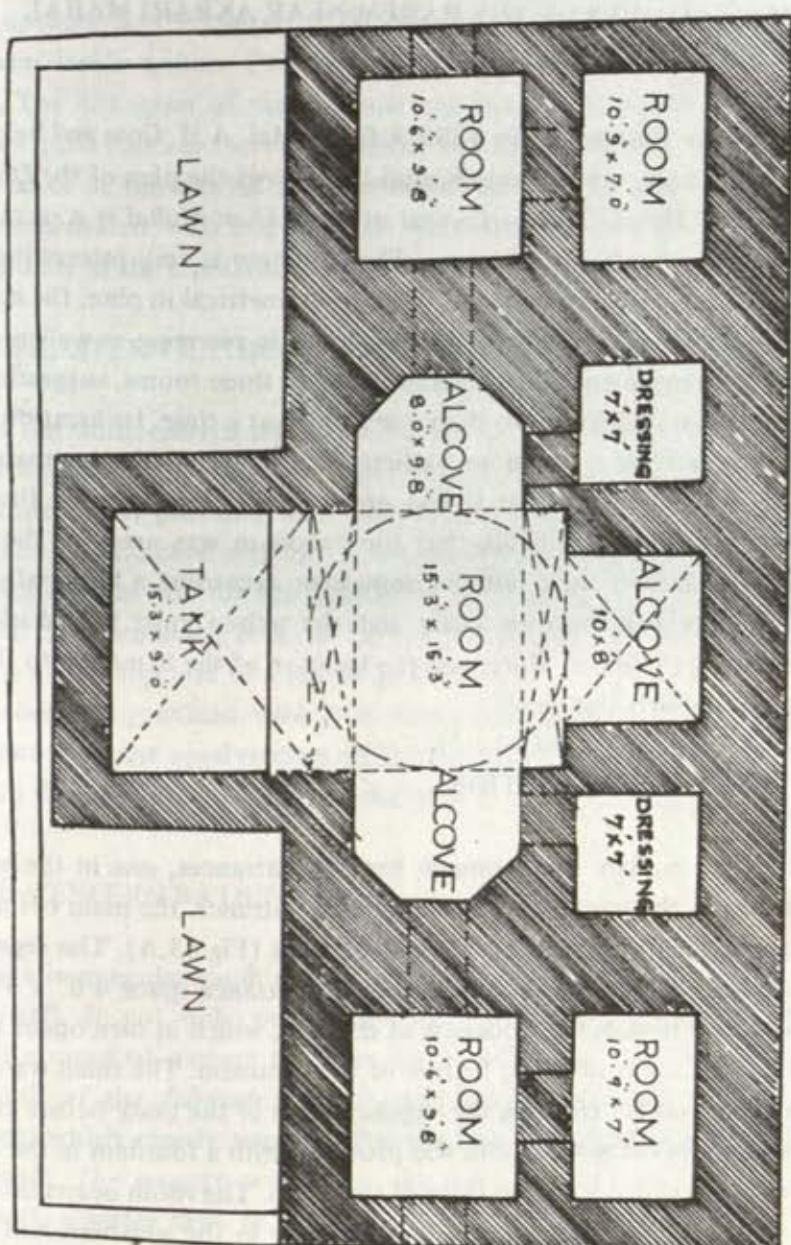


Fig: 44. : Hammams inside Delhi Gate Lahore.

the east and west of the cruciform room. Two open spaces on either side of the tank were added later. There is no evidence of the water arrangement, hypocaust, or even of the floor level inside the remains as the entire superstructure along the floor of the hammam has disappeared.

HAMMAM FOR LADIES OF THE HAREM NEAR AKBARI MAHAL INSIDE THE LAHORE FORT.

A map of the Fort traced in 1883 A.D. by Maj. A.H. Cole and belonging to Faqir Qamruddin, son of Faqir Nur-ud-Din, shows the plan of the *Diwan-e-Am* and *Akbari Mahal*. The north-west of the *Akbari Mahal* is a rectangular space. This is the basement *hammam*. The *hammam* is very interesting from the bath-architectural point of view. Though symmetrical in plan, the space of the structure has been utilized to the maximum in planning as well as execution. Bathing arrangements have been provided in three rooms, suggesting that the *hammam* was used by more than one bather at a time. Its location in the basement, the provision for more bathers at a time and the comparatively small sized rooms suggest that it was not a *Shahi Hammam* for the royal family. It seems highly probable that the hammam was used by the maid-servants of the *harem*, their number sometime exceeding a hundred. Akbar stayed in Lahore for fourteen years and the palace must have had maid-servants in a large number. Moreover, the location of the hammam to the side of the palace supports this view.

ARCHITECTURAL DESCRIPTION

Rectangular in plan, the hammam has two entrances, one in the eastern, and the other in the western wall. The eastern entrance, the main entrance of the hammam, is approached by a flight of steps (Fig.43,A). The segmented arched entrance of later period opens into an entrance space 4'6" x 4' provided with a small tank in the thickness of the wall, which in turn opens into an octagonal room, the controlling feature of the hammam. The small water tank at the entrance was for cleaning the exposed parts of the body before entering the hammam. The octagonal room was provided with a fountain in the centre, now filled and levelled with the floor of the room. The room opens into three bathing suites, two in the western half and one in the southern half of the hammam. Three faces of the octagonal room have arched recesses for hanging clothes, while the south western arched recess contains a small water tank in the thickness of the wall for washing hand, face etc. This room is for repose before and after taking a bath.

WESTERN BATHING SUITE

It is a square domed room (Fig.43,A) with an arched alcove (4' x 7'9") on its northern and southern sides. In the western wall of the room is a rectangular window opening into the reservoir of the hammam. The reservoir has a circular opening in the centre of the floor similar to that of the *Shah-Jehani hammam* inside Lahore Fort and the Shalamar garden already discussed in detail. The hot water of the reservoir was conveyed through metallic pipes to the two small tanks in the wall on either side of the reservoir. In front of these small tanks in the alcoves are two more tanks for cold water. In short, the room is provided with hot and cold water arrangement for two bathers and corresponds to the *tapidarium* of the Roman *thermae*.

SOUTH-EASTERN BATHING SUITE:

On the south-eastern side of the octagonal room is another bathing suite similar in plan to the western room. The square room (8'5" x 8'3") with two arched alcoves is provided with two water tanks in the wall of one alcove only. The other alcove was for repose and changing clothes. The room has a niche for candles etc. for lighting the room, as there is no provision for natural light. The two small tanks of the room were for cold water as the inlet for water is at the top and at a higher level than that of the hot water reservoir. This room was provided with cold water arrangements for two bathers and corresponds to the *apodyterium* of the Roman *thermae*. The room is connected with the octagonal room by a passage 3'1" wide.

NORTH-WESTERN BATHING SUITE.

It is a rectangular room (10'6" x 12'1½") with only one small water tank in the wall. It not only opens into the octagonal room of the hammam through a crooked passage but also to the north-west of the hammam. The outer wall of the *Jahangir's Quadrangle* has blocked this entrance of the hammam, which clearly suggests that the hammam is earlier than *Jahangir's Quadrangle*. The passage connecting the room to the octagonal hall is provided with a water tank in the wall. These two water tanks were for cold water as the inlets of the tanks are at the top and higher than the level of the hot water reservoir.

MATERIAL AND DECORATION

Small size *Mughal brick* has been used in the construction of the hammam while lime mixed with kankar is the bonding material. The rooms are crowned with low spreading domes, with a circular opening in the middle for air and light. The domes are so low as to be concealed externally in the thickness of the roof, except one crowning the main octagonal room which projects from the roof to a height of 6" only. As it is a basement bath, the only example of its kind in Lahore, external decoration might have been necessary. The interior was decorated with painted borders, as evident from a small visible patch. Today, the interior plaster and decoration have been totally damaged by salinity. The pendentives and semi-domes of the arched alcoves are provided with rough type of *ghalib-kari*.

HYPOCAUST

The main reservoir to the west of the western bath-suite is provided with a circular aperture in the floor, like that of the *Shah Jehani Hammam* inside Lahore Fort and the Shalamar gardens. The aperture was probably covered with a metallic water-tight covering. Below the aperture is the furnace, as is clear in the cross-section AA (Fig. 43,B) for heating the water of the reservoir. Unfortunately the area around the hammam is raised to the roof level and there is no access to the furnace to confirm whether flues are extended to the various chambers. For reaching any conclusion, recourse had to be taken of the sound of the floor when struck. The sound produced by the floors of the western and north-western room is quite different from that of the octagonal and the north-western rooms. The sound is that of hollow space which suggests that there are hanging floors as in the *Shah Jehani hammam* inside Lahore Fort and Shalamar garden. This presumption needs further investigation.

ACQUEDUCT

The hammam has besides the hot water reservoir, many small water tanks let into the walls. The water inlets of these tanks are at the top, suggesting the supply from the roof of the building. On the roof there is now no evidence of a water tank or of a masonry channel nor is there any clue to the course of water to the hammam.

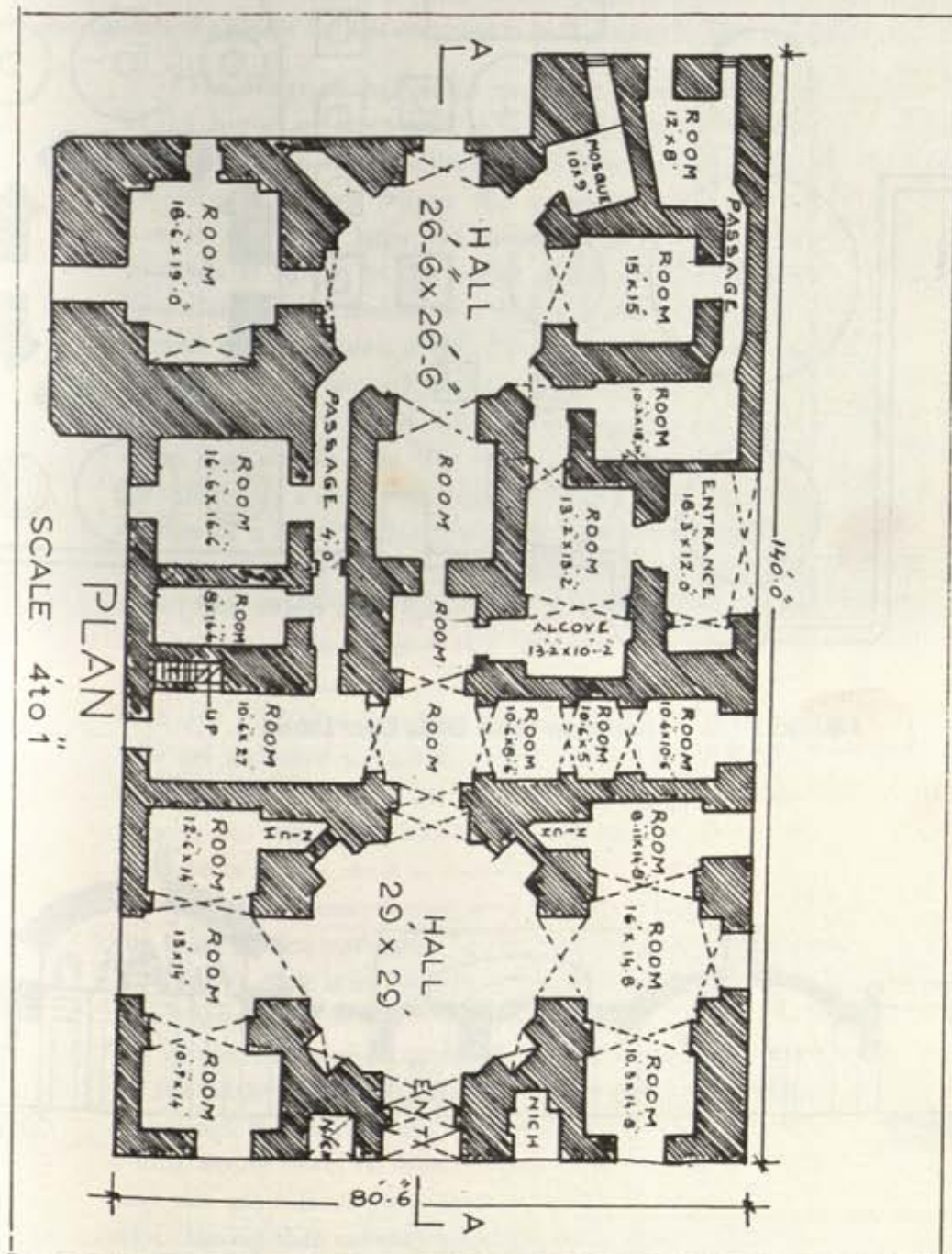


Fig: 45 Ladies Hammam adjacent to Akbari Mahal.

Scale 8' to an inch

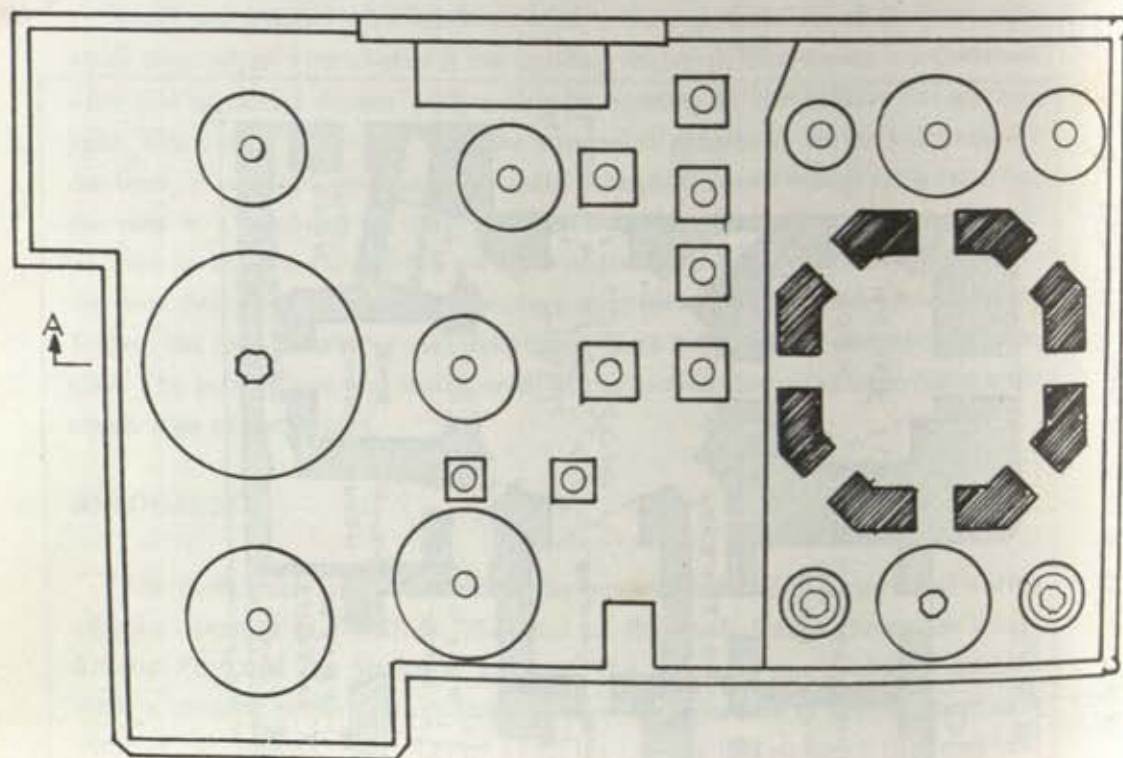
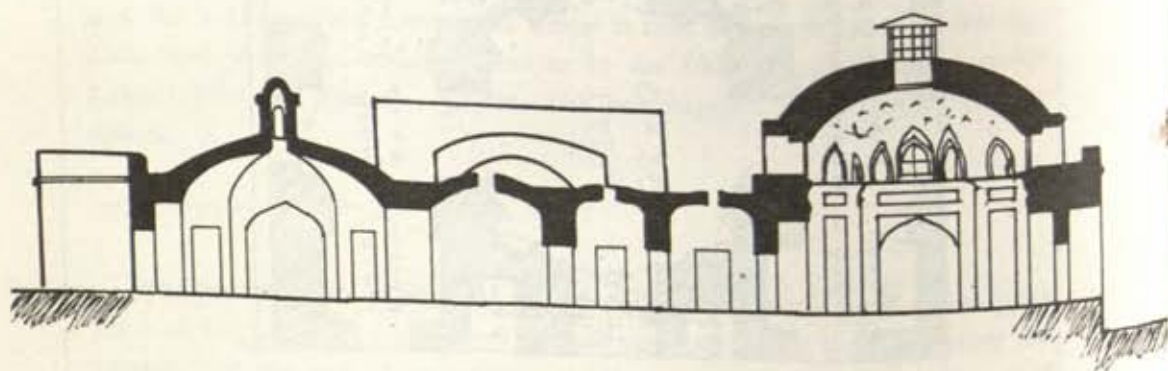


Fig: 46.A : Hammam inside Delhi Gate Lahore.



CROSS SECTION AT A-A
SCALE 8' to an inch

Fig: 46.B : Hammams inside Delhi Gate Lahore
Cross-Section

PUBLIC HAMMAM KNOWN AS WAZIR KHAN'S
HAMMAM INSIDE DEHLI GATE

Before proceeding to describe Wazir Khan's bath, which no one can today imagine to have been a public bath, it is of immense interest to include a lively description of a public bath as recorded in N.M. Penzer's. 'The Harem'.²⁷

"The design of these baths seems to me, especially as far as the domes are concerned, to be copies from the *Thermae* of Diocletian in Rome, although very much smaller. At the entrance is a room shaped like a church, but round and domed with lead, large and commodious almost like the *Rotunda* at Rome. In the middle of this there is usually a beautiful basin of fine marble, with a fountain of four jets, around which are seats made of brick three cubits long and so high from the ground that a man sitting there could not touch the floor with his feet. All the vaulting of this first room is of marble slabs. The above mentioned seats are all partitioned by a small wall a cubit in height, or by a wooden shutter of a considerable size so that they are divided up and allow one to lean on one's elbow. Each of the seats is about four cubits and those who wish to bathe can undress there. The seat is covered first with a mat, on which is placed a rug or tapestry. On wishing to enter and take a bath one must first speak to the custodians of the baths, who are stationed around the walls of this room, and then to the cashier, who sits in a corner on a stool just as our lawyers do. When this is done you may undress on one of those seatsyou must be careful not to show any immodest parts for shameless ones are beaten and thrown out of the baths. When undressed you make your clothes into a bundle and place it on the seat with your hat, cap or turban which you wear, on top. Your clothes will not be safe unless you have a servant to guard them, because the custodian of the baths themselves will steal your purse and other belongings. Before you take your shirt off they will give you a long ample towel to cover yourself that is to say, if you have not got one of your own and others to dry yourself with...Having then covered your privities with the towel, all the rest of you being bare, you enter the first room of the bath, where there are always about fifteen servants varying

with the size of the baths, some shaving, some knealing the bones, some washing, so that all are busy at their task set them by their master. From this you pass through several rooms of all of different kinds, each hotter than the last, adorned with the fine marble and prophyry all round, like the vaulting, and in each are two waterpipes, one hot and the other cold, which flow into marble basins, and the water which over-flows on to the ground escapes through holes in the floor. From there you enter the main part of the bath, which is usually spacious and covered with marble so smooth that it is hard to stand upright. This place, like the other rooms is domed and has several glass windows tightly shut, the whole being covered above with lead. The dome in the middle is very high. In winter the baths are heated at midnight (in summer every one washes in cold water), thereby consuming vast quantities of wood. They used pine trees four or five cubits long thicker than a man's thigh, and also a small amount of oak. In the centre of this room which we have called the heart of the baths there is a square stone of marble prophyry, very fine serpentine a palm thick longer than the height of the man, and two palms from the ground. It is set on four beautiful marble balls. As soon as anybody arrives they are invited to stretch themselves on this stone, body downward, and one of the servants mounts with his feet on your back and pulls out your arms in a certain manner peculiar to them. But it never pleased me and I would never lie down there although they often begged me to do so.

Then, why they think they have massaged and pulled you about enough on one side, they make you turn over with your body upward and then start pulling your arms again until you might well imagine it was an exhibition of the strength of Hercules. When you get off this stone you go into another room (whichever you wish) if it is unoccupied, either colder or warmer, according to your taste. For they are not all of the same temperature (as has been said) and there are some so hot that they make you sweat, and others moderated to suit your wishes for in the heart of the baths

there are many little rooms like cells all round, but well made and ornamented, and in each is a marble basin into which two pipes lead from the wall, one furnishing hot and the other cold water. You let as much water as you want run into the basin, and after getting it to the required temperature you stop up the pipes. And this method obtains throughout the baths. After this you lie on the ground close to the basin and one of the servant throws water over you, while another washes you, covering the opening of the little room with a towel. If the servants are busy one does both the washing, the throwing while in the case of a poor man he has to do both for himself because of the servants hasten to serve the rich as they are eager for tips (drink-money). To rub you down they used a kind of bag made of a thick dark cloth; no soap is supplied, if you don't bring your own. If you want your head, beard, or other hair shaved a man who specializes in that business will attend to you. So also if you want to get rid of your hair in any part without shaving they give you a paste in a different room from the others. The Turks use this paste a great deal for they consider it sin to have hair on their private parts, and you never find any of them, either man or woman who have any. In this matter the women are more superstitious than the men, and as soon as they feel the hair coming they hurry off to the baths. When you have finished washing you change the towel you have been wearing which they call futs, in the bath, and on coming out a servant approaches from behind with a basin to wash your feet again. You then return to the first room where you left your clothes, which is very slushy from the constant flow of water. Here there is always a good coal fire, especially in winter to dry several shirts at once as well as towels for the bathers. Then you have sat down, the servant washes your feet, and as an act of courtesy you are expected to show your appreciation by placing your right hand on his head and then putting it to your mouth, as is the custom with us in presenting letter. When you are dressed it is up to you to recompensate the servant as you leave, so you go up to the grill where the cashier of the baths has his place and give

him what you think fit. There is no fixed charge, some give him one Asprg some two, others three, but most people give four".

Public baths were constructed throughout the Islamic world. In the city of Istanbul alone in the seventeenth century there were more than 300 public baths. Mughals were also very fond of *hammam* and built many private *hammams* in the cities of Delhi, Agra, Fatehpur Sikri and Lahore. The *hammam* inside Delhi Gate known as Wazir Khan's *hammam* has the distinction of being the only specimen of public *hammam* of Mughal period in Lahore or even in Pakistan.

HISTORICAL DESCRIPTION

That the *hammam* is earlier than 1051 A.H. (1641 A.D.) is attested by a deed of waqf, reproduced by Sayyid²⁸ Muhammad Latif and Nur Ahmed Chishti²⁹. From the Waqf deed, dated *Ramzan* 1051 A.H. (1641 A.D.) it appears that Sheikh Ilmud-din Ansari entitled Wazir Khan a native of Chiniot, who founded in 1044 A.H. (1634 A.D.) the splendid mosque known after his name in the city, was the owner of all the shops and houses on either side of the street from *Masjid* to *Delhi Gate*, the income of which together with that of the *Sarai* and the baths close to Delhi Gate, he bequeathed permanently for the support of the mosque and the establishment attached to it.

The deed, inter alia, indicates that the *hammam*, the personal property of Nawab Wazir Khan, was a source of income like *sarai*. Therefore, an entrance fee was charged, similar to a small entrance charge of a quadrans (1½ farthing) made at the public baths of imperial Rome³⁰, which were later made free to the populace by the emperors in search of popularity. For the management of the baths there must have been staff or attendants, entrance guards, barbers and many others for making the process of bathing a luxurious relaxation.

ARCHITECTURAL DESCRIPTION

The *hammam* is situated close to the *Delhi Gate* on the southern side of the metalled road leading to the *Chitta* gate. This area of the old city is very congested and the *hammam* is surrounded by shops on its north south and west, while the eastern side is occupied by the *Delhi Gate*. The interior structure of the *hammam* is today utilized by the Lahore Municipal Corporation for a children school, dispensary and the offices of the Health Department.

For these purposes heavy changes have been made in the buildings by blocking entrances and adding new rooms. However, it is easy to prepare a plan of the original structure.

The *hammam* is a single storey structure, imposing in extent, plan and proportion, covering a total area of 1110 sft. or 2 kanals 9 marlas and 85 square feet. It consists of only one structure of two blocks different in planning and separated by a passage.

NORTHERN BLOCK

It consists of a high domed octagonal hall, the controlling feature of the block, with subsidiary halls on its east and west. This block is symmetrical in planning and execution and 3' higher than the southern block of the *hammam*. The octagonal hall (19' dia) has arched entrance in the four sides alternating with rectangular recesses for hanging clothes etc. The hall had a swimming pool in the centre, now filled and levelled.

The octagonal hall, 31' high, is surmounted by a low dome resting on a high octagonal drum. Each face of the drum has rectangular openings while the top of the dome has a circular opening for light and air. The two subsidiary halls lying in a north-south direction are divided into three bays with the help of two transeverse arches with openings to the outside except the south-eastern bay of the eastern hall. The central bays of the subsidiary hall open into the main hall while the southern bays of the two halls have 4'x5'x8' wide, deep recessed into the wall. These deep and narrow recesses may have been used as stores for petty bathing necessities as well as for maintaining symmetry. Each bay of the subsidiary halls has a low dome with a circular opening at the top.

SOUTHERN BLOCK

The two blocks are separated by a passage running in an east-west direction and they have been divided into five compartments of various sizes with the help of transverse arches. This passage not only opens in the east and west but also connects the two blocks of the *hammam*.

The principal arched entrance of the *hammam*, situated in the western facade of the northern block opens into a rectangular alcove crowned with a semidome, opening into an anteroom, comprising of two parts. The southern

domed square part of the anteroom opens into the octagonal hall, the main feature of the southern block, with an opening into a side room. This side room is most probably, the dressing room of the southern block as it opens through a passage, into a latrine, situated at the south-western corner of the hammam. The sizeable hammam of the Mughal period contained latrines but at the side of the structure and quite away from main entrance as in *Hakim's hammam* at Fatehpur Sikri³¹.

The octagonal domed hall (16' dia) is the chief feature of the southern block with an opening in each face. The eastern and western openings lead into spacious domed rooms. These rooms might have served for oiling, shampooing, reposing etc. The south-western opening leads into a mosque, 10'x9', with a *mehrab* in the western wall, while the opposite face is connected with a crooked passage, which ultimately opens into the passage, separating the two blocks. Two rooms (16'6" square) and (88 x 16'6") open into the crooked passage. The northern face of the octagonal hall contains an arched opening, which leads into a square domed room. The square room opens into another room 9'8" x 11'6" ultimately connecting the two octagonal halls. The south-eastern face has been cut into a rectangular deep recess for symmetry. Access to the roof is gained from the passage separating the two blocks.

