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