MATERIAL AND DECORATION

Wazir Khan's hammam is built of small size bricks, as used in Mughal period buildings in the city of Lahore, with lime mixed with small pebbles and fragments of bricks as bonding material. The northern half of the western facade, including the main entrance, shows the original exterior of the hammam. The exterior has indeed a character peculiarly of its own, for it is of cut and dressed bricks and with regular rectangular recessed panels. The parapet wall shows *zanjira* type continuous decoration in relief. The north-eastern and north-western angles of the building still retain the semi-octagonal *guldastas*. The interior is today uninteresting as it has been whitewashed, quite unsuitably to its well finished exterior. At two places where the lime plaster has chipped off, a glimpse of the eastern decoration is easily perceived. It was not only divided into panels with painted borders but also painted with floral decoration. No trace of the original flooring can be observed as the floor is laid in modern bricks. The hammam has twelve domes and one semi-dome of the main entrance. The grouping of three small domes on each side of the high dome of the octagonal hall of the northern block is very effective. All the domes, except the one over the octagonal hall of the northern block, are

simple and rest on walls. The pendentives and domes are part of the same sphere. The dome of the octagonal hall of the northern block is a compound type of dome as it is raised on a high drum pierced with windows. The soffits of some chambers and arches of the structure are finished in fine lime plaster worked into small lozenge-shaped, slightly concave goffers of *loncunat*, called *ghalibkari* work. The work is of two types, simple or plain *ghalib-kari* and pentagon stars *ghalib-kari* (Pl. LXXX a).

HYPOCAUST

No trace of the hypocaust system exists but a reference in the waqf²⁸ deed gives an indication. It is recorded in the deed that whatever shall remain after defraying the expenses of building, the servant of the mosque and other necessary expenses shall be spent on maintaining guests, providing for the carrier of fire wood and the chamberlain and other persons properly attached to the mosque.

ACQUEDUCT

Unfortunately no trace of the water arrangement for the hammam exists today but like other *Mughal hammams*, water was brought from a well with a persian wheel. The well must have been of extra-ordinary dimensions.

CONCLUSIONS:

The Mughal hammams in the city of Lahore are single storeyed, designed about the longitudinal axis. In the royal baths the central plan is the same i.e. disrobing room, a hot room, a warm room and the hypocaust, following the Turkish bath style, popular throughout the Islamic world. The domical method of construction governs the plan of the baths. The domes, except those of the public bath, are low spreading and not visible from outside due to the parapet wall. The domes surmounting the two octagonal bath suites of the public bath are prominent, being placed on a high octagonal drum.

The walls, built of small size bricks, were thickly plastered and decorated with paintings almost to the exclusion of mouldings and sculptured ornament. This application of lively paintings on the interior surface found full expression of oriental magnificence. Externally it makes no pretension to architectural effect and suffices to have regular surface panelling. Except the public bath, the facades of the Mughal baths in the city are the least pronounced.

The openings in the walls and rooms are spanned by arches though the trabeat system is also used. For light and air, openings are usually provided in the domes, sometimes in the roof of the passages at regular intervals. These windows are small so as to make the interior restful and cool, in welcome contrast to the external glare of the sun. The whole surface of the walls was available for paintings.

The introduction of colour gave richness and a sense of mystery to the interiors. Evidence of tessellated flooring proves beyond doubt that the floors were tastefully laid, while paintings in the soffits give a clear picture of the interior surface treatment. Chaste white marble with veining carefully arranged to form patterns still intact in places, forms a contrast to the less permanent paintings, with which the whole interior was once decorated. *Ghalib kari* in the soffits of the domes and arches is another favourite decorative scheme. Thus the general colour scheme was carried throughout the interior of the baths over floors, walls and arches.

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2. The terms hammam and bath are today confusedly used for one and the same institution. Actually the hammam is an oriental establishment for undergoing medical treatment by means of a hot steam bath. In the Encyclopaedia of Islam Vol. II, the Hammam is described as "these are isolated buildings communicating with the street or market place by a more or less imposing door; they consist of a number of large rooms surrounded by little chambers and crowned by domes pierced with holes to admit light. The first room to be entered is the *maslakb* (epodyterium), where the clothes are taken off and put into a bundle which is entrusted to the owner of the bath; in the centre is a *basim* with a jet of water (*faskiya*). The *harara* (Caldarium) is next entered, a large room filled with steam; to avoid touching the superheated marble floor, wooden shoes or slippers with high heels are worn. Here the bather stays till he perspires; the attendant then takes him into one of the little chambers with a basin (*maghtas*) which surround the *harara*, or where there are hot and cold taps (*hanafiya*), and rubs his body (after making all his joints crack) with a horse hairglove (*kis*), which remove the epidermis in grey rolls, and covers him entirely with frothy soap, beaten up to a lather by means of a lif

(palm-fibres), till he is quite clean. All that is now to be done is to wash in hot water dry and wrap oneself up, including the head, in clean linen and go back to the maslakh to rest there smoking and drinking lemonade or coffee.

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19. Hamid Mullah Lahori Abdul, *Badshahnama*, Vol. 1, Calcutta, p. 148.
20. Baqir Md. *Op.Cit.* p. 382.
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22. Baqir Md. *Op.Cit.* P.P. 390-91.
23. *Ibid.* P.
24. These slits are not the original ones. Originally there was another arrangement for the purpose, possibly a marble screen.
25. Latif S.M. *Op.Cit.* pp. 248
26. Latif S.M., *op.cit.* pp.249
27. I am indebted to Mr. M.M. Baig, Librarian, Central Archaeological Library, for not only providing this interesting information, but much other also.
28. Latif S.M. *op.cit.* P. 248.
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CROSS AS THE SYMBOL OF SOUL

by

S. Mahdihassan

(Plates: LXXXVIII – XCIII)

Civilization begins with man as hunter but earlier he was a food-gatherer. Nevertheless he was intelligent enough to recognize an early sign of death. It was the absence of breathing so that he came to believe, breath = life essence, or soul, and Life = Body + Soul, an idea that has survived to this day. It was accepted that nothing is really destroyed and the soul on leaving the human body, continues to remain in another form. In as much as breath, as exhaled vapours, rises upwards it was conceived that soul becomes a flying bird which easily disappears towards heaven. Thus bird became the incarnation of soul.

Later man became a hunter. The game he killed, and even his enemies, they all died of blood-loss. He accordingly concluded that Blood = Soul. Moreover, observations revealed that freshly spilt blood gives out vapours and these rise upwards. This fraction was called, Ruh in Arabic and Thymos in Greek. It is rendered as Spirit in English. Blood was mainly a red fluid and this sank into the ground. It was recognized as Nafs in Arabic and Psyche in Greek. Now the volatile fraction, or Ruh, being similar to Breath also became bird and can be called the celestial portion, while the portion that went underground became a snake. This can be called the terrestrial portion. If bird was an all-active agent above the earth the snake was equally mobile on the surface of the earth. Then Ruh = Bird and Nafs = Snake. The old idea, however, per-

sisted that when soul as whole is to be considered it is the bird that represents it. Altogether now Soul = Ruh + Nafs, and the subsouls symbolized as Bird and Snake. Soul as life-force was a powerful entity and its symbol, as its plenipotentiary, likewise possessed magical powers. Thus when the symbol of soul is depicted on a fragile earthen vessel it would ensure its life. In as much as bird is the symbol of soul to depict a bird is to depict soul itself. Hence by now the question arises how bird itself has been depicted by the ancient man. It is to be understood that Bird first entered Breath next Blood vapours in any case soul.

Mallowan (1937) has illustrated earthen pots of ancient Mesopotamian origin, decorated with both snake and bird. Two pots decorated with the figures of birds are reproduced from him as (Plate LXXXVII) here. On p. 150 he informs that the lower pot (Plate LXXXVII, b) here is decorated with "a row of clumsy drawn birds with heavy triangular bodies, to be dated before 3000 B.C." With regard to the upper pot (Plate LXXXVII, a) he merely writes that there is "a row of crosses". It can be easily inferred that if birds are depicted to increase the life of a fragile pot, cross, as its emblem, can not be any other. We have to realize how clumsily has bird been depicted on the lower pot so that equally clumsily is the bird further reduced to its simplest form as crosses.

We have now to show in the first instance that blood is conceived as becoming bird, Broby - Johnsen (1968 ; 70) reproduces a picture entitled Norwegian Warrior, dated 1250 A.D. Here the beheaded figure has poured out blood which has smeared the sword-blade and has been transformed into a bird starting to fly. It is reproduced here as (Plate LXXXVIII). We are now to show how a flying bird can be reduced to a form to be looked upon as its "short hand" symbol as the cross.

Klossowski de Rola (1974) has reproduced illustrations offered by Mylius in 1622. One such picture, appearing on p.107, is offered here as (Plate LXXXVII, a). To the left, birds in flight are seen as originally given, while to the right I have darkened some to appear as their silhouettes — roughly depicted these would be crosses as those appearing on the upper pot of Plate LXXXVII, a) Bird as soul is a naive idea and can be easily understood. What has a soul has life and its carrier if fragile can stand wear and tear. Pottery is very fragile and needs a protective power hence the cross, as emblem of soul, can function as life-force preserving the vessel. Moreover, there is another case also of ancient times. Dr. Al-Rashid (1984 ; fig.89) has illustrated "a shred

from a green glazed vessel, belonging to early Islamic Civilization in Saudi Arabia." It is decorated with a row of crosses offered here as (Plate LXXXIX,b). If the crosses are darkened the resultant would appear better as such. We can, however, safely maintain that the cross, in Plate 4, is a better version than what it seems in (Plate LXXXVII).

Now consider the occupant of a single roomed house observing a case of death. Believing that soul can not fly away from the roof it must transform itself into a creature that hides itself some-where within the house. A common creature that is like an inmate of house would be the lizard. Then if soul can become a bird it can also transform itself into a houselizard. And the soul of the dead loves to remain where it had originally been whence arose the idea, Lizard = Soul. Now comes the symbol depicting a lizard. Haddon (1895 ; 175) offers one as cross, Plate XC,a) "designed in Brazil and taken from Ehrenreich". History insists upon documentation, then (Plate XC,a) is offered which symbolizes lizard as cross. Science, however, appeals to common sense. It seems probable that the cross originally was the symbol of bird as soul and when lizard was also conceived as the transformation of soul, lizard, as soul, also came to have cross as its symbol. At any rate the cross as symbol, in (Plate XC,a) can best be interpreted as Bird representing soul.

In my study of Soma, as ephedra, (1982) I have shown that ephedra became a drug of longevity with the Aryans as hunters and by extension drink of rejuvenation-cum-immortality. Then what confers immortality upon the living recalls the dead into life and becomes the agency of resurrection. Finally soma was deified as god soma. Then the cross as symbol of soul was multiplied to saturate its recipient with soul. The recipient becomes rich in soul-content and thereby immortal. Hence if an entity is already immortal this is best depicted as being saturated with the crosses as soul. Accordingly the Egyptian cow-goddess Hathor is depicted decorated with crosses when each cross signifies a quantum of soul befitting of a goddess as immortal. Thus the immortal nature of Hathor is revealed by its richness of soul - content expressed by the multiplicity of cross as symbol of soul. This is seen in (Plate XC,b), taken from James (1960 ; 83). (Plate XC,b), shows the role of cross as soul characterizing a deity as immortal. It will be explained later that more powerful than the simple cross as seen in (Plate XC,b) would be one where the four corners as the directions of Heaven and Earth further contain a dot each. Hathor again is depicted decorated with such complex cross in numbers and the picture is taken from Wilkinson (1841) and offered here as (Plate XCI,a). In each case the recipient of these crosses becomes enriched in soul-content

and is immortal as a deity should be.

Now what can confer immortality can also confer resurrection. Khurshid Hassan (1984) has published a beautifully illustrated article on Chaukhandi tombs. (A portion of his fig. 2 is enlarged here as Plate XCI,b). There are seven horizontal rows each formed by multiplying the figure of cross. The lowest of them shows the cross large enough to be obvious. The topmost row has a cross of two lines cutting each other with dots at each of the four corners. This complex cross is a variant of the simpler cross seen in the following line. Now if there is an entity like the soul it automatically implies that there is also its opposite which would be its carrier or – vehicle. It means that if there is soul there must be body. When we know anything we know it as a whole. And the whole life-form means body and soul as its make up. Now soul is expressed as cross but since body must also be there this has to be duly symbolized. We have now to assume that soul has been projected to become cosmic soul when it appears as most powerful. Then the opposite of Cosmic Soul would automatically be macrocosm or the world. This now can be symbolized by its four corners each as dot. Then the central unit as cross would be cosmic soul and the four dots on each corner would represent macrocosm, the “body” that contains cosmic soul. Then cosmic soul and Macrocosm together would be the whole, better qualified to induce resurrection than Cosmic soul alone. Fortunately, such a complex cross is to be found even in Harappan art and would be familiar to most readers of this Journal. Moreover, cross within a cross in effect would be soul-concentrate. Here it is cosmic soul and the dots in the four corners that symbolize macrocosm. Cross is cosmic soul and dots symbolize its container Macrocosm : (Plate XCII). This is taken from Dales (1966).

S U M M A R Y

Man as hunter conceived Blood = Soul. Vapours arising from warm spilt blood were conceived as having been transformed into a bird while the main red fluid, which sank underground, became a snake. Briefly, Blood as soul had two subsouls, Ruh and Nafs, or spirit and the soul. Spirit was a Celestial portion in man while Nafs the Terrestrial. Spirit was symbolized as bird and depicted as cross. Illustrations are offered to show blood becoming bird. Then potteries older than 3000 B.C. have been decorated with bird as symbol of soul. Crosses as symbols of soul preserve fragile pottery. Flying birds reduced as silhouettes show how a flying bird gives the figure of a cross. A regular

cross has been recognized as representing a lizard when this could also be decorated with crosses as quanta of soul which qualify the system of the recipient as immortal. A tomb decorated with the symbols of the cross signifies quanta of soul resurrecting the dead. Soul can be projected to become Cosmic soul when there has to be Macrocosm as its container: with cross in the centre as cosmic soul and four dots in the corners as directions constituting Macrocosm. Such a complex version of the cross signifies Heaven and Earth, the most powerful entity imaginable. Such a symbol is found decorating the Egyptian cow goddess, Hathor. On a Chaukhandi tomb, Cross appears profusely and has been found also at Harappa and illustrated by Dalles (1979).

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ARMS AND ARMOUR MOTIFS ON CHAUKANDI TYPE TOMBS

by

Dr. Abbas Ghani

(Plates: XCIV – CIX)

Traditionally Islamic architecture in the sub-continent (South Asia) is divided into three main big groups;

1. SULTANATE PERIOD
2. PROVINCIAL

In this group is seen the development of independent style of architecture, seen in the near and far provinces or areas under control of the Central Government who became independent due to the weakness of the Central Government collectively. This style is called the provincial style. This style developed independently without having any influence on them of the styles then in vogue under the patronage of the central Government. This architectural style has an expression of its own with lots of local blending. The provincial styles are (a) Bengal (b) Jaunpur (c) Malva (d) the DECCAN viz Gulberga, bidar and Golcounda (e) Baijapur and Khandesh (f) Gujrat (g) Sindh (h) Kashmir.

3. MUGHAL

I would like to add here that the Mughal period was not a continuous one. As after the establishment of Mughal dynasty by Baber (1526-1531 A.D) the first Mughal king who was succeeded by his son Humayun, who had to flee the Country leaving it to be occupied by Sher Shah Suri an ambitious Pathan General whose dynasty ruled for little over 10 years. The Afghan dynasty to the throne of Hindustan after 10 years of exile in Persia (Iran). Therefore the Mughal architecture has to be divided into phase I covering Baber and Humayun's period than a short Afghan period followed by Phase II of the Mughal period ending in the 18th century with the fall of the Mughal Empire.

Islam came to the sub continent (South Asia) from the West and the earliest conquerors were the Arabs. Sind was the first area of the sub-continent to come under the influence of Islam. The Arab influence in the beginning was directly under the Central Caliphate of Baghdad, from the late 8th century A.D. onwards till the full consolidation of their power extending to almost all the areas which form today the Islamic Republic of Pakistan. Mansurah in Sindh and Multan in Punjab were dual cities from where the whole area under Arab rule was administered. Later on local Arab dynasties independent of any central authority from Baghdad ruled the area until the invasion of Mahmood of Ghazna who after subjugating the ruling class left his own Governors in the areas occupied, thus ended the Arab rule, opening the area to the Turkish influence from Central Asia. Unfortunately no monuments from the early Arab period survives today. With the present excavation done at Mansurah* by the department of Archaeology during the last season it is earnestly hoped that the initial excavation reports might throw some light on the architectural style of the period discussed. Therefore, in future the Muslim architecture of the sub continent (South Asia) might be rightly classified as (1) early Muslim i.e. Arab period (2) Late Muslim, covering the groups already mentioned at the beginning only then the classification of the Muslim architecture in the sub continent (South Asia) will be more or less fully and completely classified.

The monuments are essentially of two types.

1. RELIGIOUS.
2. SECULAR.

*News Letter, Department of Archaeology, Number 2, July 86, Page 4.

The religious type of monuments include (a) *Mosques*: Mosques play a pivotal role in Muslim daily life because Mosques are where five times a day congregational prayers are conducted. Prayer is the second pillar of Islam i.e. SALAT. And after the mosque the largest number of monuments seen are (b) The *Mausolea*. The *Mausolea* erected are again of two types. (i) Those erected over the graves of kings and nobility. (ii) The second group consists of all the structures erected on the graves of Holymen, Sufis, Sheikhs and Mashaikhs by the devotees purely for evoking their blessings and as a memorial to their teachings, in other words these are "*MUSLIM SHRINES*".

The secular structures are mainly Palaces, Fort palace complexes, gardens and pavillions (Baradari) and Minarettes. Before coming to the main subject I shall very much like to point out a very unfair and bias criticism levelled at the early muslim builders by majority of the non-muslim unsympathetic writers. They have systematically accused early muslim builders of using building material like stones etc. from the Temples after demolishing them and using the same material for the construction of the Mosques. This brings out the most of sectarianism in them. While writing they forget a basic and most important factor influencing architecture any where in the world, and that is economical stability. The early muslim rulers were able to achieve political stability but the economical stability was a far cry and for any mass building activity which the early muslim rulers took economical consideration was a prime factor governing and influencing their architectural activity. Therefore, looking at the accusations and objectively analysing them it becomes obvious that the early muslim rulers used any and every building material which was easily available, and could it not be a fact that cheaper but good stones were easily available from old neglected, ruined, absolutely unmaintained Hindu Temples which these early Muslims recycled and used them in their building activities without any religious bias leaving the carvings and figures on the stones, which have formed the basis for the accusations by the non muslim writers making the early muslim rulers look like religious fanatics which Islam strictly forbids and orders its followers to look after and protect its minorities.

Chaukandi Type Tombs

These tombs are found in groups of graveyard scattered throughout lower Sind and Baluchistan. These graves are multitiered tombs, the stone slabs being kept in such a way that the sizes of the slabs gradually decrease in size from below upwards giving it a step ladder pyramidal form and some of them

having canopies (Chataris) supported by four or more stone pillars.

Nowhere in the annals of muslim architecture, specially of Mausolea are seen such uniquely designed tombs. Without going into the controversy of the nomenclature "Chaukandi" which is beyond the scope of this paper I shall describe the carving. The carving seen on the tomb stones, the stone being sand stone or buff stones available locally or from neighbouring area specially Gujerat. The over all effect of the carving which consists of chiseling of geometrical patterns exquisitely executed on the stones are in the finest style seen any where giving an over all impression of "Embroidery on stone". These graves are attributed to muslim rajput specially Jokhia Branch of the Samma Rajput class (Clan). Examination of the decorative motif shows it to be typical Gujerat Rajput school of carving which consist mainly of Rosettes, sunflower pattern, circular design with floral motifs and square designs very liberally used to give a net (Filigree) like appearance with semi circular borders at edges. Some of the tombs have human and animal figurines carved on them which is contrary to the basic Islamic teachings. The scenes most commonly carved out are processional scenes with riders mounted on horses in millitary regalia with attendants preceding or following them. The mounted riders seem to be in a very peaceful mode and no where are war scenes or hunting scenes depicted. The dresses which the human figurines are wearing are typical Gujerati Rajput apparel with turbans and tight trousers. There is no representation of Shalwar, Kurta, or Ajrak decorations. The answer has yet to be found out regarding the true origin of the people responsible for erecting these monuments, and their religious beliefs. Suggestions have been put forward that this style of carving on stone is an indigenous style. But in the present study no evolutionary pattern could be appreciated. The style of carving seen is in the most mature form and no where the style could be classified into early, middle or late or even degenerative. The writer has seen the same style spread over a vast area in Rajputana and Gujerat and in the opinion of the Gujerat type of decoration which attained its zenith during the time of the famous Gujerat Sultan Mohammed Begda (1458-1511 A.D.) — a great probable that the decoration on the Chaukandi type tombs are direct borrowing from Gujerat style of stone carving in toto.

As some of the graves were found to be empty it has been suggested that these graves were raised as monuments to the fallen warriors in battles burried else-where. This is a very new hypothesis because Islam permits it's dead to be interned at the place of death for short periods and shifted to the final

resting place later on. Examples of temporary internment of Mohammed Tughlaq at Thatta before finally being burried at Dehli by Feroze Shah Tughlaq and Mughal King Baber's interment in India before finally being burried at Kabul (Afghanistan) - are very famous historical facts.

Therefore, if the above hypothesises is to be given credence then these graveyards or tombs would be some thing of a mass Muslim war memorial.

ARMS AND ARMOUR MOTIFS

The present study was carried out on the stone carvings from Chaukandi type tombs from the areas mentioned below:-

1. Malir
2. Maghopir (MANGHOPIR)
3. Pir Patho
4. Sonda
5. Goth Raj Malik

1. SWORDS

The most commonly used offensive and defensive weapon in the history of human war-fare is very prominent on some of the Chaukandi type tombs. The most well preserved, especially the one from Pir Patho shows the rider with typical Sindhi sword. The first two riders are carrying typical curved swords and the last one has a straight sword on waist belt. Looking at the last sword it thus gives the impression of a long knife and it becomes very difficult to define sword because after all a sword is long knife. The other specimen seen from Malir area (Plate XCIV) shows a very unusual broad sword with curving blade and the hilt seems to be so long that handling by one hand seems impossible and it gives an impression to be a sword to be handled by two hands, but looking at the size of the blade it is highly interesting piece of Sindhi sword blade not seen before. The other specimen studied also shows typical Sindhi swords but (Plate XCV) shows a very short bladed sword with a curving hilt with round pommel without any guard. (Plate XCVI) is the only specimen seen from Malir area of Chaukandi type tombs showing typical curved blade the main body of which unfortunately is covered by the sheild. This is the only specimen with a knuckle guard or basket like guard with a typical sindhi hilt. The motifs on most of the hilts are not very well appreciated because of the ravages of time but the pommel on all of them are round

but because of the lack of dimensional effect they appear to be flat.

2. SHIELDS

All the shields studied on the riders are of small size typically Baluchi hide shields, the rim of which is very clearly visible at the periphery with very clearly defined and visible central bosses with no other design visibly appreciable. The shield show with collections of arms are of broad type (except for Plate XCV) From Malir no bosses or other design is seen on any of the shields studied.

3. DAGGERS

The specimen of daggers seen are mostly straight type with straight Quillions with straight blade culminating in a sharp tip. The riders are shown with straight knives or daggers but no other detail is appreciable except in (Plate XLVII) from Malir area where the dagger has a figure of type of hilt with dropping quillions like a Pulouar hilt.

4. LANCE/SPEAR (BAL-LAM)

A very typical example of Indo Persian lance is seen on the shoulders of all the riders consisting of long pointed or short triangular head mounted on probably a light wooden bamboo pole with iron socket at the base. The impression of the bamboo light wooden pole is given by the manner in which the lances are held effortlessly by the riders.

5. BOW AND ARROW

The bows seen on most of the Chaukandi type of stone reliefs are of two types simple string bow and composite bow for which Sindh was famous and so were the Sindhi archers. The quivar from the rider shown on Pir Patho full of arrows. The detail of the arrow is only available on two specimen from Malir (Plate XCVI & XCVIII) where a short rough arrow with a conical tip is shown. The other details of the arrow e.g. "Notches" are missing.

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V

TECHNICAL

V

TECHNICAL

CONSERVATION OF METALS IN CENTRAL ARCHAEOLOGICAL LABORATORY LAHORE.

by

Rehmatullah.

(Plates: CIV – CIX)

The modern archaeological practices require the collaboration of the scientists at all stages in the study of archaeological objects. Ancient objects are subjected to scientific examination to obtain informing regarding composition and ancient method of fabrication and to determine an appropriate method of preservation. Once they have been preserved, they are displayed in safe environment. A chemist, trained in conservation, also ensures that any deterioration in the condition of a museum object is quickly identified and the damage rectified at its initial stage.

The Central Archaeological Laboratory of the Department of Archaeology and Museums, has to conserve objects of varied nature like metals, stones etc., as also objects of organic origin. This paper is, however, confined to discussing one problem of silver and the other, in detail, of bronzes.

Silver in our museums has become brittle and it is difficult to restore ductility in it. A silver sieve of Taxila museum was severely crushed while buried and required to be reshaped. The changes in metal structure which should occur due to relief of stresses and recrystallisation did not proceed according to expectations. The problem was whether it was possible to render silver ductile so that the object could be reshaped? Ancient silver in Pakistan has

certain amounts of other metals such as copper, bismuth and lead. These traces of impurities were one of the reasons of silver embrittlement. The other reasons are large grain size and intercrystalline corrosion that had taken place. As the normal annealing process did not work, the only possibility left was cold working but this was not a feasible proposition. So the object has to be left as it is except consolidation. These positions were clear during the metallographic studies.

HISTORY

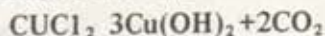
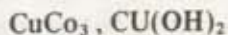
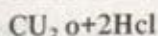
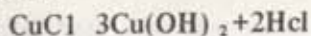
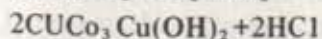
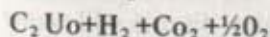
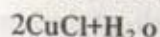
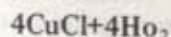
It was discovered that a hard kind of copper could be produced by smelting a mixture of two separate ores of copper and of tin. This discovery could have been accidental due to some carelessness on the part of smelters. But, having once experienced the advantages of bronze over copper, it is believed that the Mesopotamians sought elsewhere for the ores and contacts between Sumer and Central Europe existed during later centuries of third millennium. The discovery of a new source of tin ore in Bohemia and Saxony accounts for the subsequent revival of true bronze-making about the end of third millennium by the people of the later Mesopotamian empires who had inherited the metallurgy of Sumer. Smelting of copper took place about 4000 B.C. in Western Asia. Thereafter, metals were adopted for useful needs first in Asia and later in the other regions. In Europe, the regions ruled by Muslims such as Spain, Sicily, provided main highways for the west-ward transmission of ideas and inventions.

In Egypt, the bronze making from metallic copper and metallic tin did not begin earlier than about 1400 B.C. Bronze of Sumerian and of Babylonian origin have been found in the remains of Troy that date from the third millennium and have been observed to contain from about 3% to 6% of tin. Bronze making began in China in about middle of second millennium B.C. during the period of Shang-Yin dynasty. Separate smelting of metallic tin was not practised in China until the middle of 1st millennium.

CORROSION

All metals except gold tend to revert to products similar to the minerals from which it was made. The mineral alteration products often add beauty to the object and increase its value in the eyes of a Curator. When copper remains buried in damp soil, reddish mineral of cuprous oxide is first formed. It is en-

cursted with basic carbonates that are either green or blue depending if it is malachite or azurite. If the mineral alteration product is free from Chlorides, it is stable and protects the underlying metal from further corrosion. When more than one metal is present as in bronze, the corrosion will be more complicated both in composition and structure and more liable to retain salts.¹ Bronzes in presence of chlorides in the ground present an acute problem of conservation because an unstable cuprous chloride is formed as a corrosion product that can react with moisture and give rise to progressive corrosion under humid conditions.² Soluble salts present in the ground in Pakistan are NaCl, Na₂SO₄, K₂SO₄, Na₂CO₃, KNO₃, NaNO₃, KCl (Na, K, Cl, SO₄, CO₃, ions). Soil samples of Moenjodaro were analysed by me and were found to contain the above soluble salts. The surface of bronze in such soil becomes powdery and spotty. So common is this feature of corrosion in bronzes that the appearance of characteristic shiny green spots are referred to as 'bronze disease'. These spots grow due to the hydrolysis of cuprous chlorides forming hydrochloric acid, which in presence of moisture and oxygen reacts with metal core to form basic cupric chloride (Paratacamite). This hydrolytic process is reversible and shall continue until it is arrested. It is also proved that features of bronze disease cannot be produced in the absence of chlorides even if humid conditions are there. Bronze disease spots grow radially and also in depth consuming the metal core under them in a manner similar to pitting. According to a review by Rathgen³ as early as 1860 chloride ions were assumed to involve the contamination of patina derived from the environment during burial or exposure to marine soils. Fink⁴ also found that the disease could be initiated with a grain of common salt and 1ml. of water. Such bronze disease spot grow if moisture and carbon dioxide are available.



TREATMENT

External changes due to corrosion of Copper and Copper alloys have long been a subject of study for technologists and museologists alike. Both are interested in preservation but museologists pay more attention to the aesthetical aspect of the process. The main objective in conservation of bronzes should be to eliminate or to immobilize the cuprous chloride. Cuprous chlo-

ride cannot be removed by mere washing with water. The outburst of active corrosion in Pakistan's Museums has been observed during monsoon. It is more acute in Karachi where humidity is very high in July, August and September. Much less cases of bronze disease are detected in Archaeological Museum Moenjodaro. I visit that museum twice a year and have detected very few cases of troubled bronzes. This happens in spite of the fact that soil, where bronzes remained buried for five thousand years, are saturated with chloride ions. In my opinion, the reason for this is the dry climate of the area. Secondly, these bronzes were treated in 1930. The reports tell that perforated zinc sheets were used. The object to be treated was wrapped in these sheets and heated in sodium hydroxide solution. Nascent hydrogen evolved reduced chlorides. These bronzes, had in fact plenty of metal core. Calculation of time required for the treatment depended upon the experience and skill of the Chemist handling the operation. I must admit that the treatment was quite a success, particularly light reddish brown colour, which is very good from curator's point of view. Recently, a hoard of 5 bronze axes was found in a bronze vessel in Moenjodaro. It had a beautiful stable green patina. The explanation of this is that an equilibrium is established between the corroded bronze and its environment in the ground and I attribute the survival to this factor. Excavation destroys this equilibrium. The resultant exposure to very different environmental conditions brings changes that are often massive. I, therefore, advise excavation teams to immediately send bronze objects to Laboratory for treatment.

In my Laboratory I have used very successfully the method of sodium sesquicarbonate, and I am very happy with the results achieved. Two copper plates excavated from Mainamati museum (Bangladesh) were sent to Lahore Central Archaeological Laboratory in the year 1964 for treatment. Patina was very unstable and there was very hard thick incrustation covering the inscription of which nothing was visible. After preliminary examination I decided to adopt sodium sesquicarbonate treatment keeping in view that it will arrest the corrosion while retaining the general character. I continued treatment for about seven months. These plates were soaked in 5% Sodium Sesquicarbonate solution and chlorides were tested until negative test was obtained. Solution was warmed to 50°C to accelerate the action and finally the plates were washed using hot distilled water. Washing took about one month. Thus continued keeping these plates wet for about eight months, the hard incrustation was softened. I used a soft brush throughout this period for brushing, involving mechanical cleaning on a small scale. As the inscription was very delicate in ancient PALI language, the slightest disturbance would have caused exten-

sive damage, so great care was exercised. Although it is a lengthy method yet it gives good results, provided one has patience. As plates were free from chlorides after the treatment, there was no problem. These Copper plates are on display in Mainamati Museum. The last time I saw these is in February 1971 and they were in absolute stable state of preservation, in spite of the fact that Mainamati is extremely humid during monsoons.

Bronzes in some of our museums show shiny green spots of bronze disease particularly after monsoons. These have been treated very successfully using dry technique of silver oxide. This method was first devised by Organ⁶ to convert harmful (paratacmaite) into stable inert silver chloride. Thus a stable seal of silver chloride is formed. My experience with this method is that it works very well if spots are few in number, small in size and detected at early stage. A bronze bull (Regd. No. SK-24 1596) in Taxila Museum treated in this way did not show any problem for the last ten years. This is one instance and I have treated objects in hundreds using this technique and have never observed any outburst of bronze disease at the treated spots. The disadvantage of this method is that a depression is formed which gives an odd look to the object. This depression has to be filled up using synthetic resins. But in our case I keep a watchful eye on our bronze objects and inspect them regularly. Thus any outbreak of bronze disease is detected in the very beginning. This is the only way to control it. A bronze disease outbreak detected at its initial stage is very easily overcome and involves much less problems compared to one which becomes visible in advanced stage. In case of corrosion of bronzes, certain amount of moisture is necessary to keep the reaction going and permanent isolation from access of moisture would stop corrosion. But impermeable coatings so far tried do not provide enough isolation. The only alternative is to keep bronzes in dry showcases using silica gel packets at invisible places in the show cases.

Rosenberg⁷ was the first to register all the possible surface irregularities observed on bronzes that had endured a long burial. He emphasized the importance of Physico-Chemical treatment of the excavated bronze objects. His primary concern was cleaning. Rathgen was the first to study systematically the deterioration of metal objects of art and his review of literature dealing with bronze disease is absolutely complete and includes even observation of microbiological attacks on bronzes.

When we study bronzes from the metallurgical point of view we see that the corrosion of bronze commences and proceeds along the grain boundaries

of the alloy and it will depend upon the quantity of tin present. For example if tin is more than 10% by weight, the grains representing alpha phase will corrode first as their peripheries are rich in tin and it has negative potential compared to copper. But if 1% Zinc by weight is also present, corrosion starts at copper rich portion. Geilmann⁸ & Organ⁹ are also of the opinion that much of the damage observed on bronze objects recovered after a long burial is a consequence of the combined action of moisture and soluble chlorides. I have also observed this in Moenjodaro and other sites which have plenty of soluble salts in the soil. But damage and future problems are much less in bronzes excavated from hilly areas of Swat and North Western Frontier Province of Pakistan, where quantity of salts is almost nil. I used the technique of Benzotriazole described by Madsen¹⁰ of stabilizing a bronze water jar bearing No. 2337-Sk 20-211 of Taxila Museum. Three years have passed and the object is in a good state of preservation. It means that it works well.

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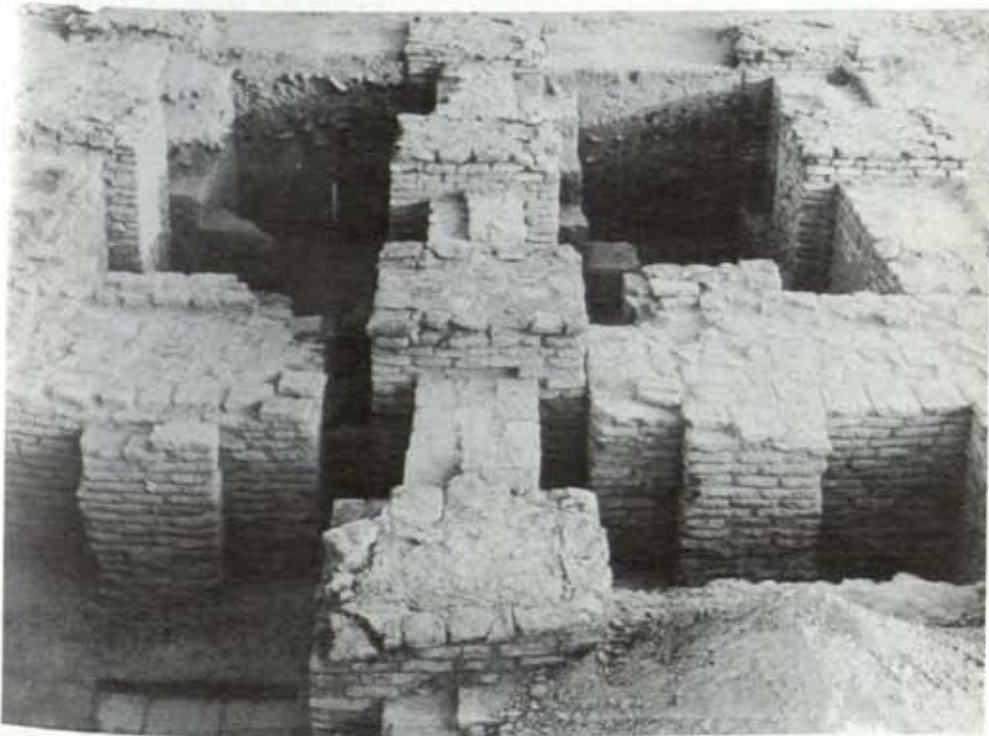
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a : Mosque Area. Bases of pillars in the prayer chamber. Looking south.



b : Mosque Area - Massive brick foundation tie-links in the prayer chamber Looking north.

PLATE: II



a : Mosque Area - Square tile paved floor. Looking north.



b : Mosque Area - Various building periods inside the prayer chamber. Looking north.



a : Mosque Area - Early and late brick skirting in the northern street. Looking south-east.



b : Mosque Area - Massively built wall with projections of period II. Looking east.

PLATE: IV



a : Mosque Area - Lime plastered floor inside the prayer chamber. Looking north.



b : Sector-II - Western Street. Various building periods. Looking north.



a : Western Street - Fortified Pheripheral wall, eastern side.
Looking south.



b : Western Street - Bastion number 1 of the fortified house.
Looking west.

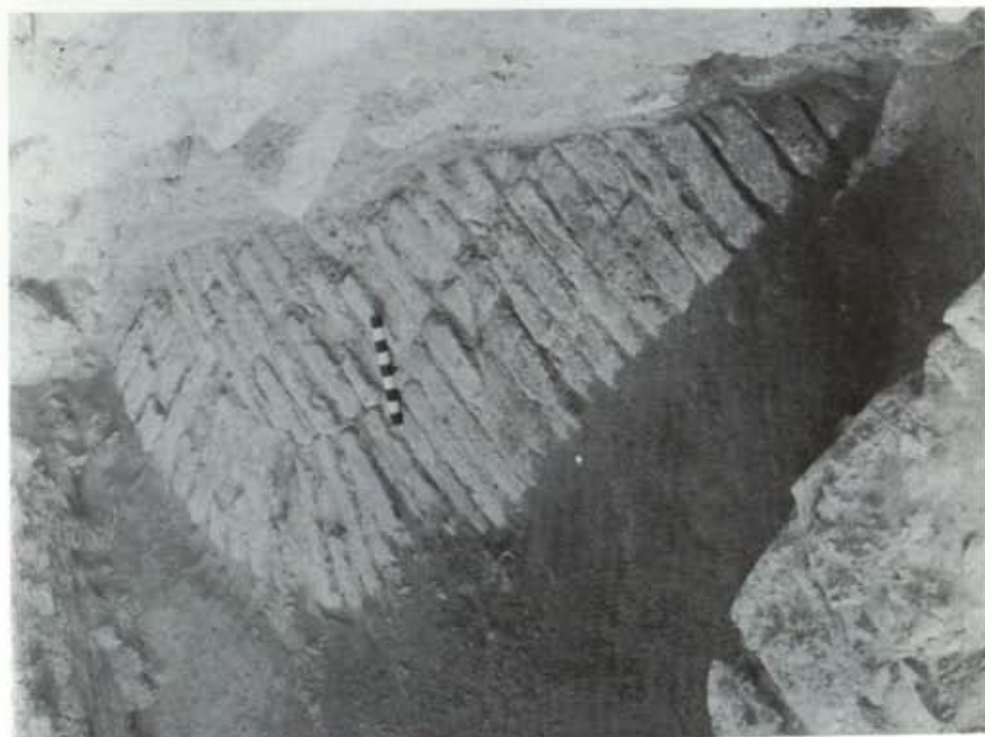
PLATE: VI



a : Western Street - Bastion number 2 of the fortified house.
Looking south-west.



b : Western Street - Bastion number 3 of the fortified house.
Looking north.



a : Western Street - Brick-on-edge pavement with rounded corner. Looking west.

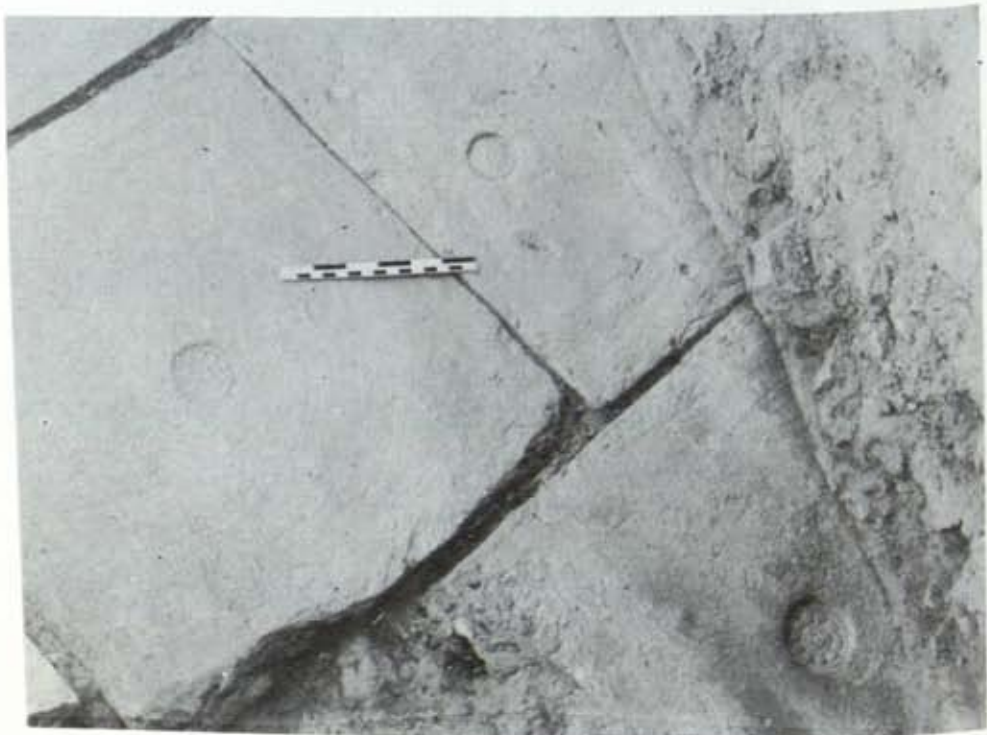


b : Western Street - Brick-on-edge pavement. Looking south.

PLATE: VIII



a : Western Street - Wagon-roofed drain of period III.
Looking north.



b : Western Street - Square tile flooring of period IV adjoining
the *qibla* wall. Looking east.



a : Western Street - Massively built wall with mud brick foundations. Looking north.



b : Sector-III : Southern Street - Various structural remains, periods I - VI. Looking north.

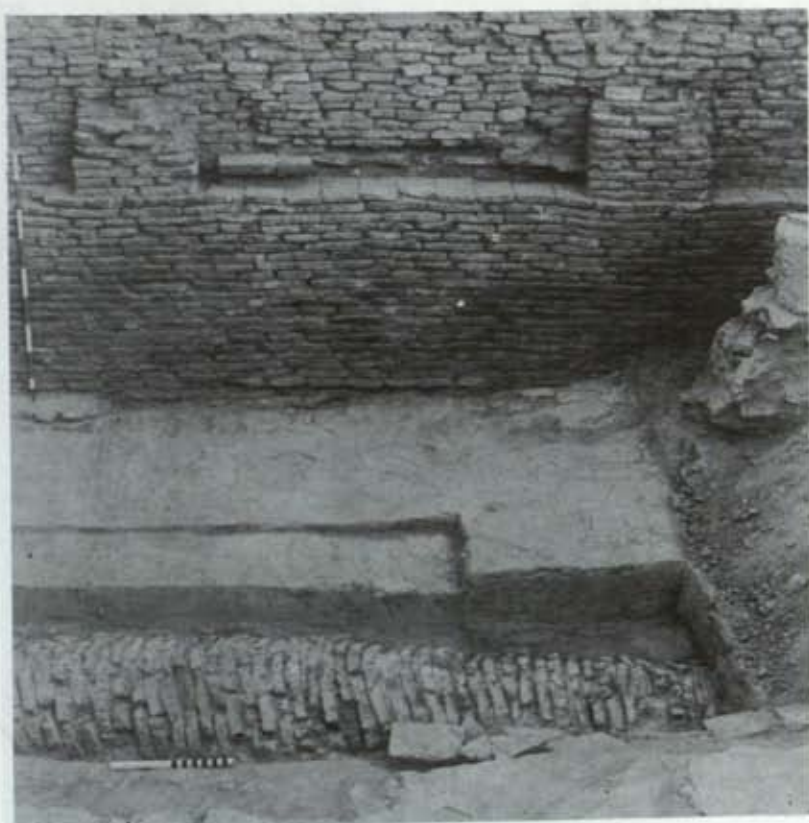
PLATE: X



a : Southern Street - Southern Wall of the mosque resting on the structural remains of period IV. Looking north.



b : Southern Street - Household drain. Looking east.



a : Southern Street - Covered drain of period VI. Looking south.



b : Sector IV : Public Building - Eastern passageway and general view of the complex. Looking west.

PLATE: XII



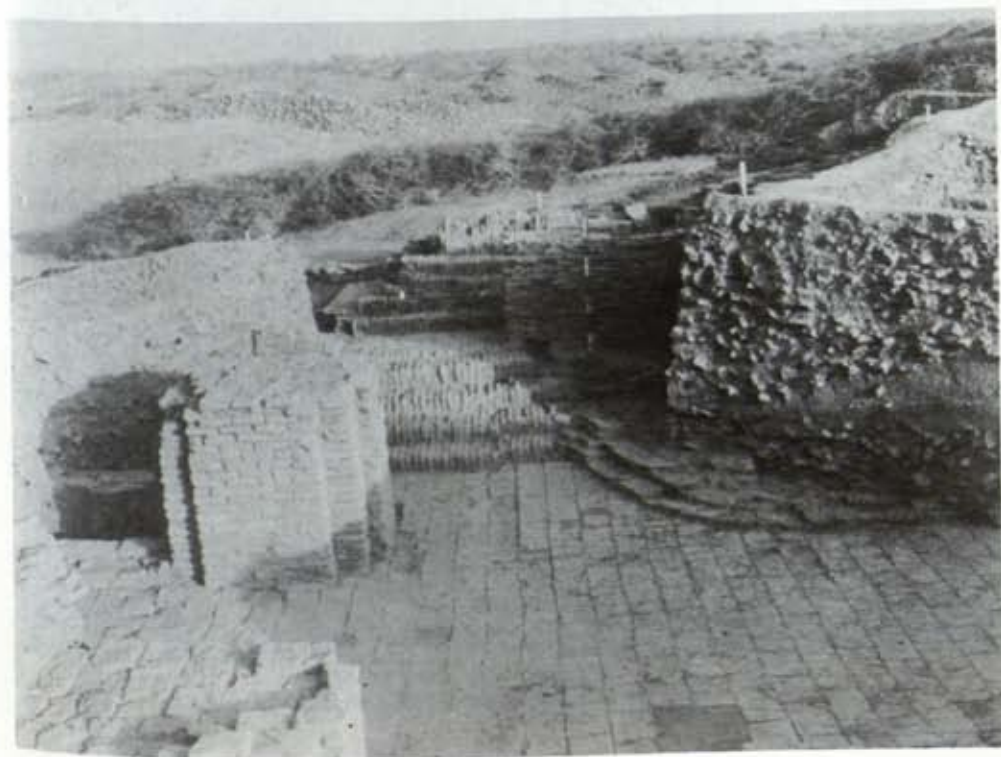
a : Sector IV - Main passageway with skirting on either side.
Looking west.



b : Sector IV - Recessed corner pillars with brick paved flooring.
Looking west.



a : Sector IV - Flight of steps with a landing stage in the middle.
Looking south.



b : Sector IV - Flight of steps alongwith recessed corner,
southern pillar and brick-laid floor. Looking south-east.

PLATE : XIV



a : Sector IV - Brick-on-edge soling and brick-laid floor, periods IV and III respectively. Looking west.



b : Sector IV - Doorway with door-frame nails *insitu*. Looking south-east.



Sector IV - Building remains of period-I. Looking west.



a : Robbers' Pits and Trenches.



b : Walls of the central court-yard.



a : Votive tank.



b : Stupa Court-A, showing the remains of three stupas.

PLATE : XVIII



a : Buddha in *dhyana-mudra* on the inner face of the enclosure wall.



b : General view of the Stupa Court-B.



a : Vestibule and the steps descending to the Stupa Court-B.



b : Row of Buddhas in *dhyana-mudra* on the inner face of the enclosure wall.



a : Close view of a Buddha in *dhyana-mudra*.



b : Head of Buddhas & Bodhisattvas *insitu*.



a : Head of a Bodhisattva *insitu*.



b : Seated Buddhas in *dhyanamudra* on the plinth of Stupa-D.

PLATE: XXII



a : Stupa Court-B, showing the fallen Umbrellas around the steps of Stupa Court-B.



b : Stupa Court-B - showing the steps in the S.W. Corner.



a : Room-I, showing the doorway opening in the East.



b : Room-I, showing the blocked door in the West.

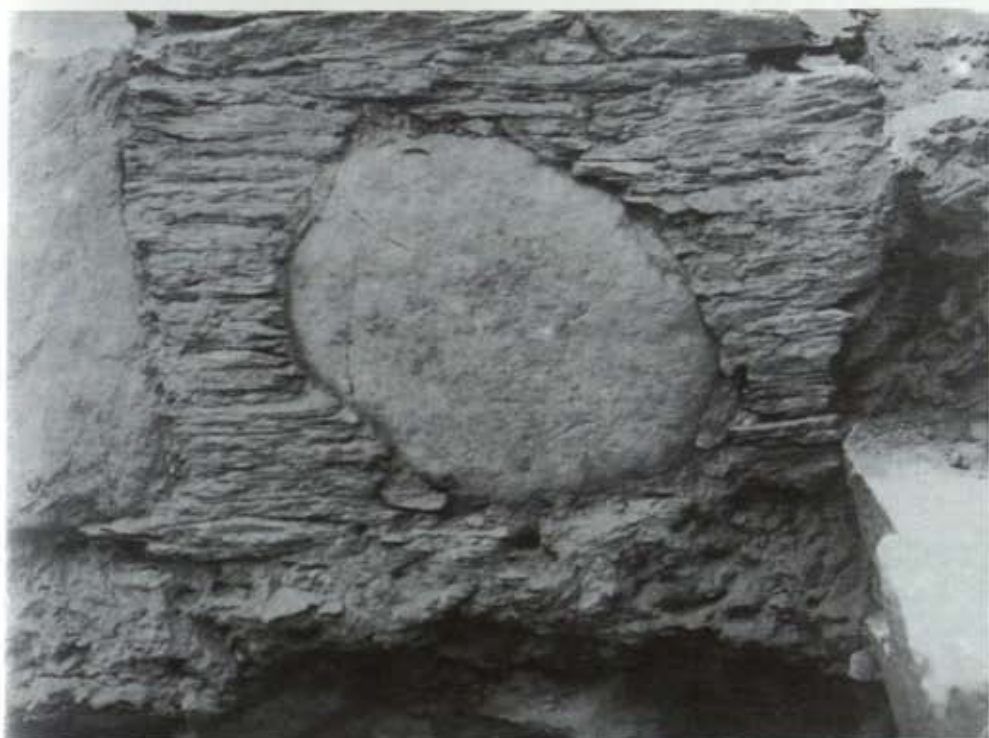
PLATE: XXIV



a : Covered drain.



b : Floor level.



a : Large diaper masonry.



b : Diaper masonry.



a : Bejewelled bust of a Bodhisattva.



b : Buddha in *dhyana-mudra* surrounded by Corinthian pilasters.

a : Head of Satyr.



b : Head of a Bodhisattva.

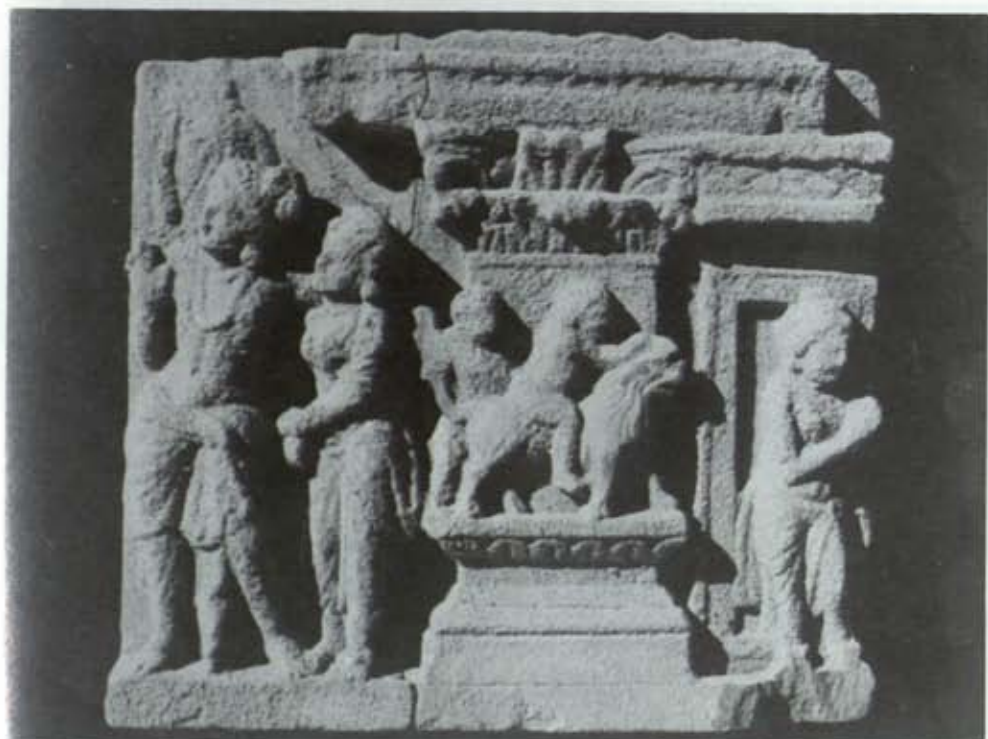




a : Head of a Bodhisattva.



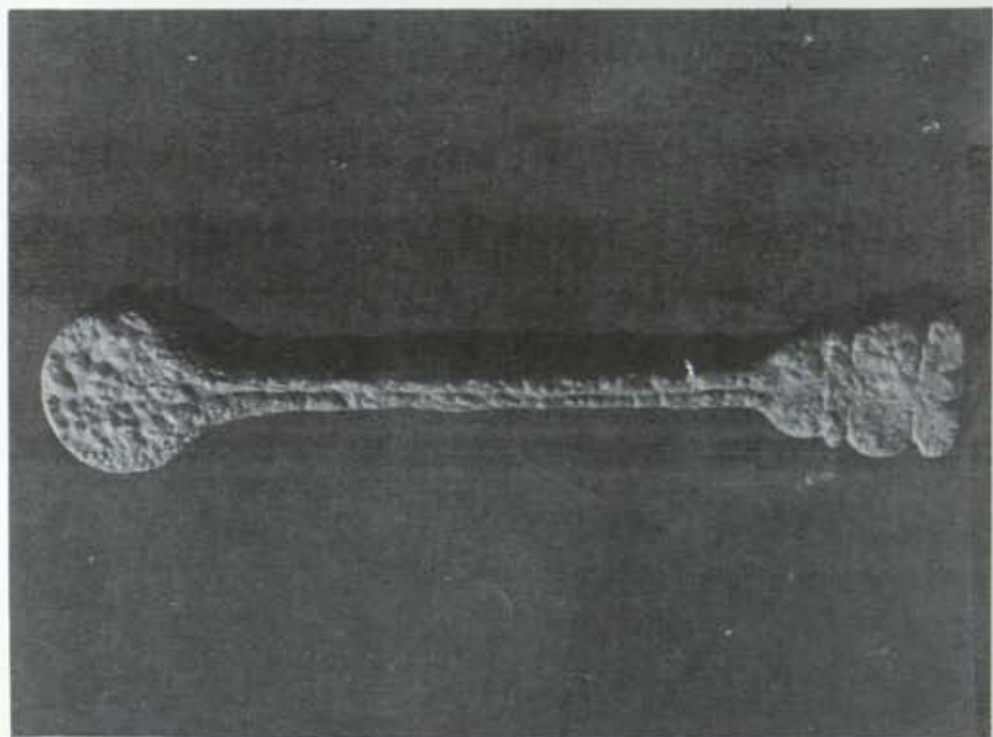
b : *Dipankara Jataka* - showing haloed standing Buddha accompanied by *Vajra-pani*.



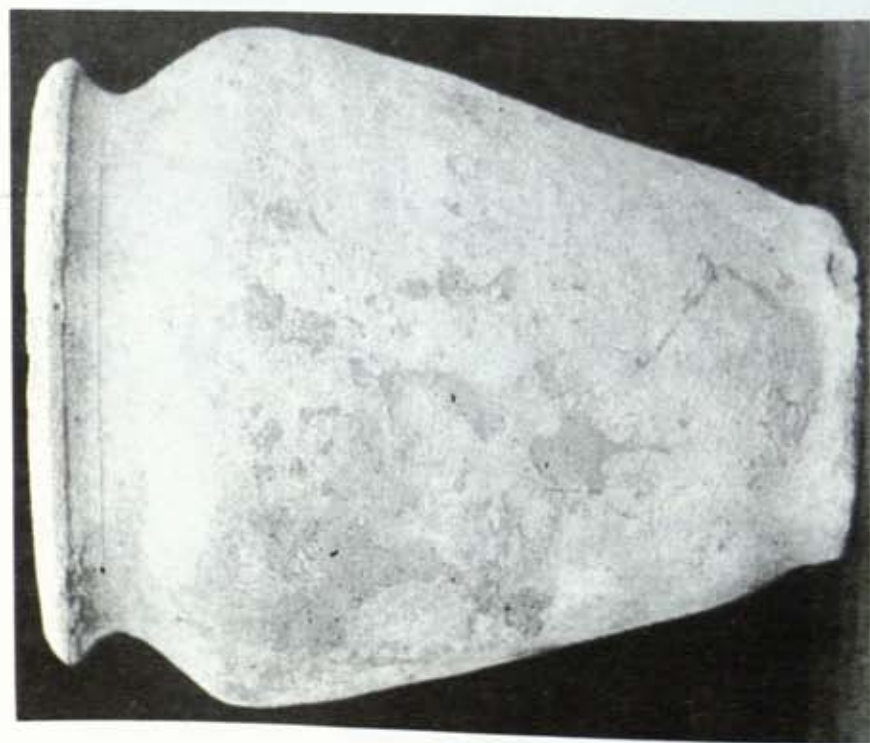
a : Child riding a lion.



b : Iron-hubbed wheel.



a : Copper spatula with *nandi-pata* handle.



b : Plain red ware jar.



: Plain red ware bowl.



a : Raja Gira Mosque, Swat : View from east.



b : Raja Gira Mosque, Swat : Close view from south.



a : Raja Gira Mosque, Swat : Close view of the Mihrab.



b : Raja Gira Mosque, Swat : Western Wall with the Mihrab.

PLATE : XXXIV



a : Raja Gira Mosque, Swat : General view from East.



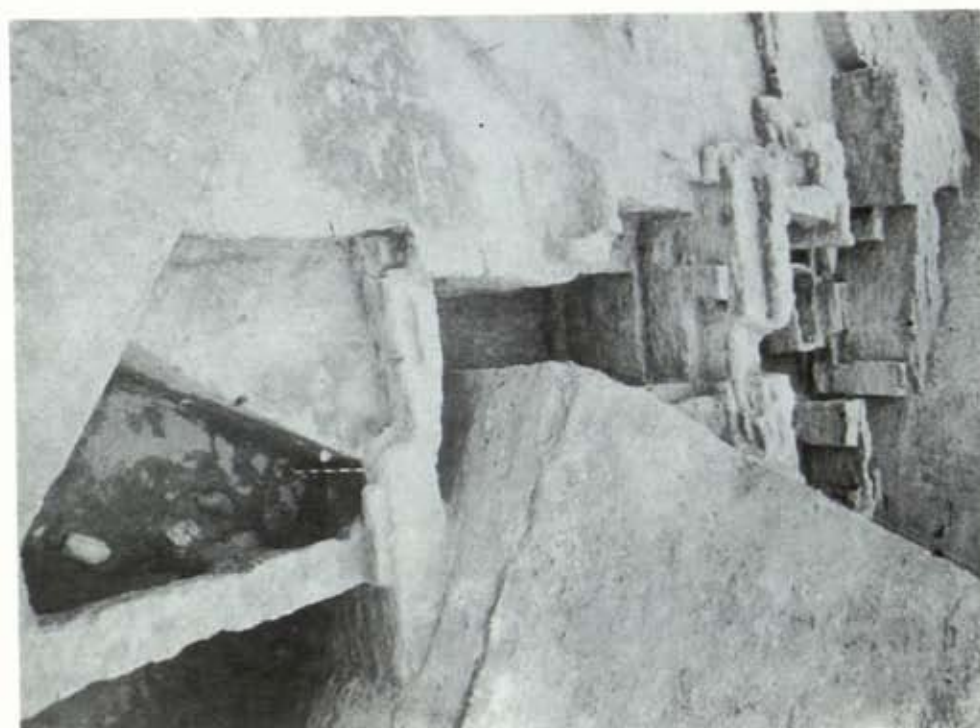
b : Raja Gira Mosque, Swat water basin



a : Foreground, area NS.G (Period I), background, area NS.F/K (Period III). View from the north.



b : Area NS.G, general view of the structures of period I. Foreground : Locus 5 and 6 and the massive brick platform (Period IB) Background : Locus 13,11 and 12 (Period IA).



a : NS.G., General view of the structures of period IA (foreground) IB (background), from the south-west.



b : NS.F/K. General view of Lane A (Period III) from the west.
In the background, a drain in baked bricks.



a : NS.P. View of the structures of the upper levels of period III.
 Foreground right : Locus II. Centre: Locus I.



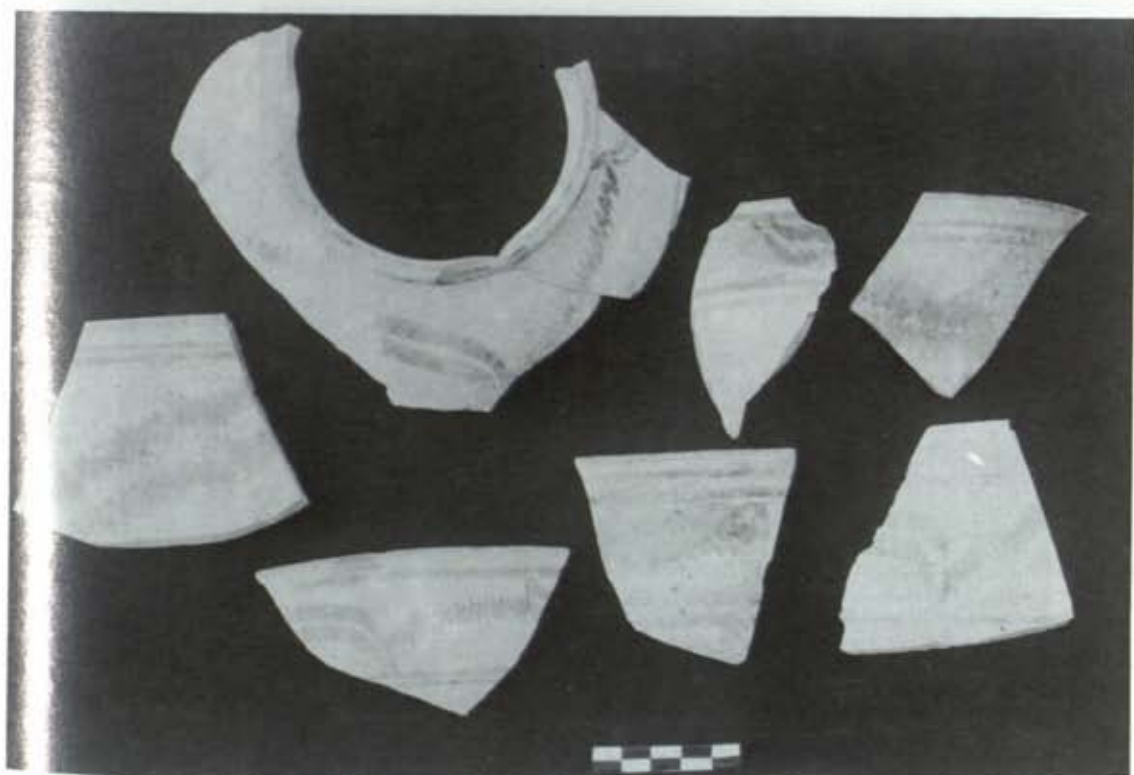
b : NS.P. General view from the west: Foreground, right: Locus XXVI, XXV, period II. Foreground, left : Locus XXI, XXIV, period III A. Centre : Locus XIX, with a drain in baked bricks. Background: buildings of period III B and III C.



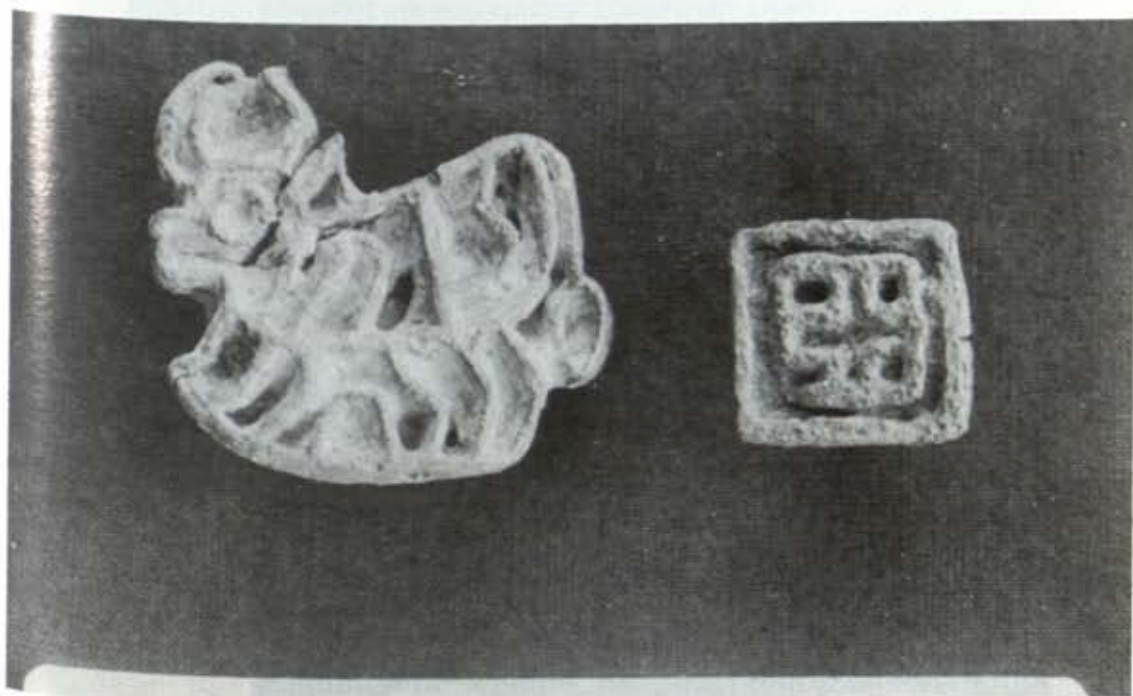
a : NS.F, Feature in baked bricks. Period III.



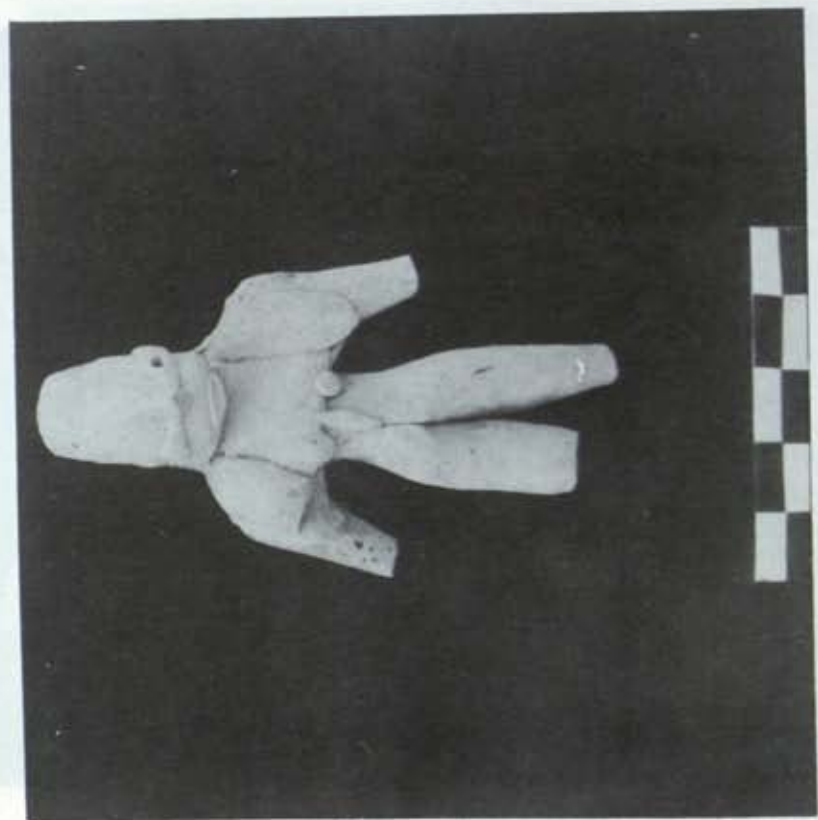
b : NS.L., Oven in baked bricks and storage jar in locus V. Period III.



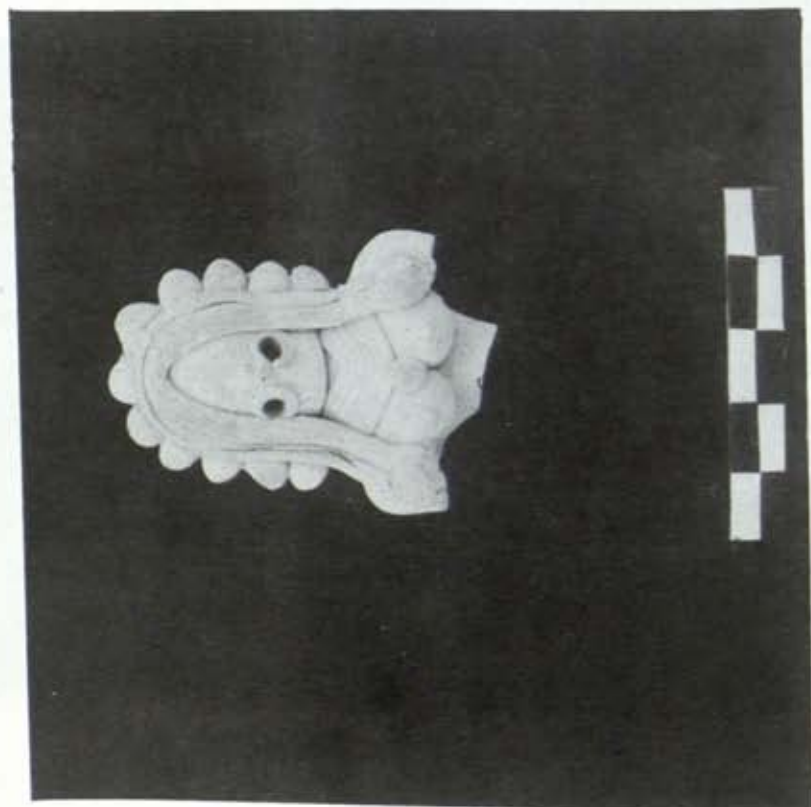
a : NS.G., Potsherds of the "bracketed-ware" Period IB.



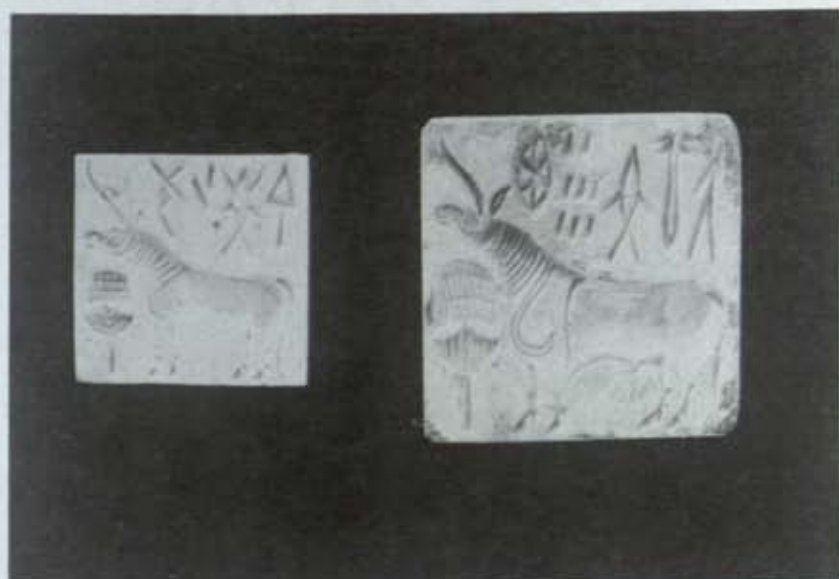
b : Left : Copper/bronze seal in the shape of a zebu from NS.G.
Right : Copper/bronze seal from NS.P. Period IIIC.



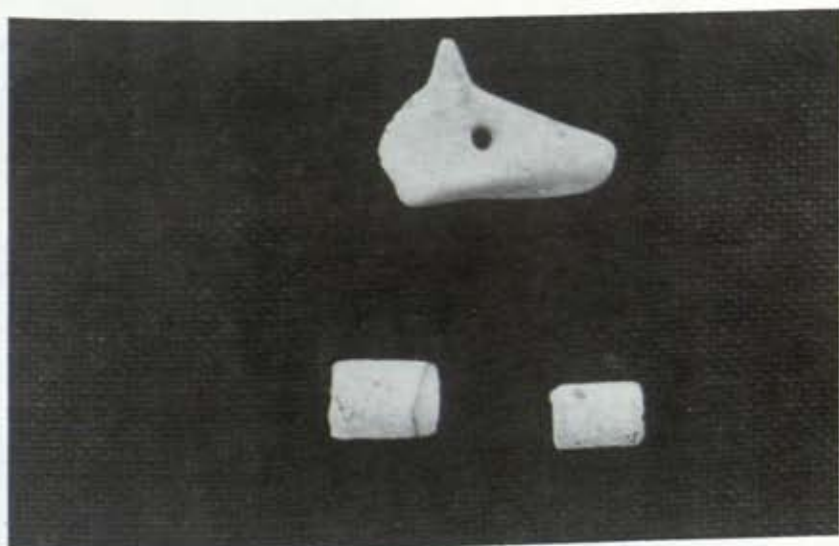
a : NS.G., Terracotta male figurine. Period I.



b : NS.G., Terracotta female figurine. Period I.



: Two Indus seals in steatite. Left : NS.K, 8A, Right : NS.P.
Locus XIII.



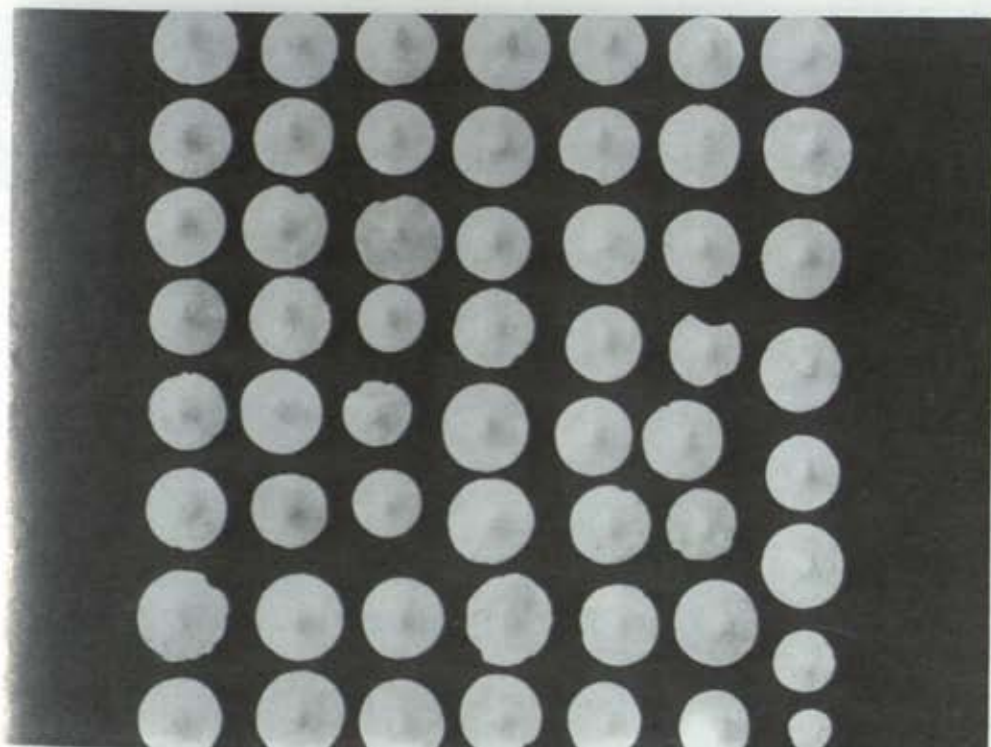
b : NS.L., One amulet in the shape of a horse-head and two
beads in faience. Period III.



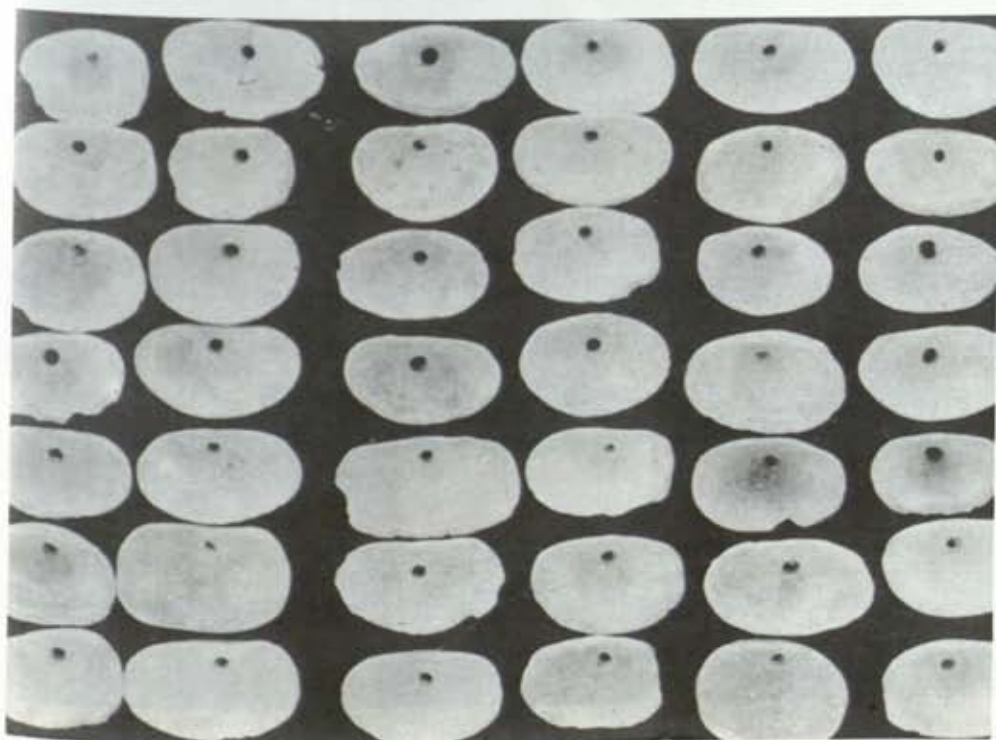
a : NS.P, painted jar. Period II.



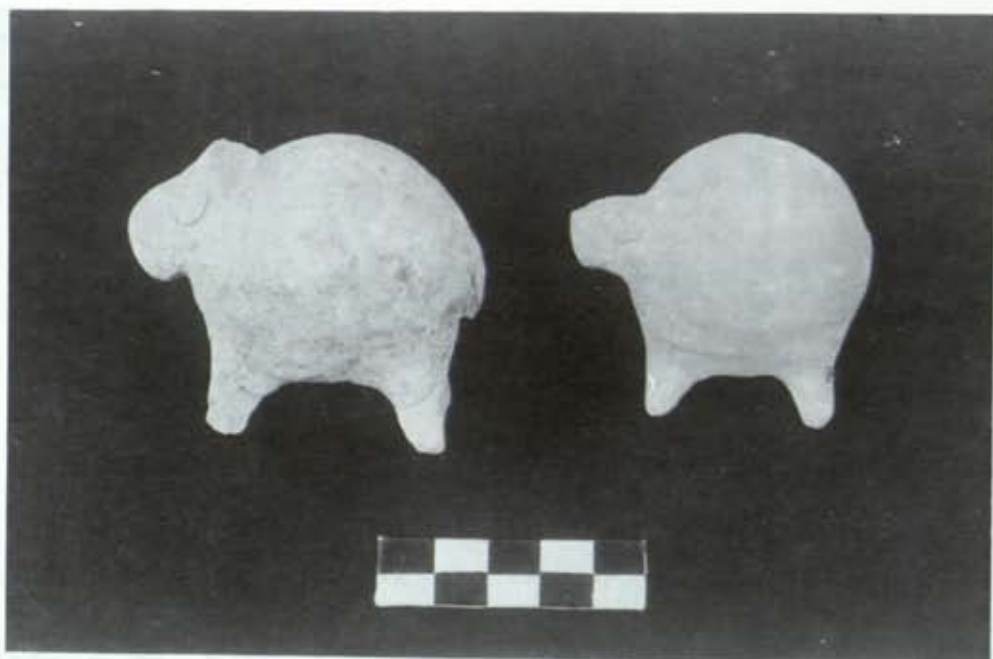
b : Two pots in black ware. Left, from area NS.T. Right, from area NS.L.



a : Terracotta tops from sector NS.P.



b : Terracotta shell-shaped spoons from Sector NS.P.



a : Two terracotta animal figurines from sector NS.P (Period III).



b : Terracotta bull figurines from sector NS.P. (Period III).



a : Goblets from Sector NS.P (Period III).



b : Fragments of dishes-on-stand with bulbs. Upper layers of sector NS.P (Period III).



Vaulted grave on the side of the Dhadar-Shoran road at Dauda Damb (from the period of Mehrgarh VIII). Early 2nd millennium B.C.

ROCK CARVINGS AT TOR DERAİ, DISTRICT LORALAI

PLATE : XLVIII



a : A view of Tor Deraï (north western side).



b : A view of Tor Deraï (eastern side).



a : Tor Derai: Horse-riders, human figures and swastika symbols.



b : Tor Derai: Unfinished human figure flanked by swastikas.

PLATE: L



a : Tor Derai: A horse-rider with a lance on the shoulder.



b : Tor Derai: Horse-riders with horizontally stretched hands.



a : Tor Deraï: A horse-rider holding a sword in his right hand above the head.



b : Tor Deraï: Crude depiction of a horse.



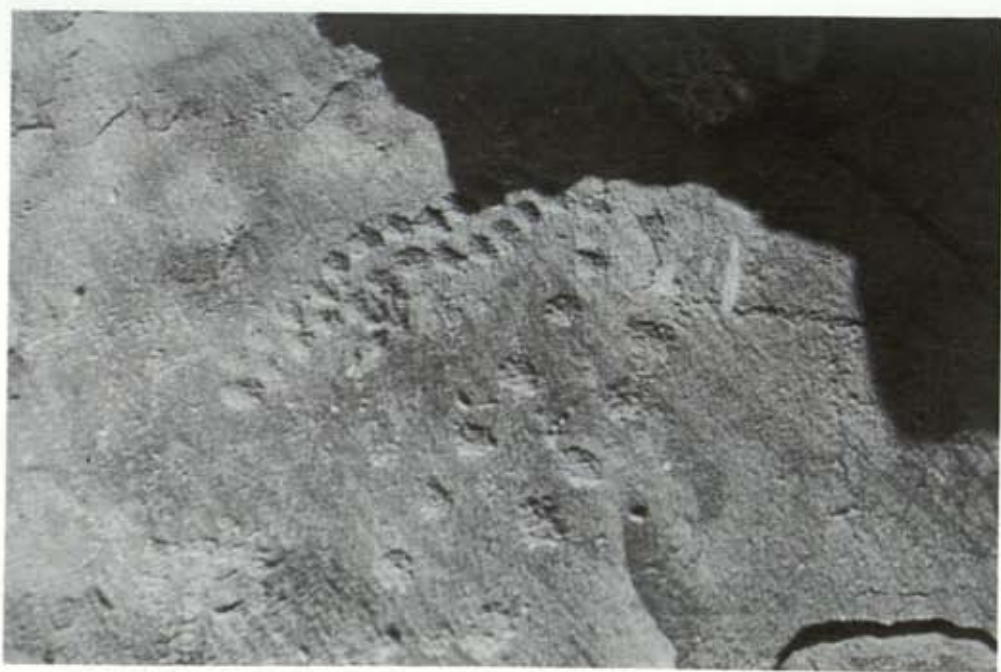
a : Tor Derai: A crude figure of a horse-rider.



b : Tor Derai: A *Trisul* and horse-riders depicted in various styles.



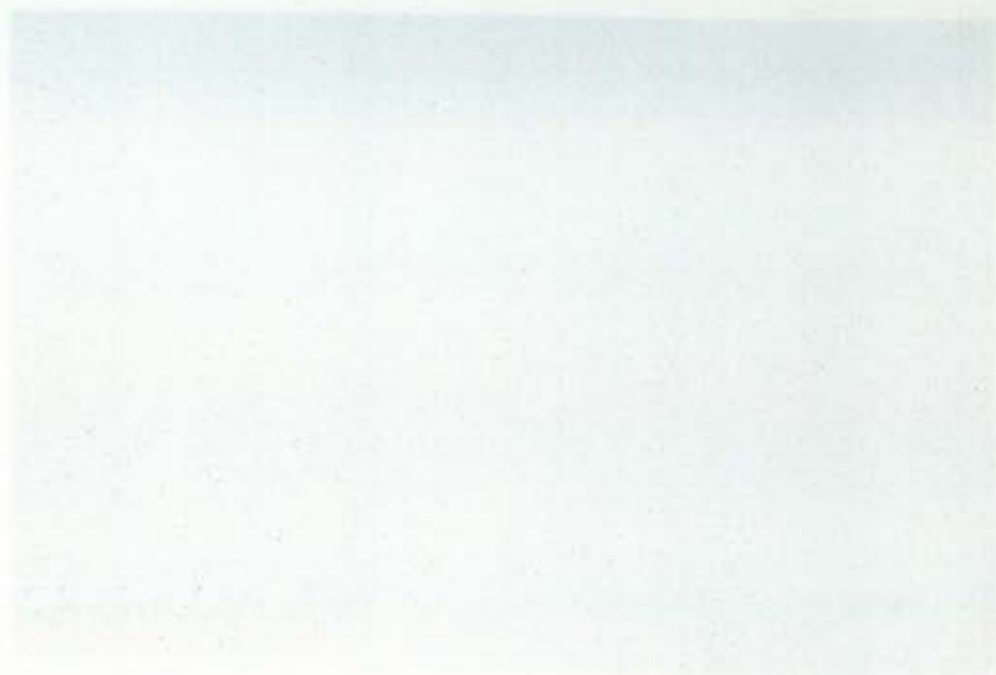
a : Tor Derai: A human figure.



b : Tor Derai: Dots running in double lines.

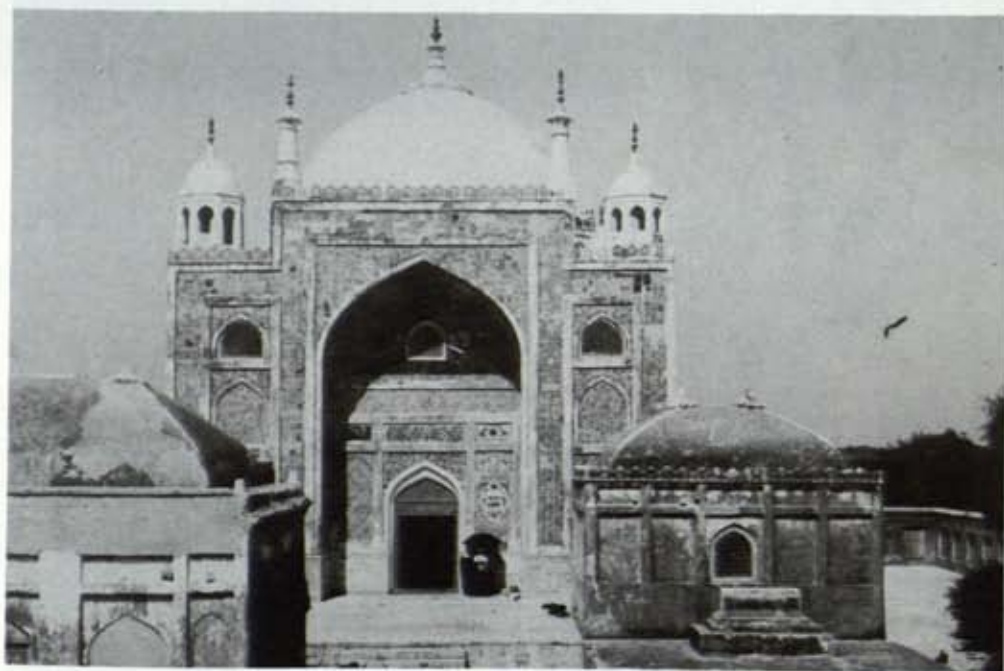


Tor Derai: Kharoshthi inscription.

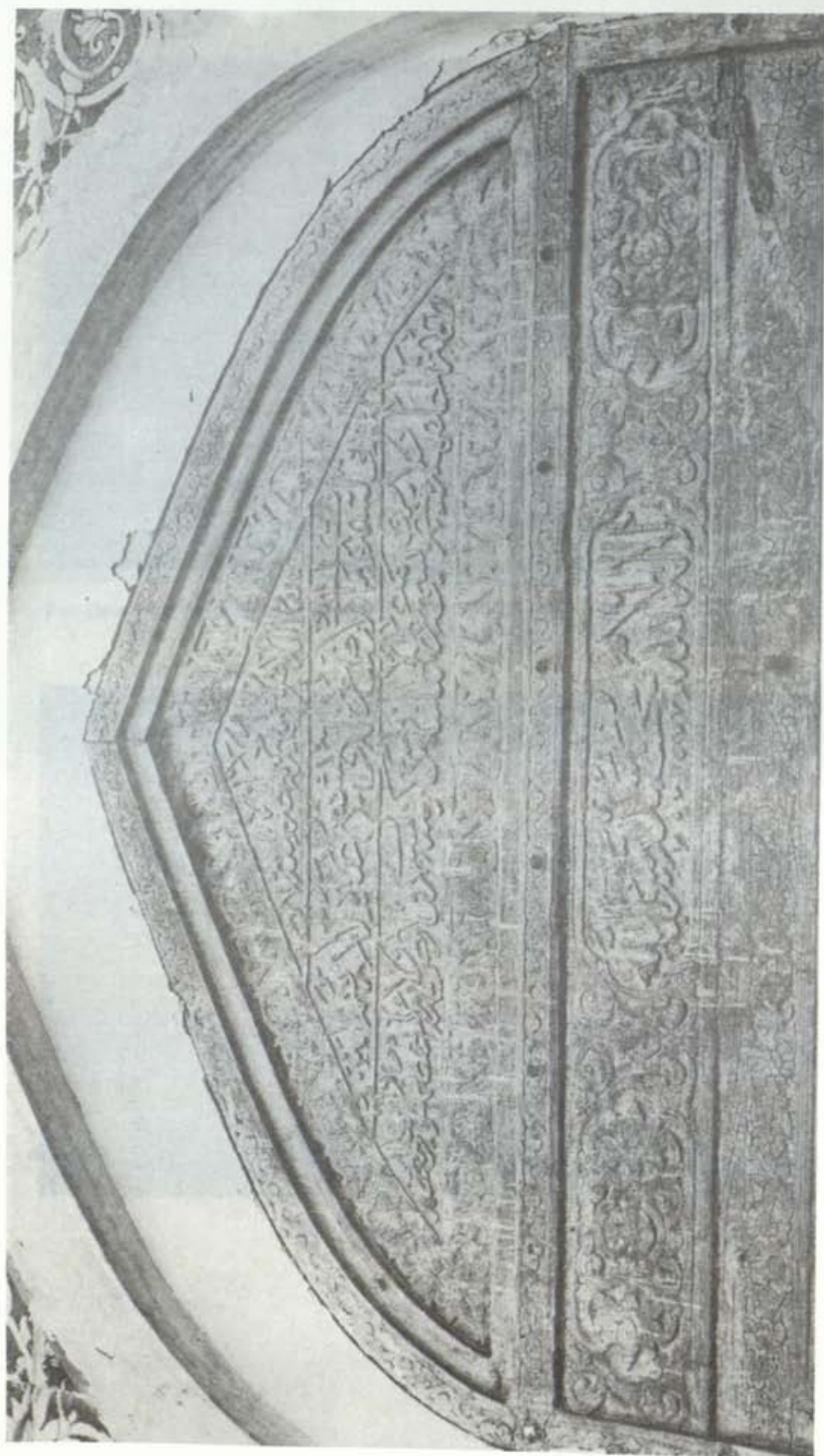




a : General view of the tombs and graves at village Noor Muhammad, Moro, district Nawabshah.

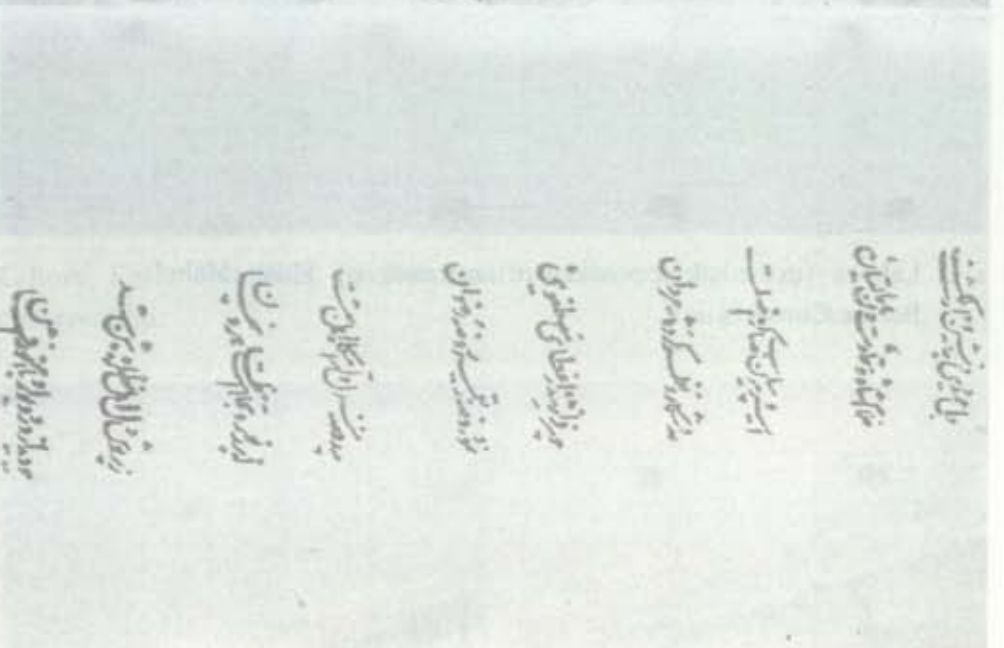


b : Facade of the tomb of Noor Muhammad Kalhora.



Inscription on the wooden *Mehrab* and lintel on the entrance door of tomb (main burial chamber) of Noor Muhammad

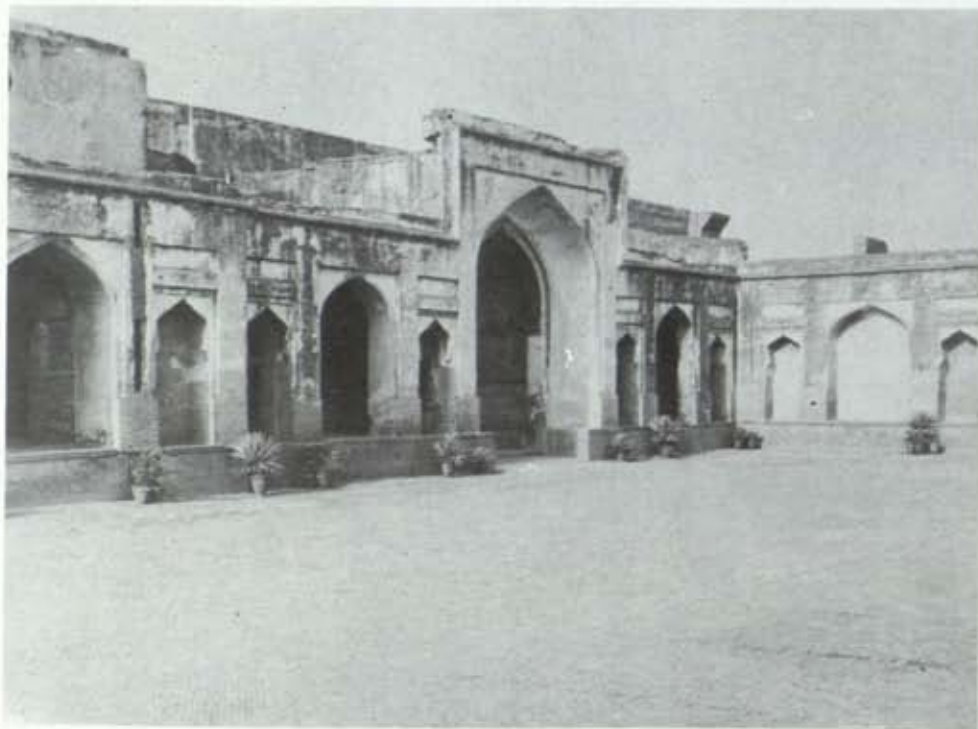
Kashgari.



a : Inscription on the north of the entrance door of Noor Muhammad Kalhora's Tomb.

b : Inscription on the south side of the entrance of Noor Muhammad Kalhora's tomb.

c : Inscription on the north side of door c of Noor Muhammad Kalhora's tomb.



a : Lahore fort : outer courtyard entrance of Shish Mahal.
Before Conservation.



b : -do-
After Conservation.



Lahore Fort: Naulakha pavilion roof; south-east. Before conservation.

PLATE: LX



Lahore Fort: Naulakha pavilion roof, south-east. after conservation.



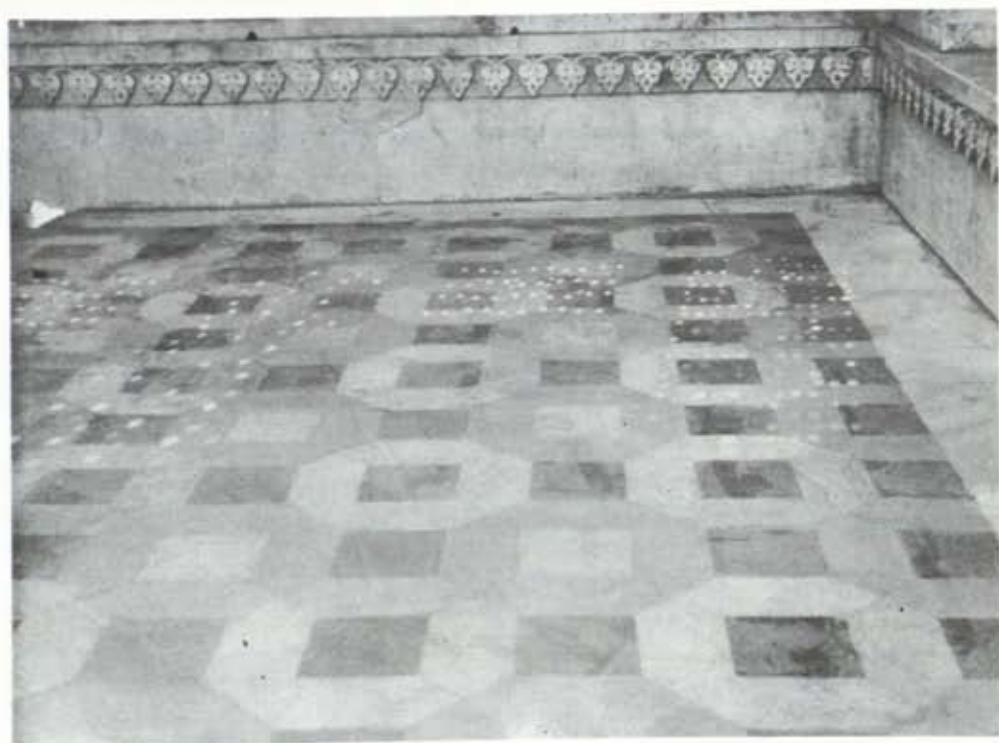
Lahore Fort: *Pietra-dura* work on base of a column in Shish Mahal - Before conservation.



Lahore Fort: *Pietra-dura* work on base of a column in Shish Mahal - After conservation.

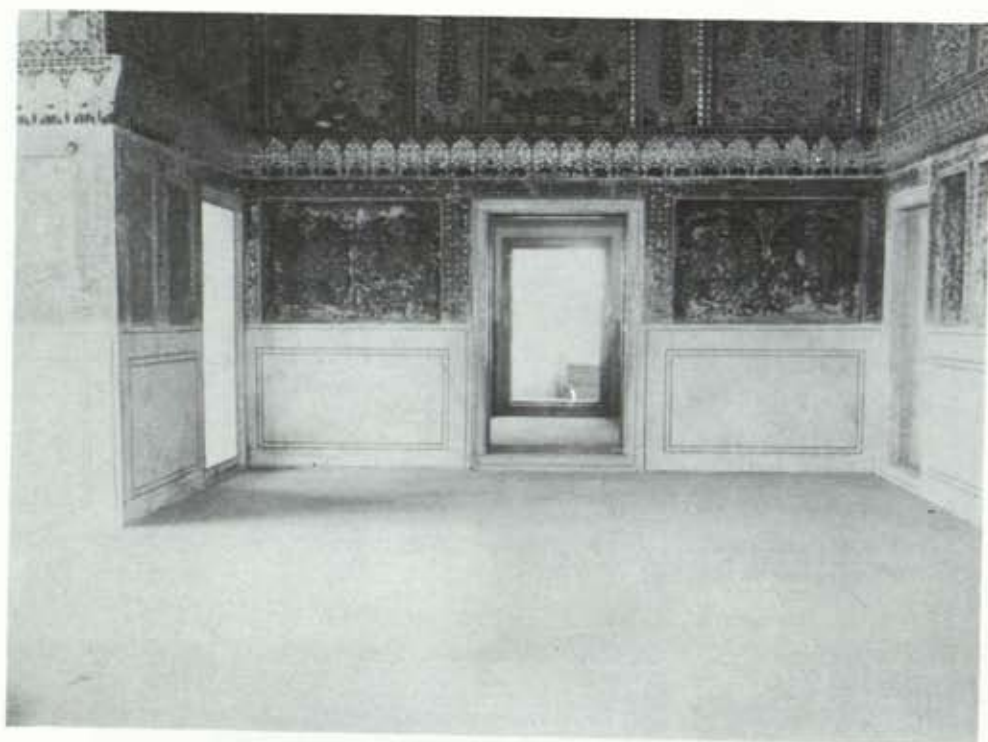


a : Lahore Fort : Courtyard floor of Shish Mahal. Before conservation.

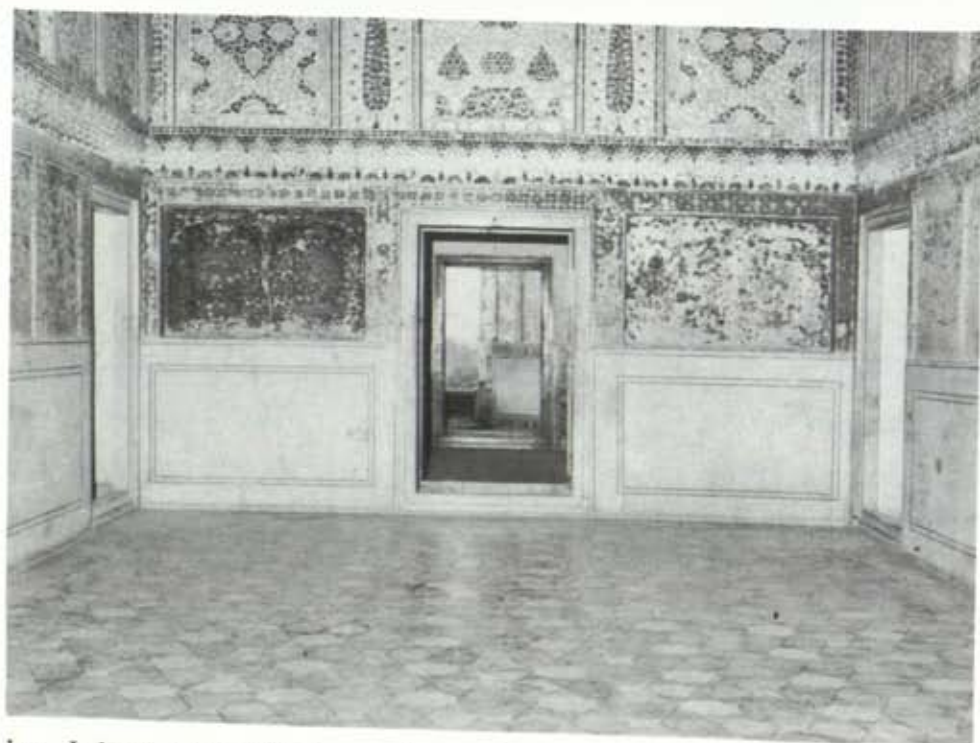


b : Lahore Fort: Courtyard floor of Shish Mahal. after conservation.

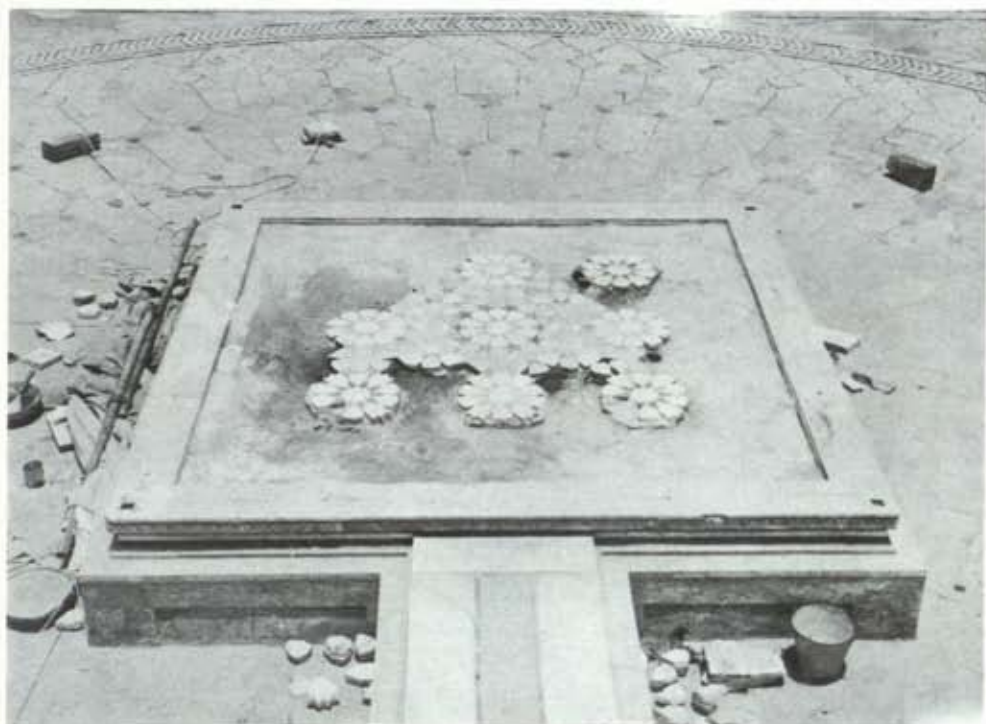
PLATE : LXIV



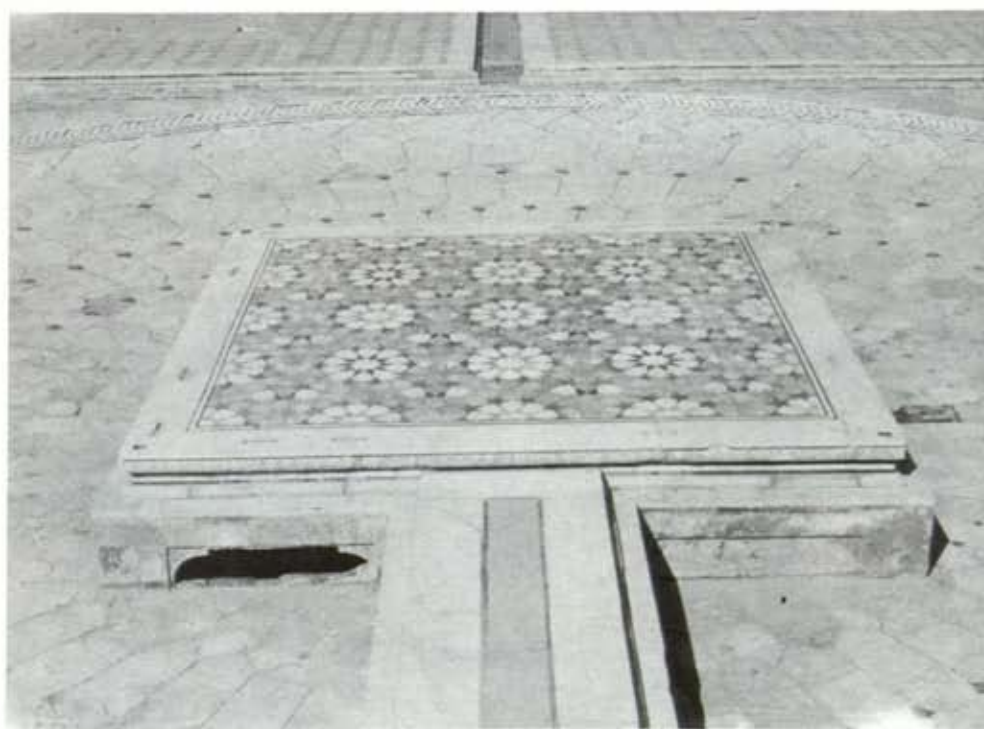
a : Lahore Fort: Glass mosaic work in Shish Mahal. Before conservation.



b : Lahore Fort: Glass mosaic work in Shish Mahal. After Conservation.



a : Lahore Fort: Water tank and *Mahtabi* in courtyard of Shish Mahal. Before conservation.



b : Lahore Fort: Water tank and *Mahtabi* in courtyard of Shish Mahal. After conservation.

PLATE: LXVI



a : Lahore Fort: Shish Mahal basement chamber. Before conservation.



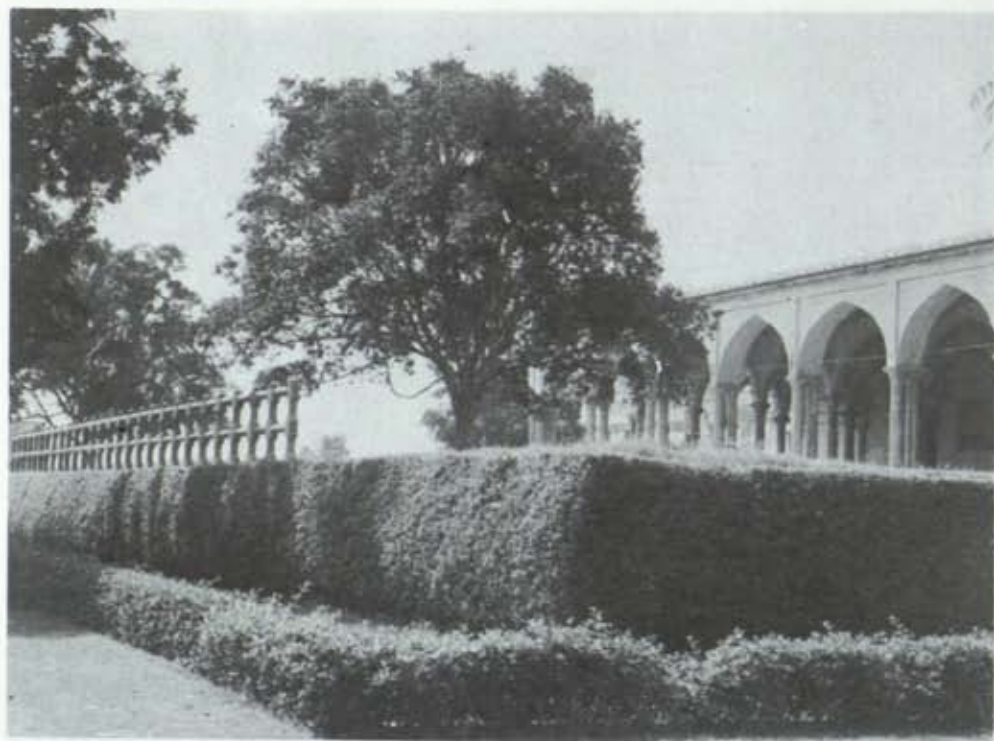
b : Lahore Fort: Shish Mahal basement chamber. After conservation.



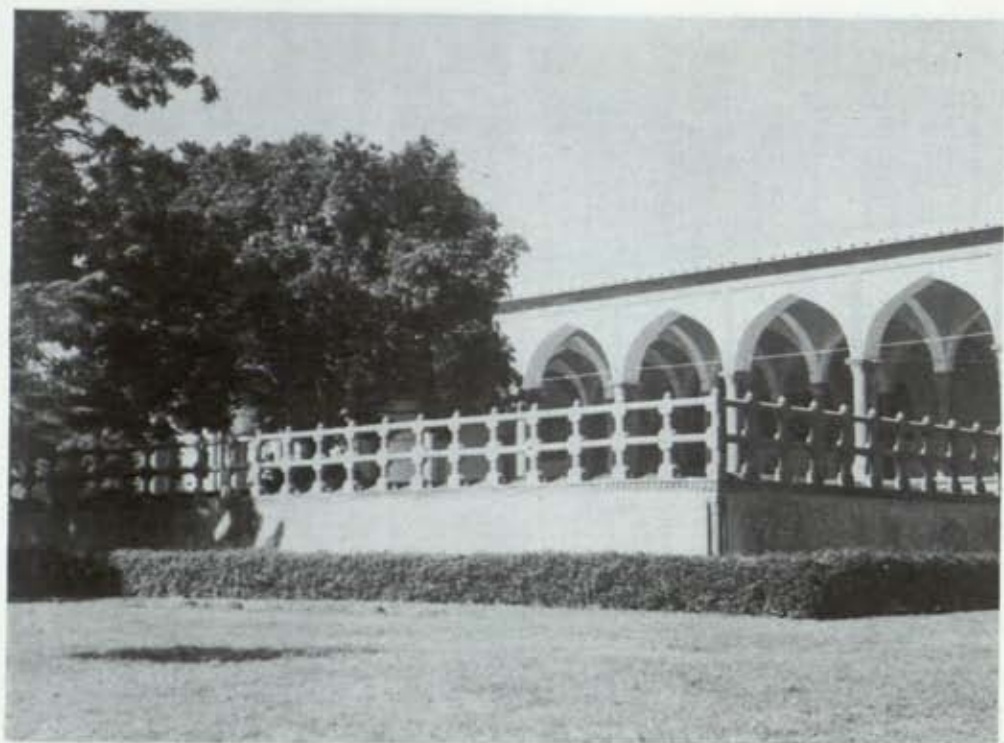
a : Lahore Fort: Screen wall of fore-courtyard of Shish Mahal.
Before conservation.



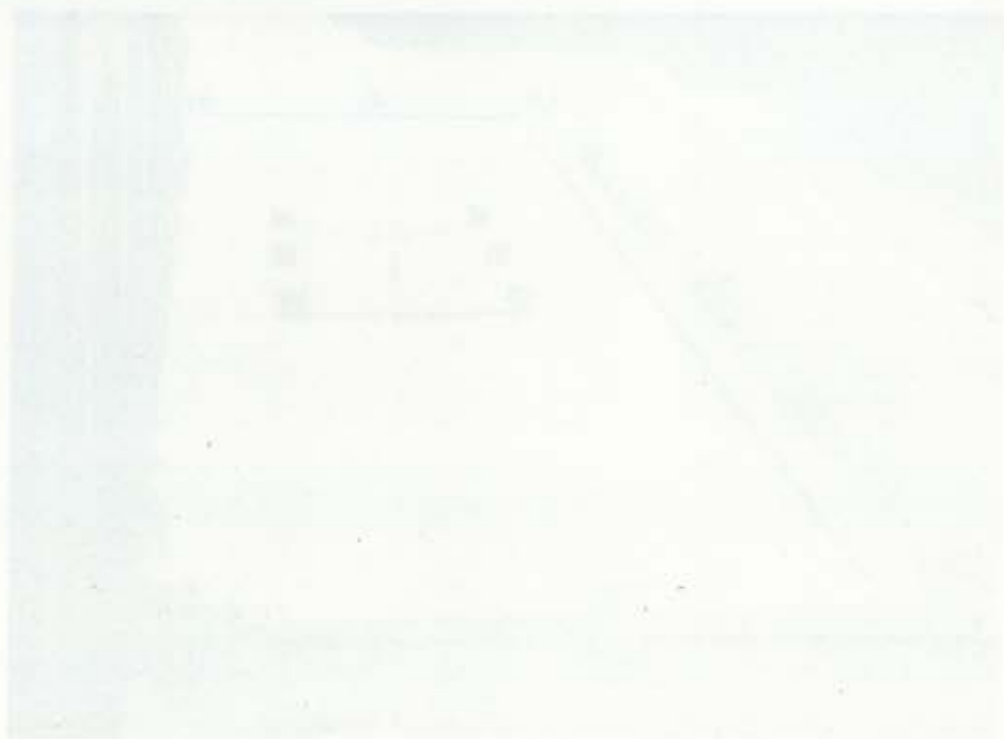
b : Lahore Fort: Screen wall of fore-courtyard of Shish Mahal.
After conservation.



Lahore Fort: General view of *Diwan-i-Aam*, facing south,
Before conservation.

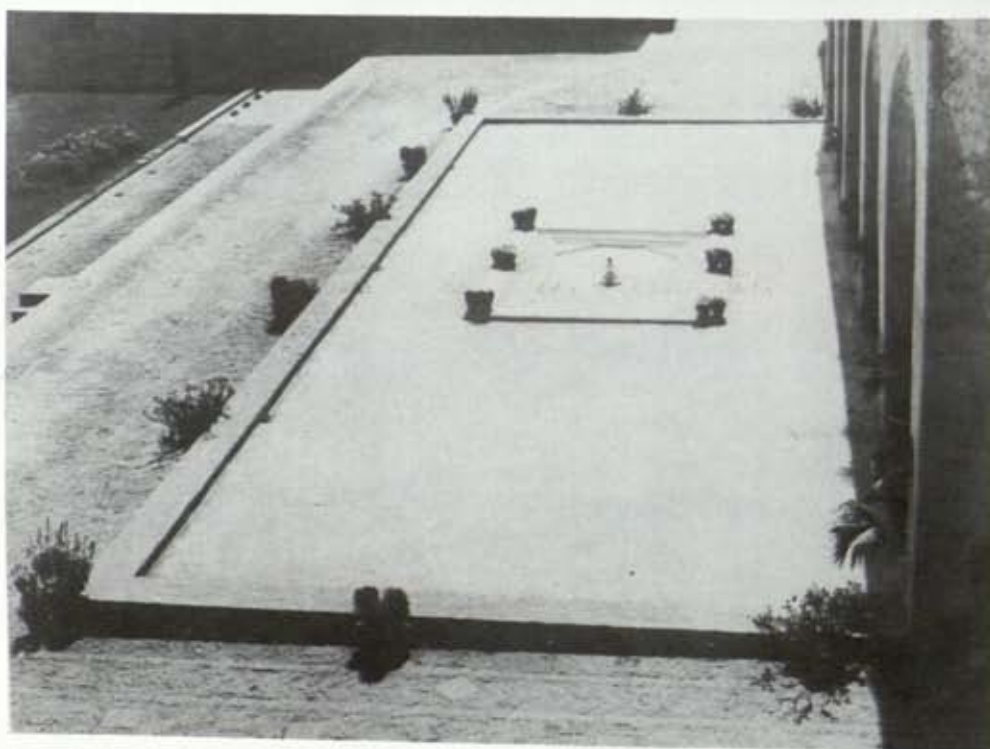


Lahore Fort: General view of *Diwan-i-Aam*, facing south.
After conservation.

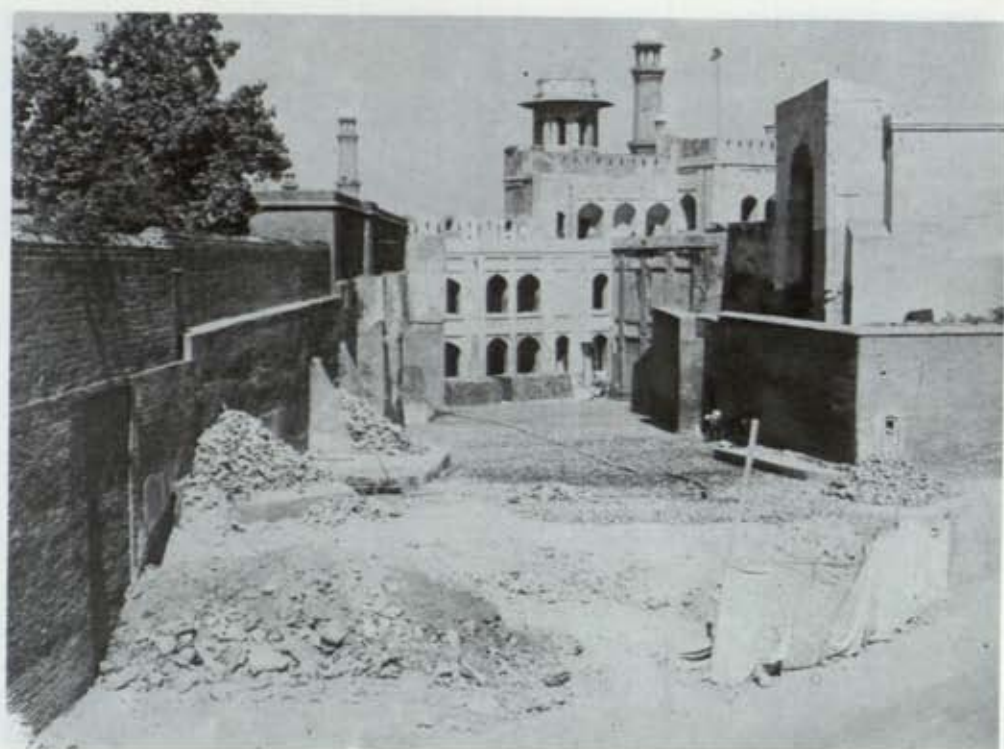




a : Lahore Fort: Courtyard Shahjehani *Khwabgah*. Before conservation.



b : Lahore Fort: courtyard, Shahjehani *Khwabgah*. After conservation.



Lahore Fort: Walkway leading to the Alamgiri gate, view from east. Before conservation.



Lahore Fort: Walkway leading to the Alamgiri gate, view from east. After conservation.



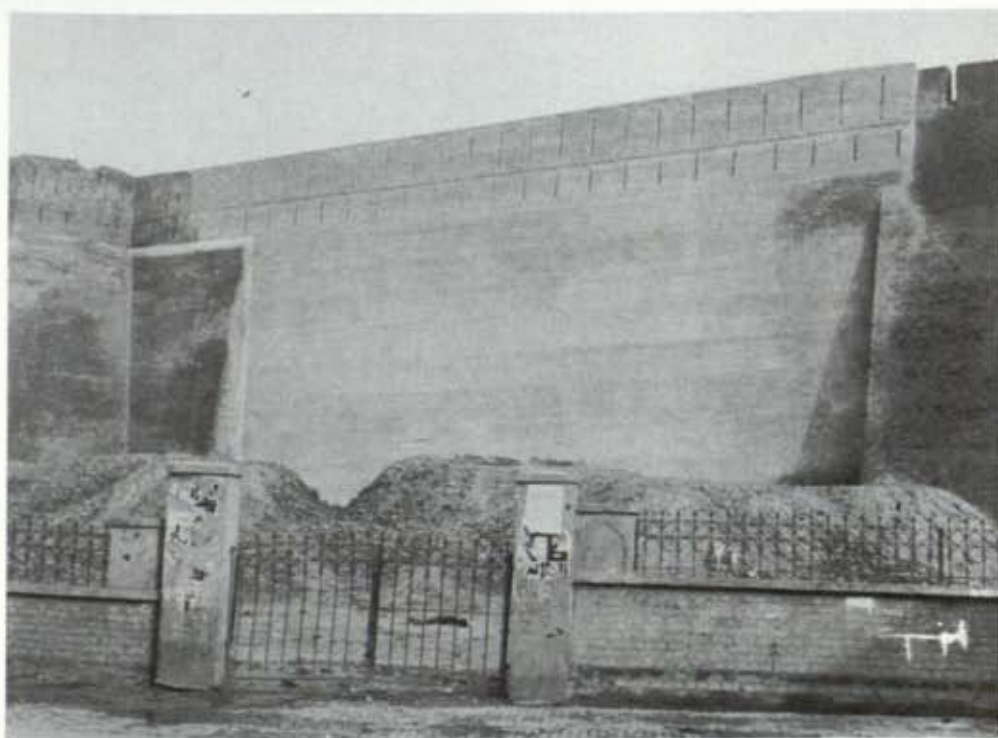
Lahore Fort: *Masti gate* with ramp facing east. Before conservation.



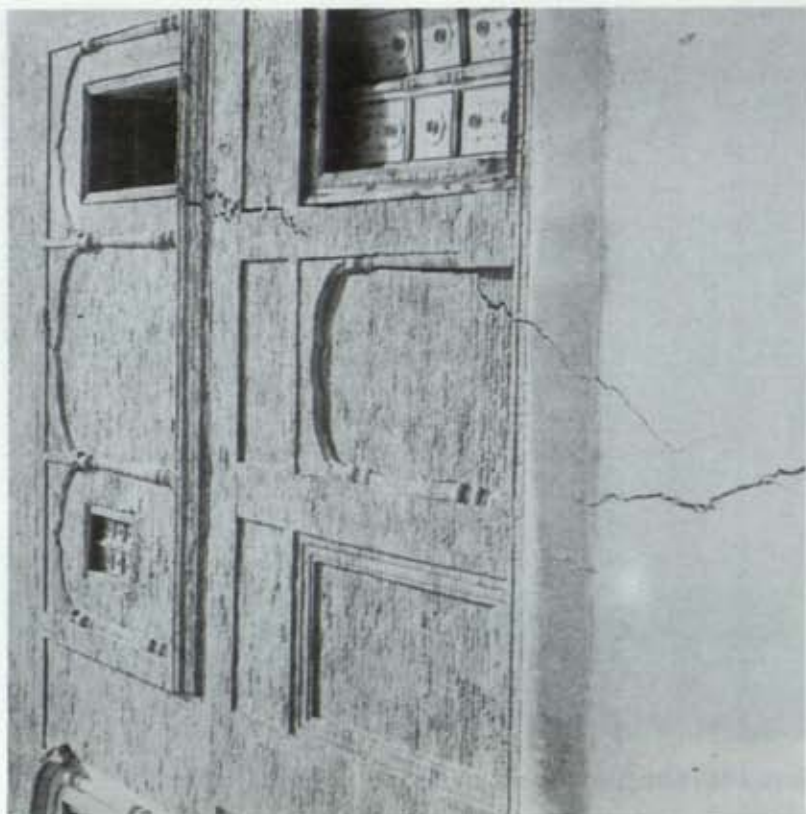
Lahore Fort: *Masti gate* with ramp facing east. After conservation.



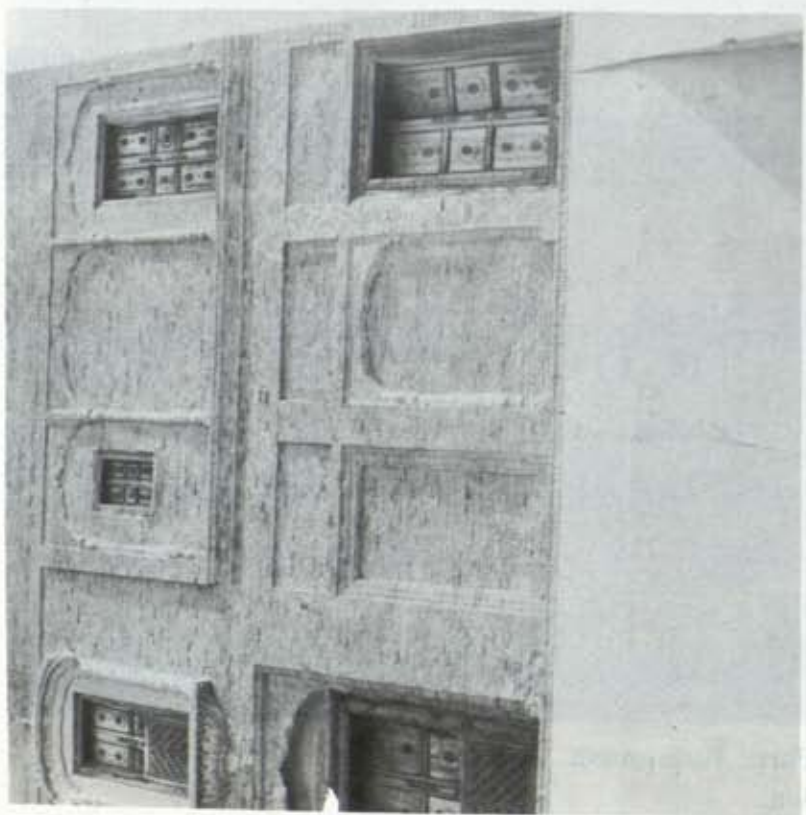
a : Lahore Fort: fortification wall on western side. Before conservation.



b : Lahore Fort: fortification wall on western side. After conservation.



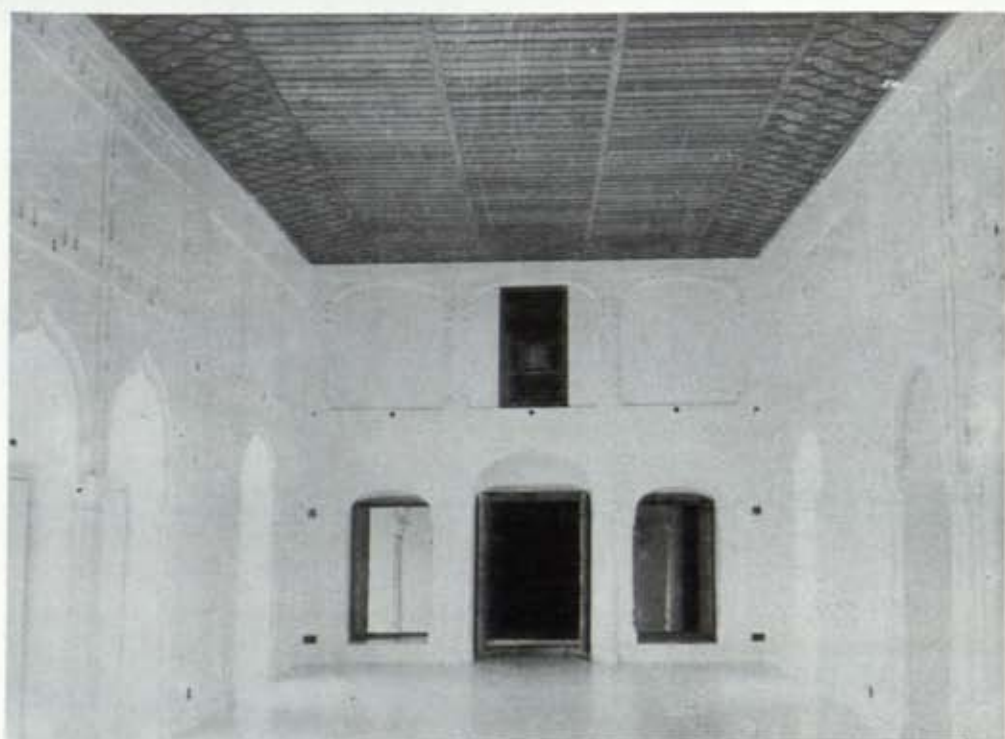
a : *Mai Jindan Haveli*, outer portion facing west: Before conservation.



b : *Mai Jindan Haveli*, outer portion facing west: After conservation.



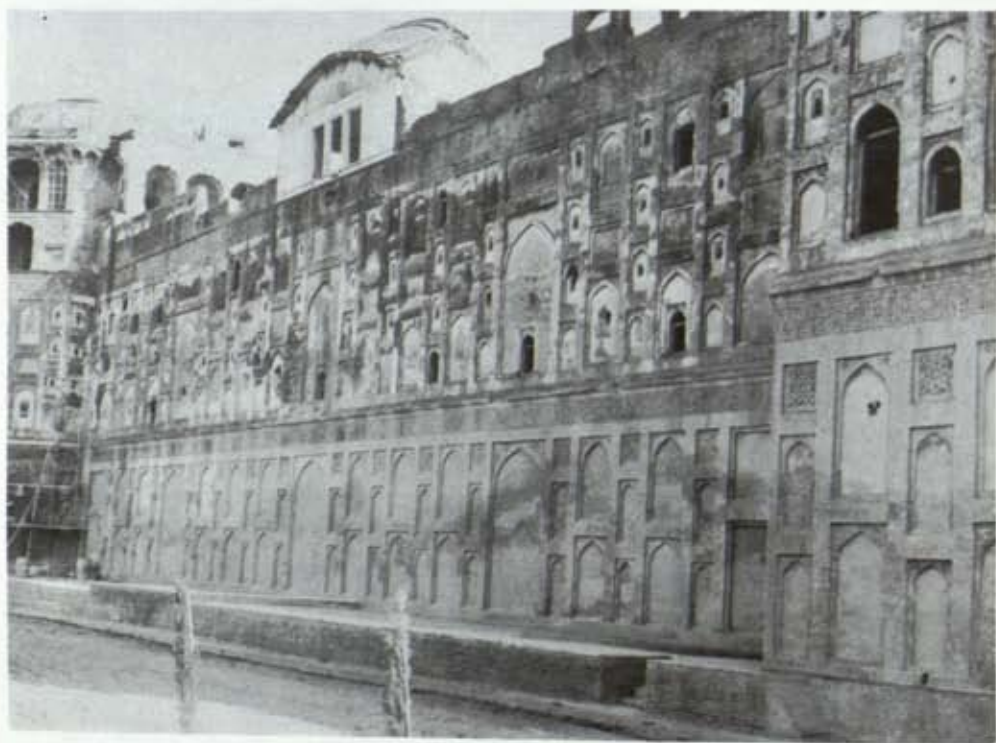
a : *Mai Jindan Haveli*, first floor. Before conservation.



b : *Mai Jindan Haveli*, first floor. After conservation.



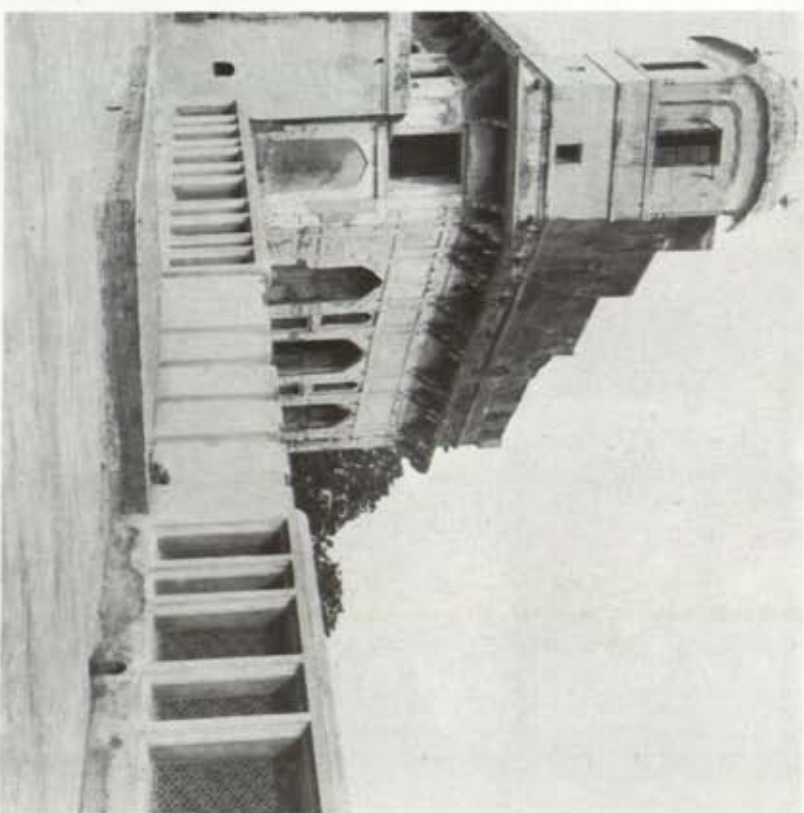
a : Lahore Fort: Picture wall, north side. Before conservation.



b : Lahore Fort: Picture wall, north side. After conservation.



a : Lahore Fort: Outer view of Shish Mahal, facing north-east, showing missing parapet wall and terracing. Before conservation.



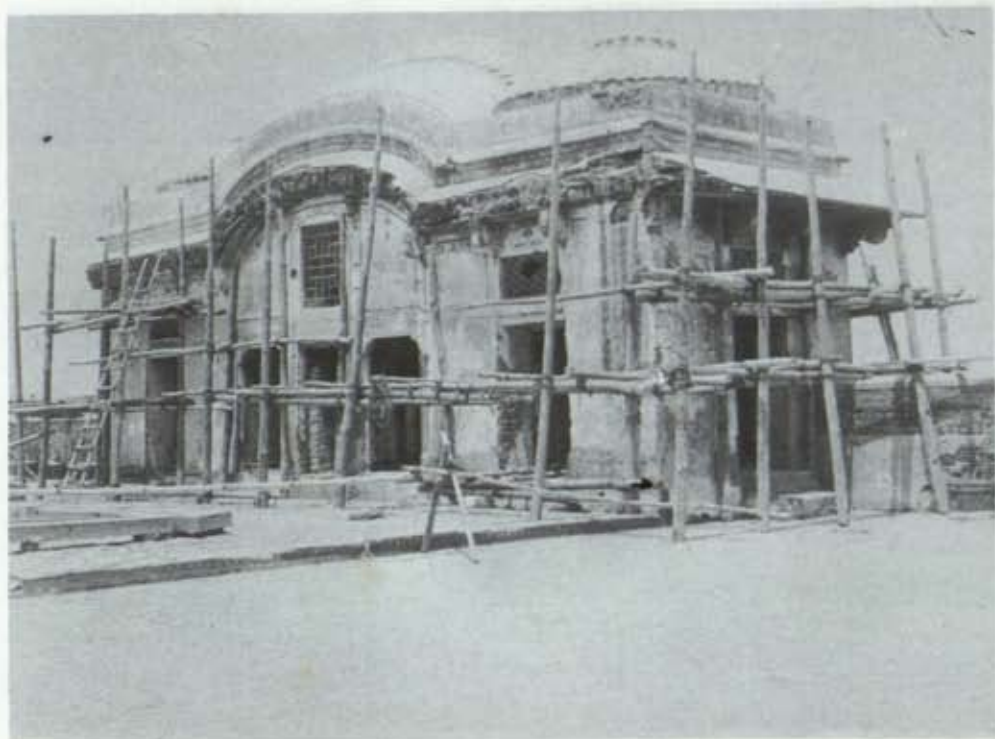
b : Lahore Fort: Outer view of Shish Mahal facing north-east. After conservation.



Lahore Fort: Pavilion between *Lal* and *Kalaburj*: Before conservation.



Lahore Fort: Pavilion between *Lal* and *Kalaburj*: After conservation.

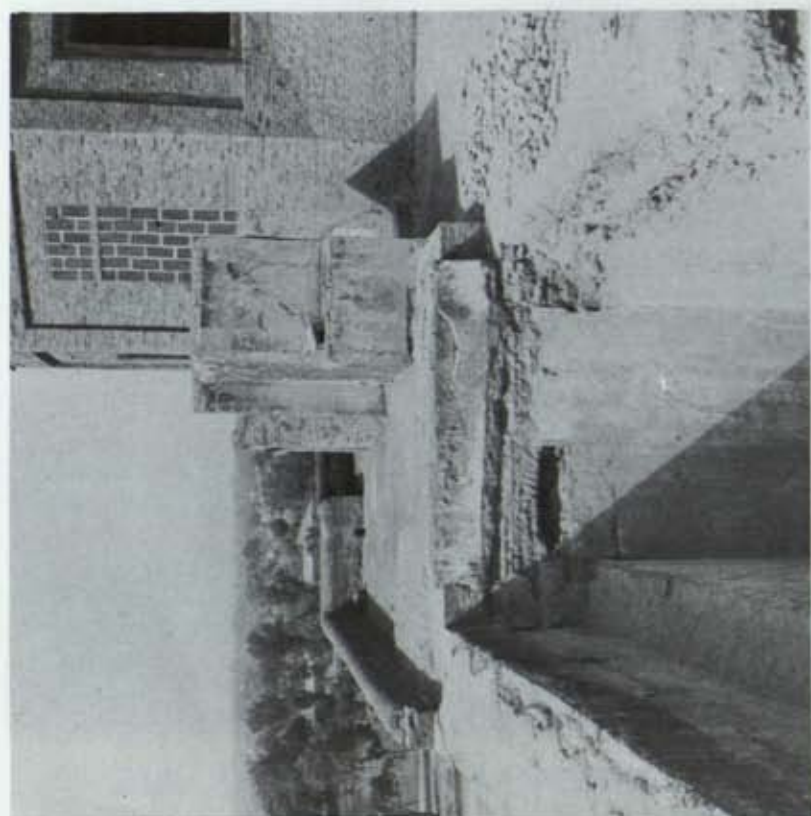


Lahore Fort: Pavilion in north-east corner of Jahangir's Quadrangle. Before conservation.

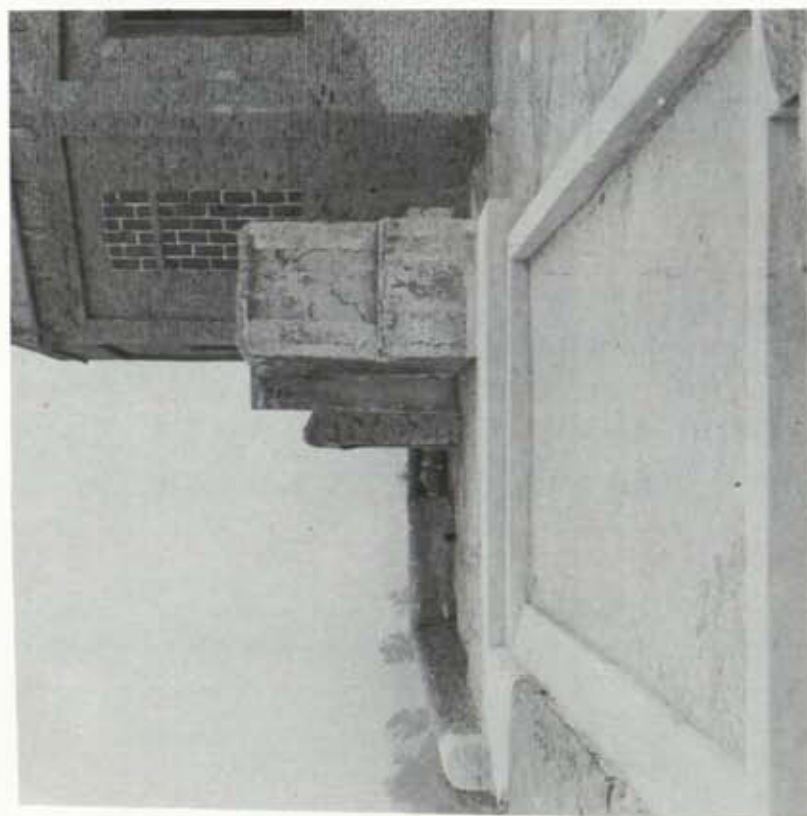


Lahore Fort: Pavilion in north-east corner of Jahangir's Quadrangle. After conservation.





a Lahore Fort, *Kalaburj*. Before conservation.



b Lahore Fort, *Kalaburj*. After conservation.



Shahjahani *Hammam*, Lahore Fort.

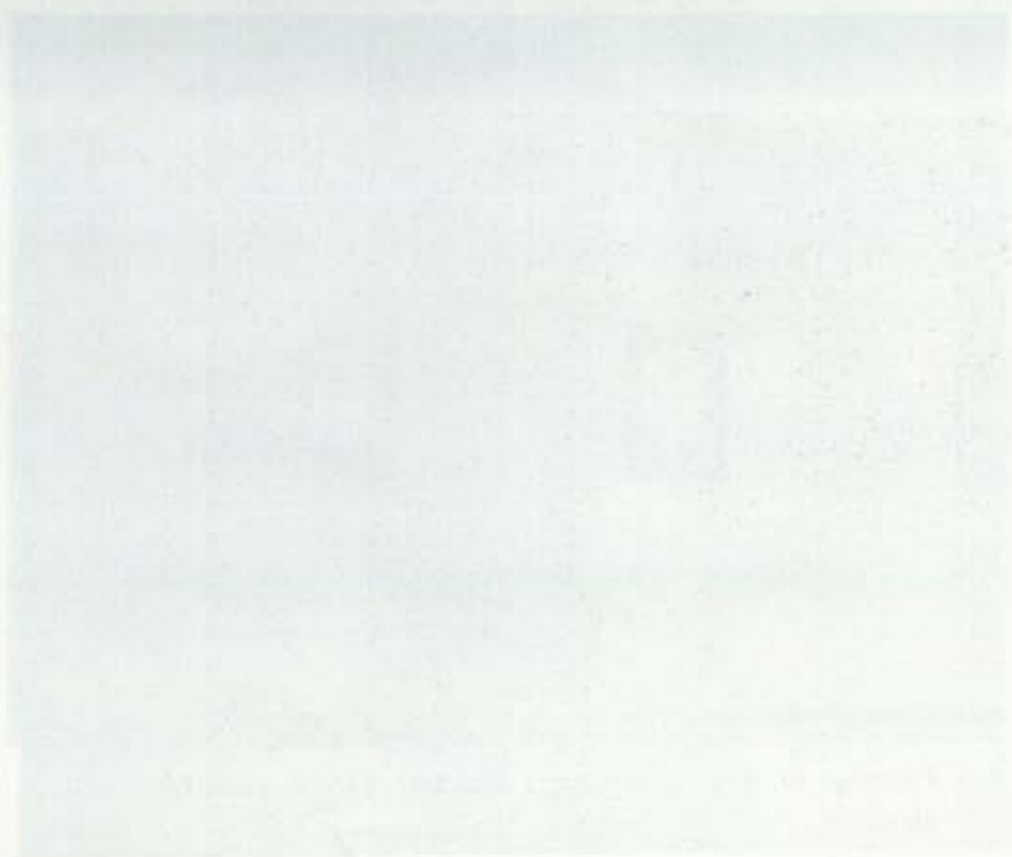
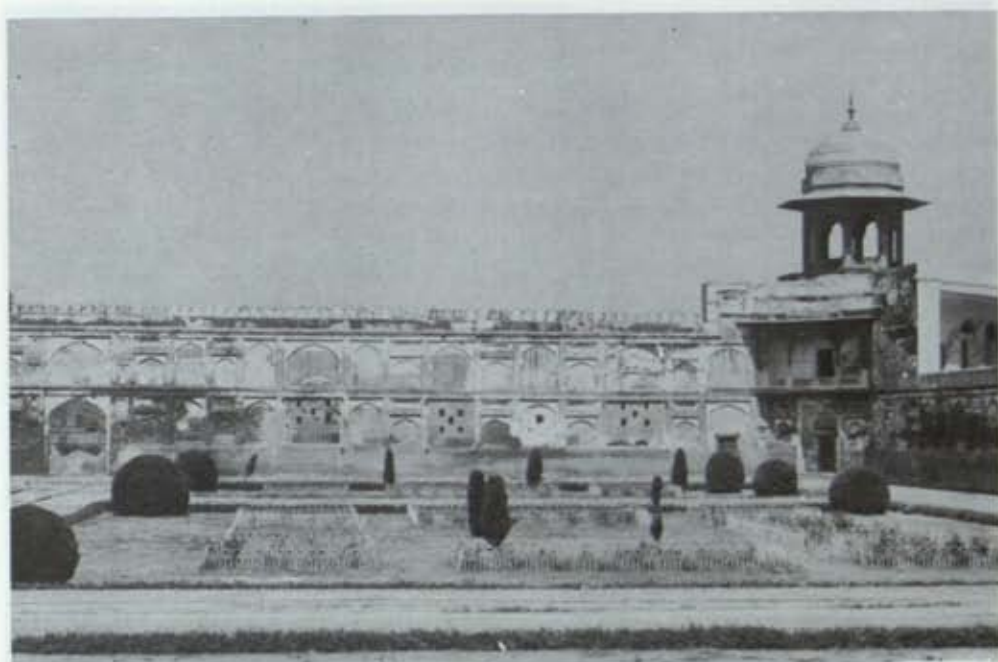
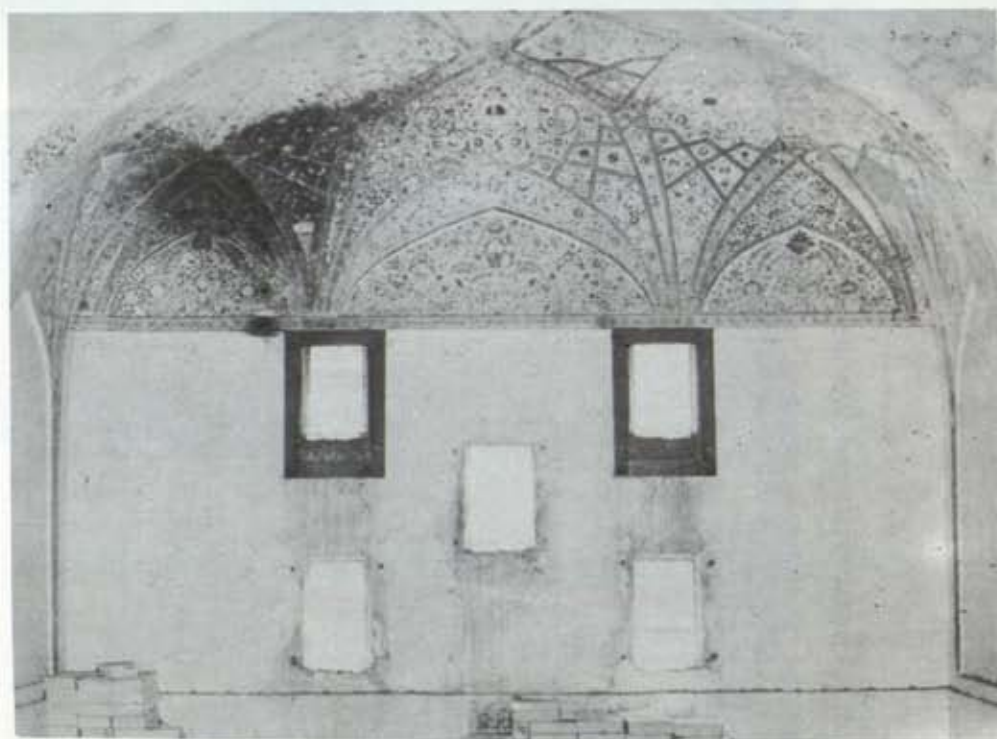


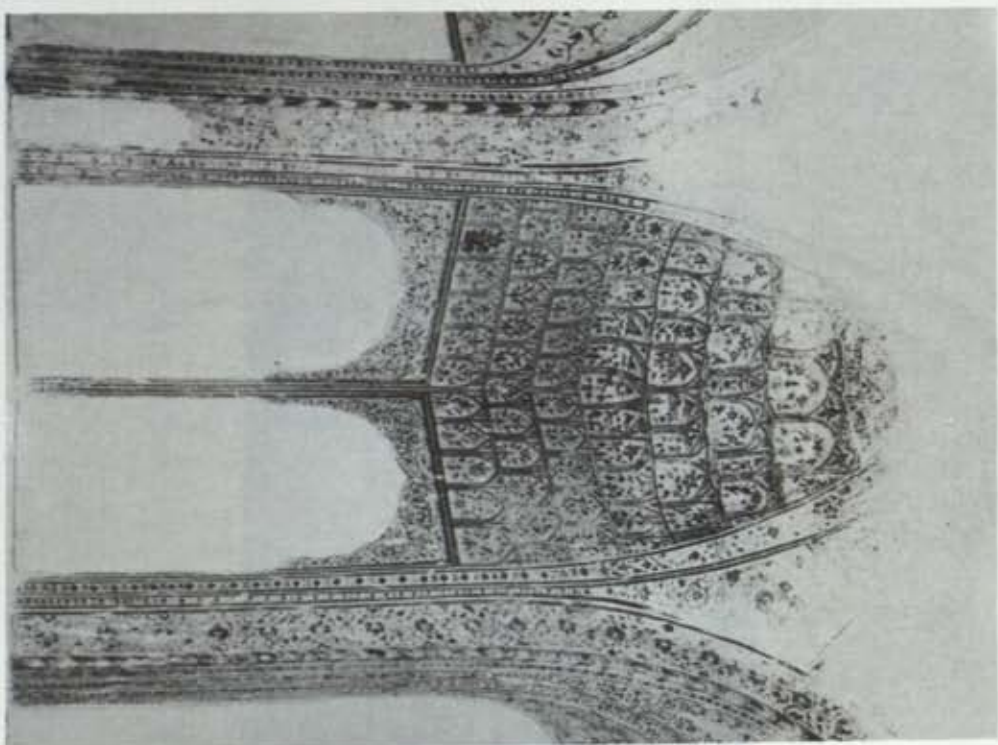
PLATE: LXXXVI



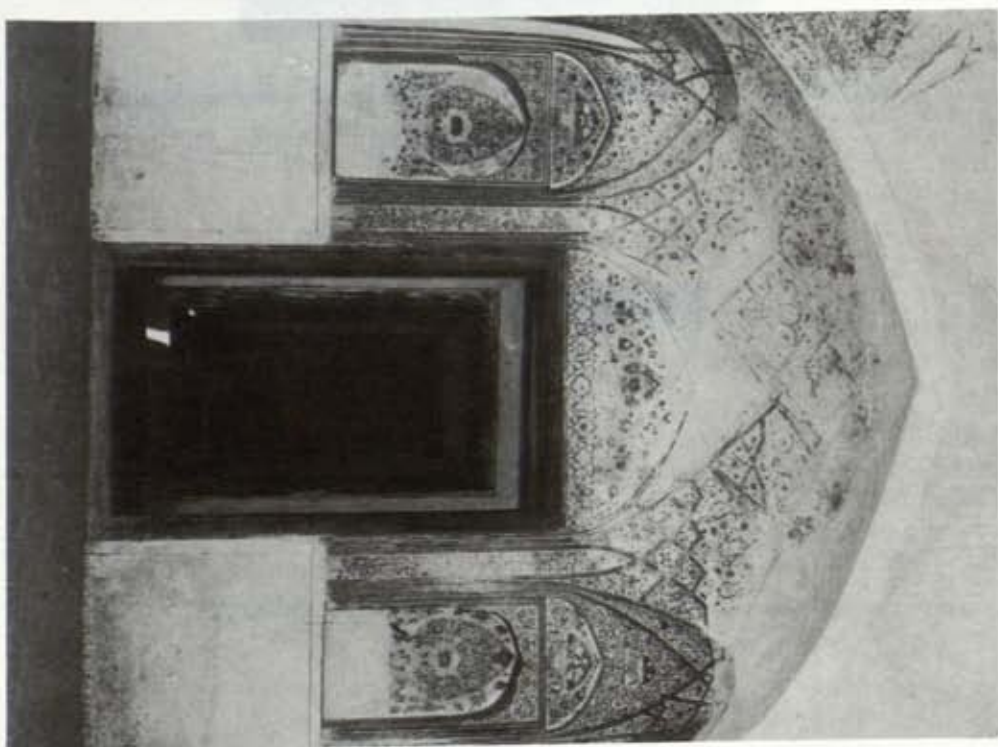
a : General view of Mughal *Hammam*, Shalamar Garden.



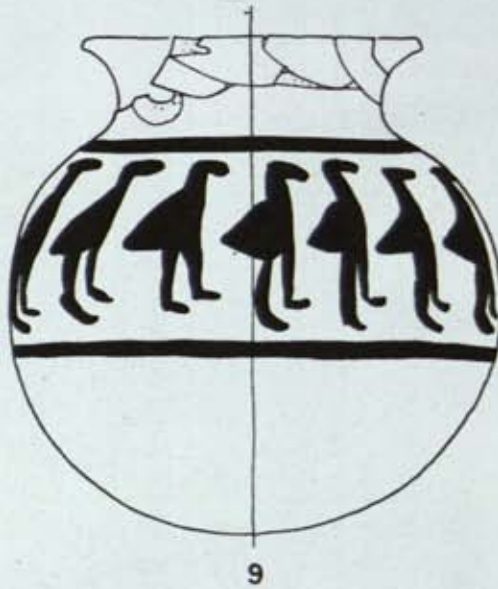
b : Paintings in Mughal *Hammam*, Shalamar Garden - interior view.



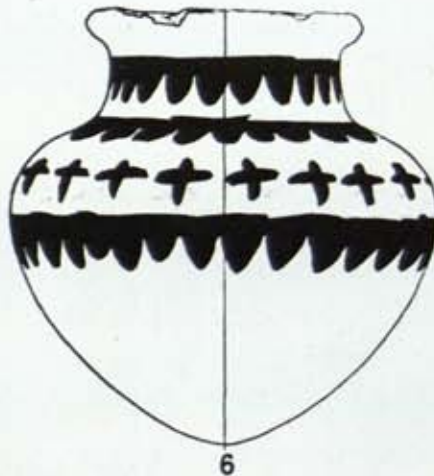
a : Paintings in Mughal *Hammam*, Shalamar Garden
interior view.



b : Paintings in Mughal *Hammam*, Shalamar Garden - interior
view.



a : Birds as soul increasing the life of the pottery vessel.



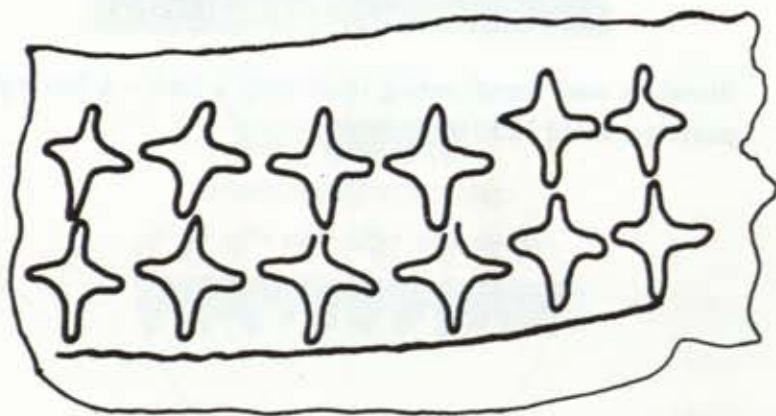
b : Cross multiplied as quanta of soul promoting the life of fragile pot (Mesopotamian pottery before 3000 A.C.)



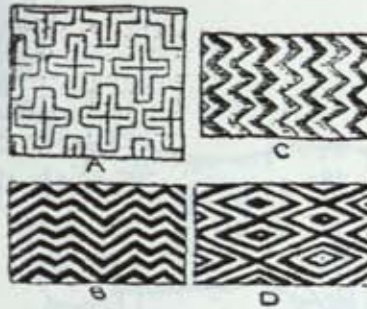
Blood as soul transforming itself into a bird - A Norwegian painting, dated 1250 A.C.



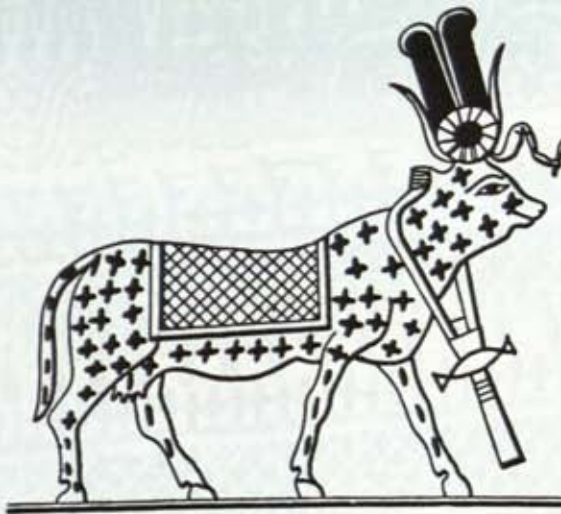
a : Birds in flight when depicted as silhouettes resemble crosses.



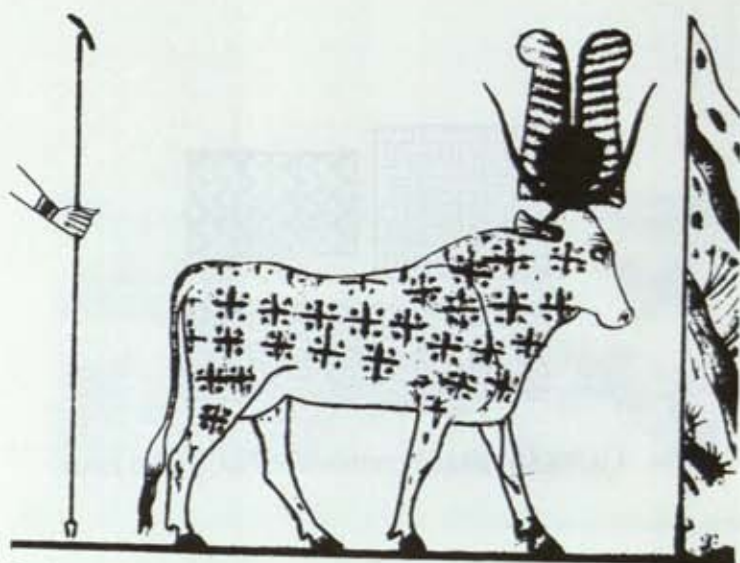
b : Cross multiplied as quanta of soul preserving a pottery vessel.



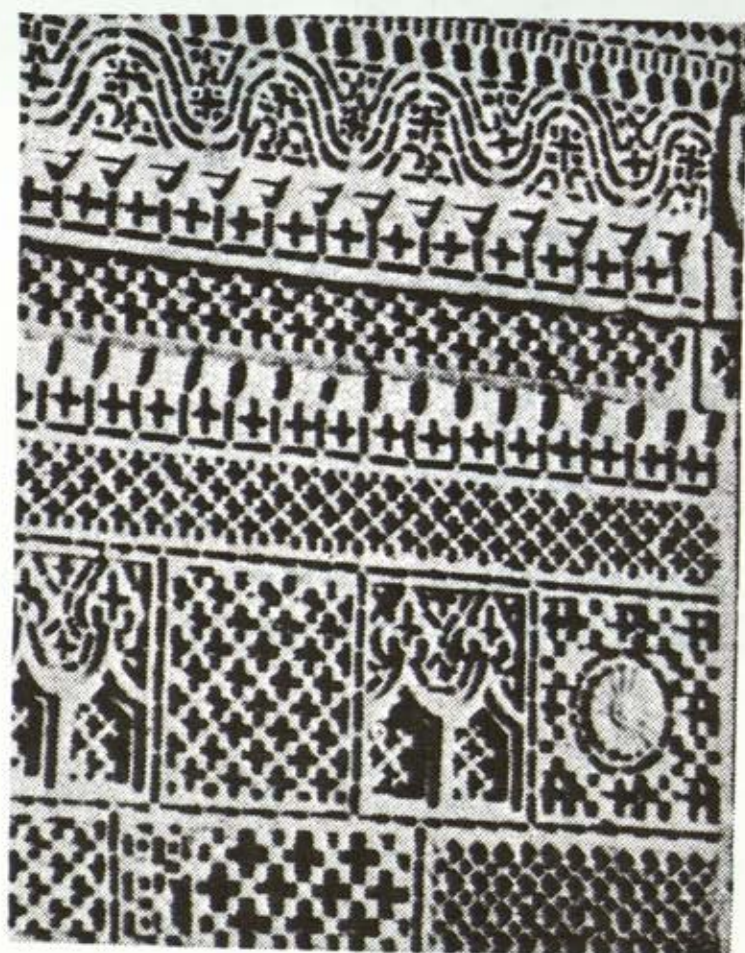
a : Lizard (A) as soul symbolized as typical cross.



b : Cow-goddess, "Hathor" as immortal saturated with soul, depicted as numerous crosses



a : "Hathor" decorated with complex crosses with dots altogether symbols of cosmic soul-cum-Macrocosm, or Heaven and earth.



b : A tomb decorated with crosses as quanta of soul inducing resurrection.



Cross within a cross as soul-concentrate or cosmic soul. Dots at four corners symbolize Macrocosm, the container of cosmic soul. The symbol (from Harappa) represents powers of Heaven and Earth.



Armed horse-rider from Pir Patho.



A stone from Malir graveyard carved with sword and shield.



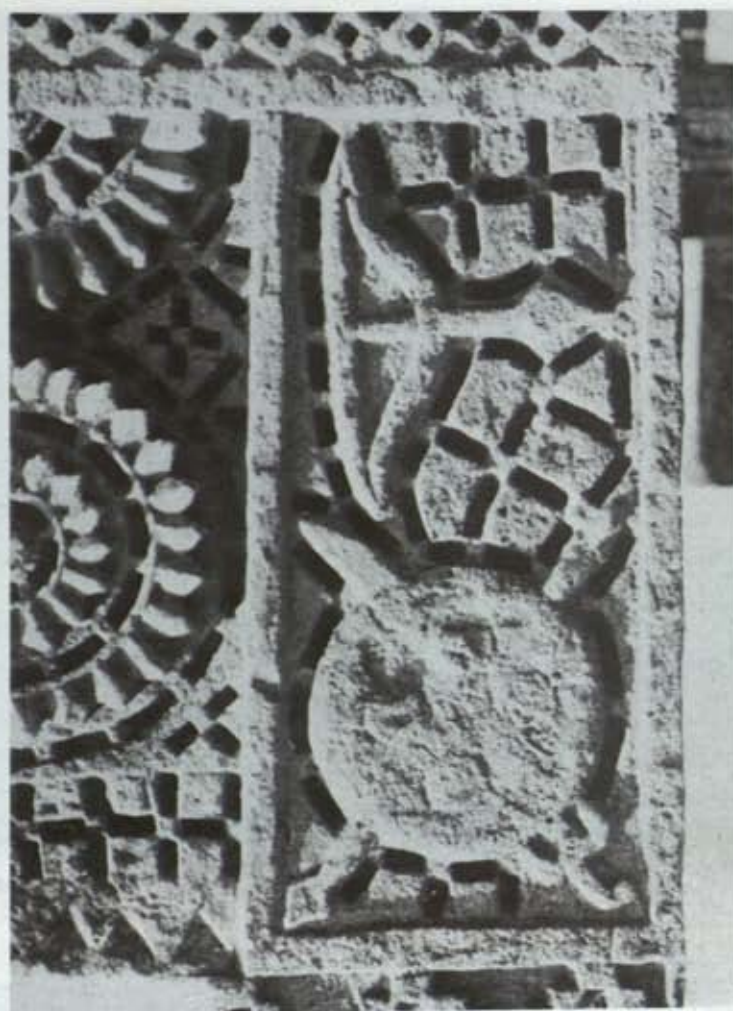
Short-bladed sword - a carving from Malir graveyard.



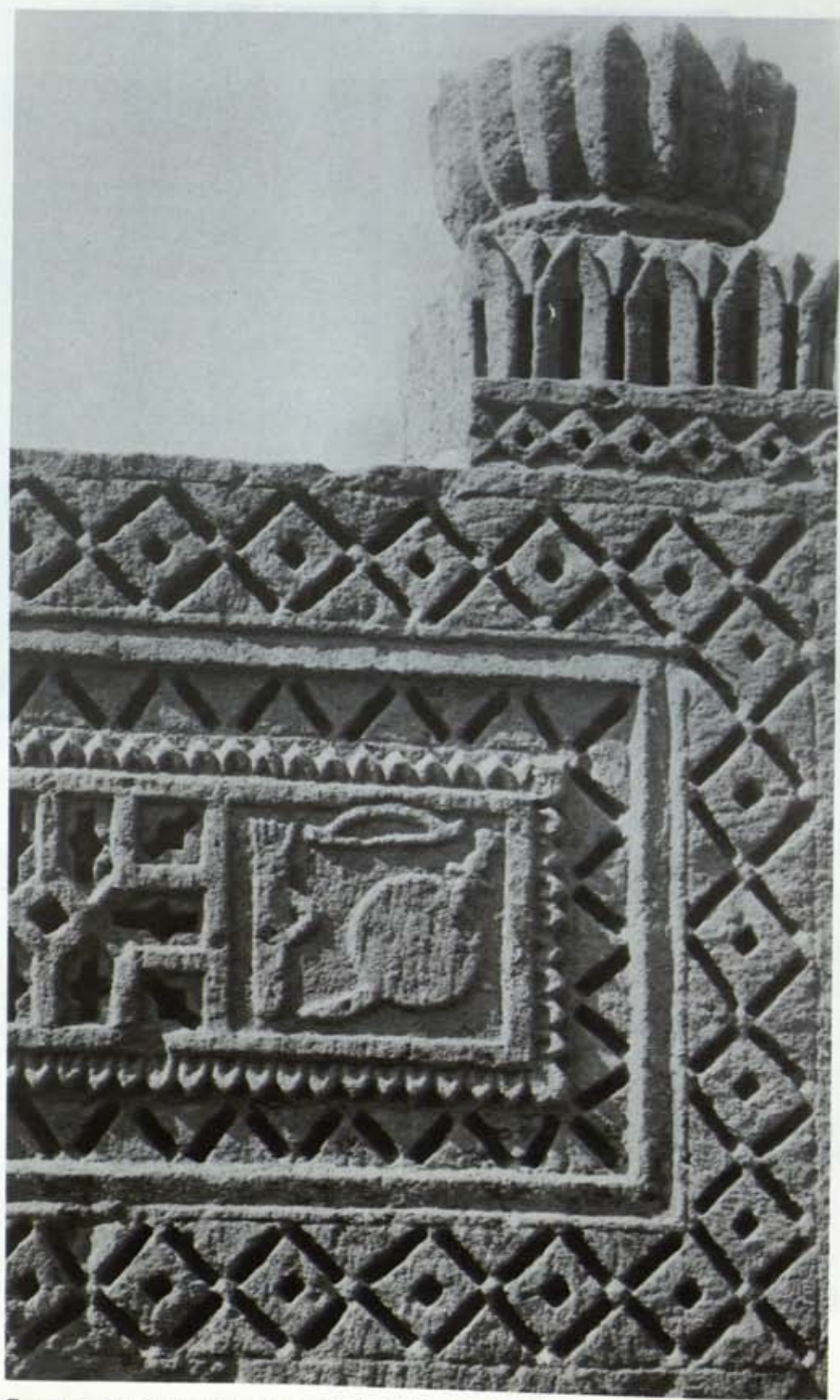
Sword with a Knuckle or basket like guard from Malir grave-yard.



Grave stone from Chaukhandi showing sword, spear and dagger.



Concical-tipped arrow stone from Malir graveyard.



Grave-stone from Chaukhandi depicting bow, arrow and sword.



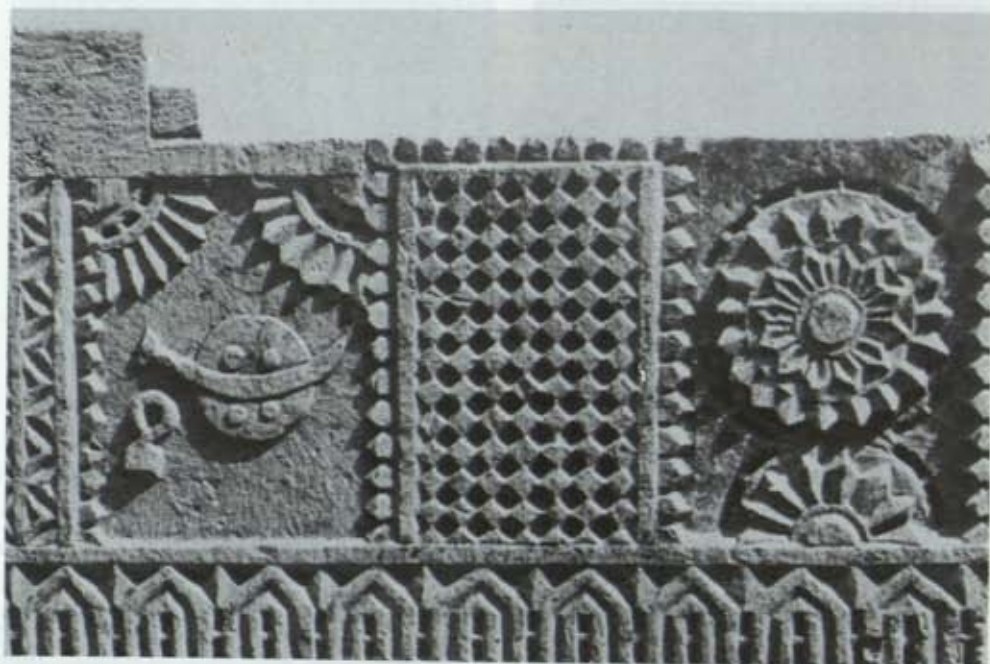
a : Armed warriors carved on a stone from Pir Patho.



b : Sword, shield and Spear on a stone from Chaukhandi.



c : Shield and sword depicted on a stone from Malir graveyard.



a : A stone from Sonda graveyard depicting sword and shield.



b : A stone from Sonda graveyard depicting dagger, sword, shield, arrow and bow.

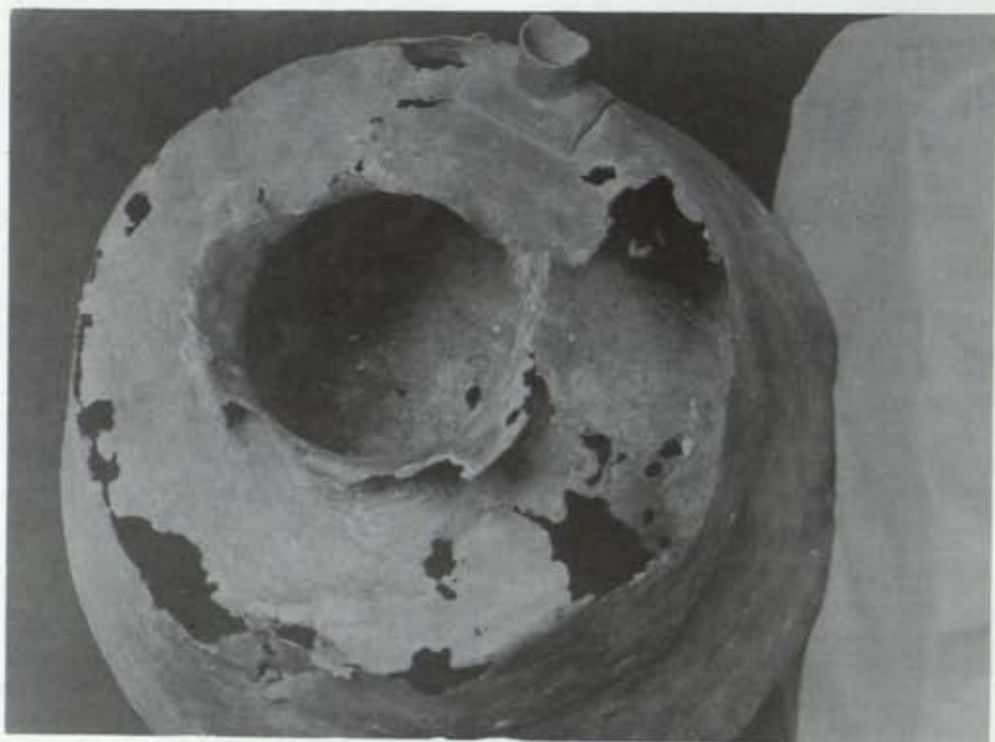


a : A stone from a Chaukhandi type grave depicting an armed
Caretaker.

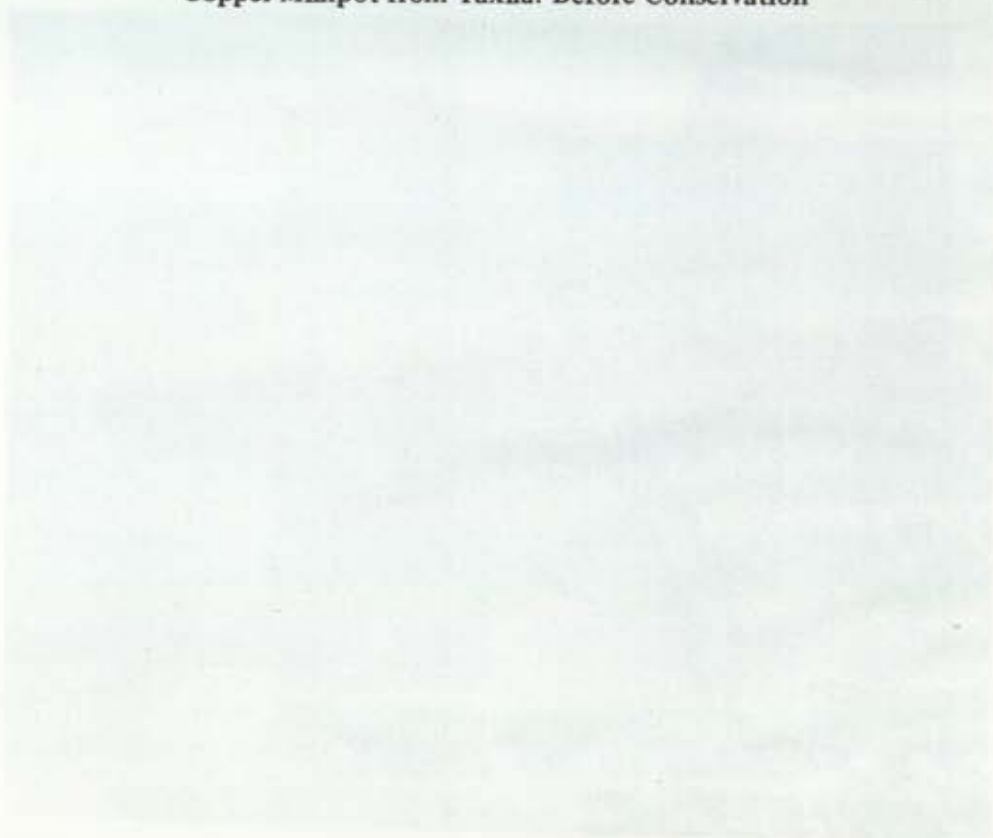


b : A grave-stone from Malir showing shield and sword.

PLATE : CIV



Copper Milkpot from Taxila: Before Conservation





**Copper Milkpot from Taxila
After Conservation**



Copper Vase from Taxila:
Before treatment



Copper Vase from Taxila:
After treatment



Copper Pot: Before treatment



Copper Pot: After treatment

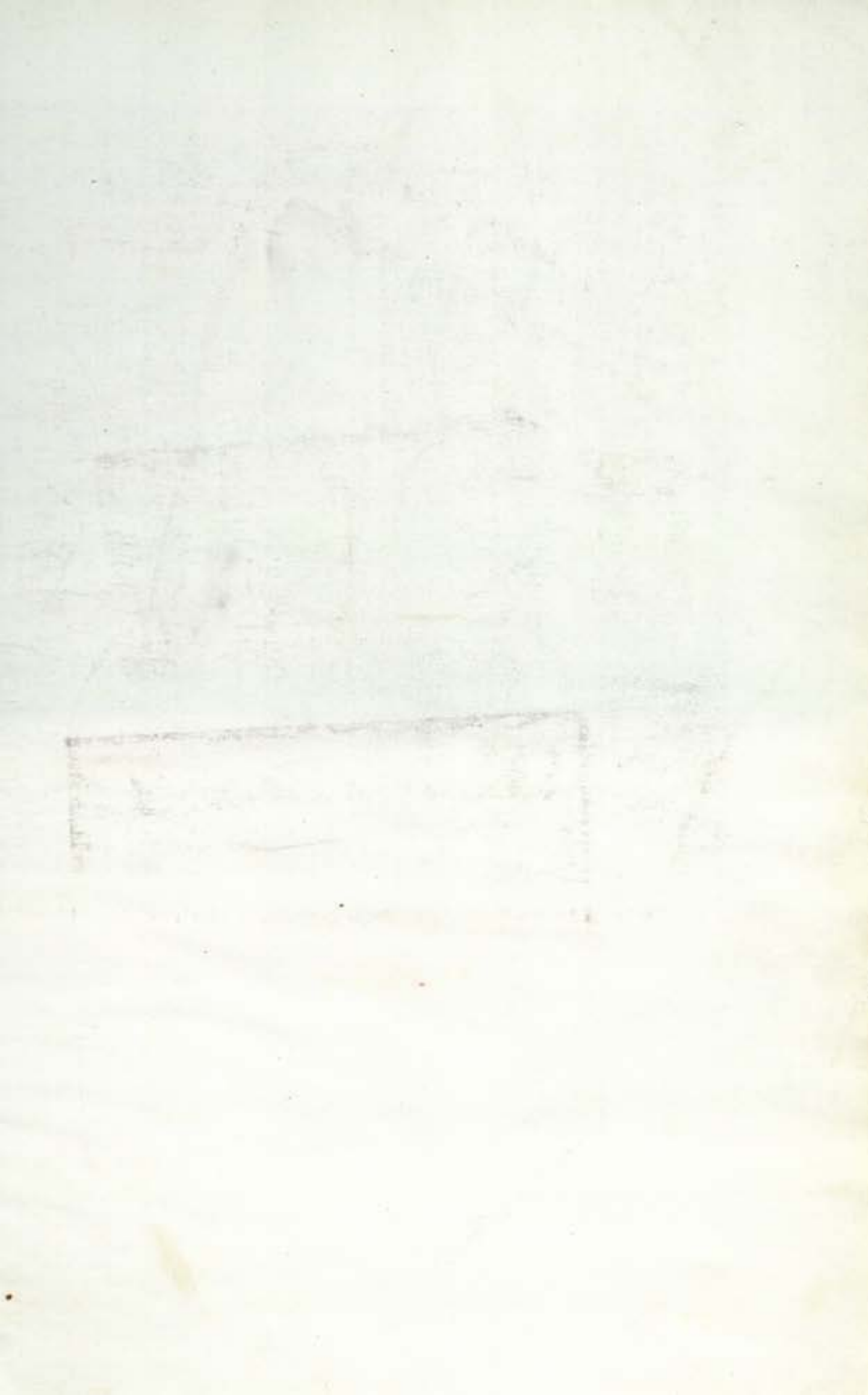


Some of the Publications of the Department of Archaeology & Museums.

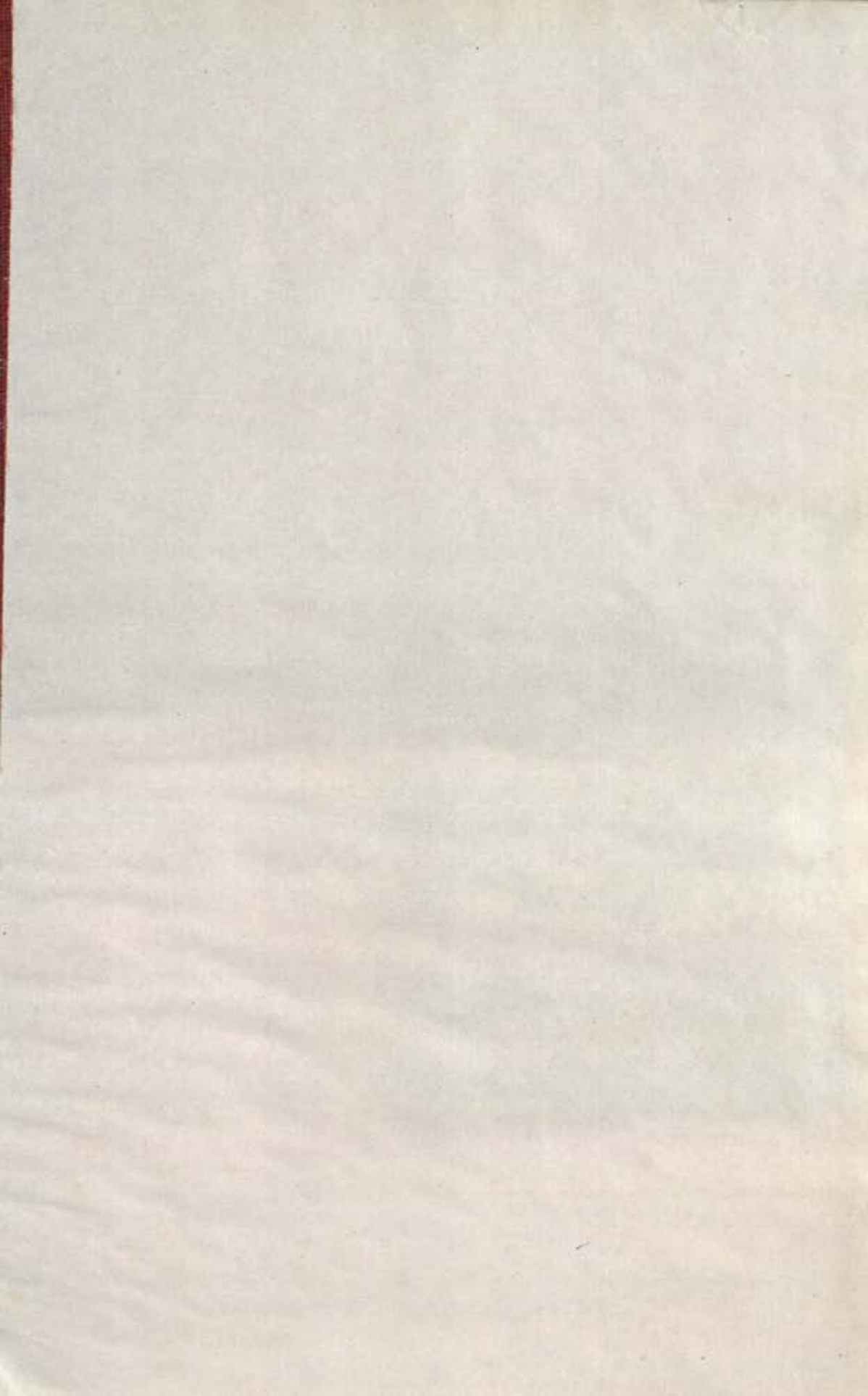
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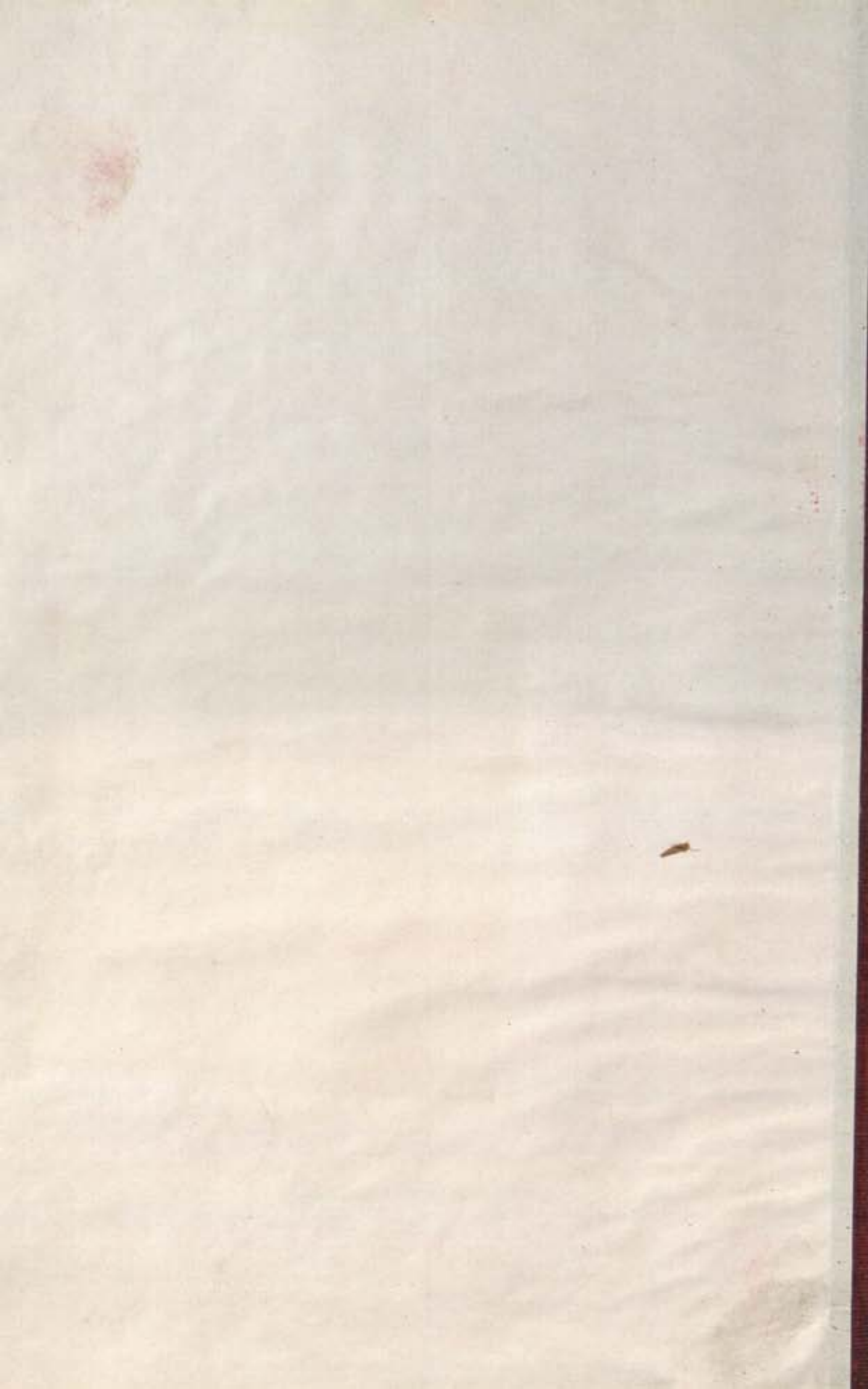
CATALOGUE











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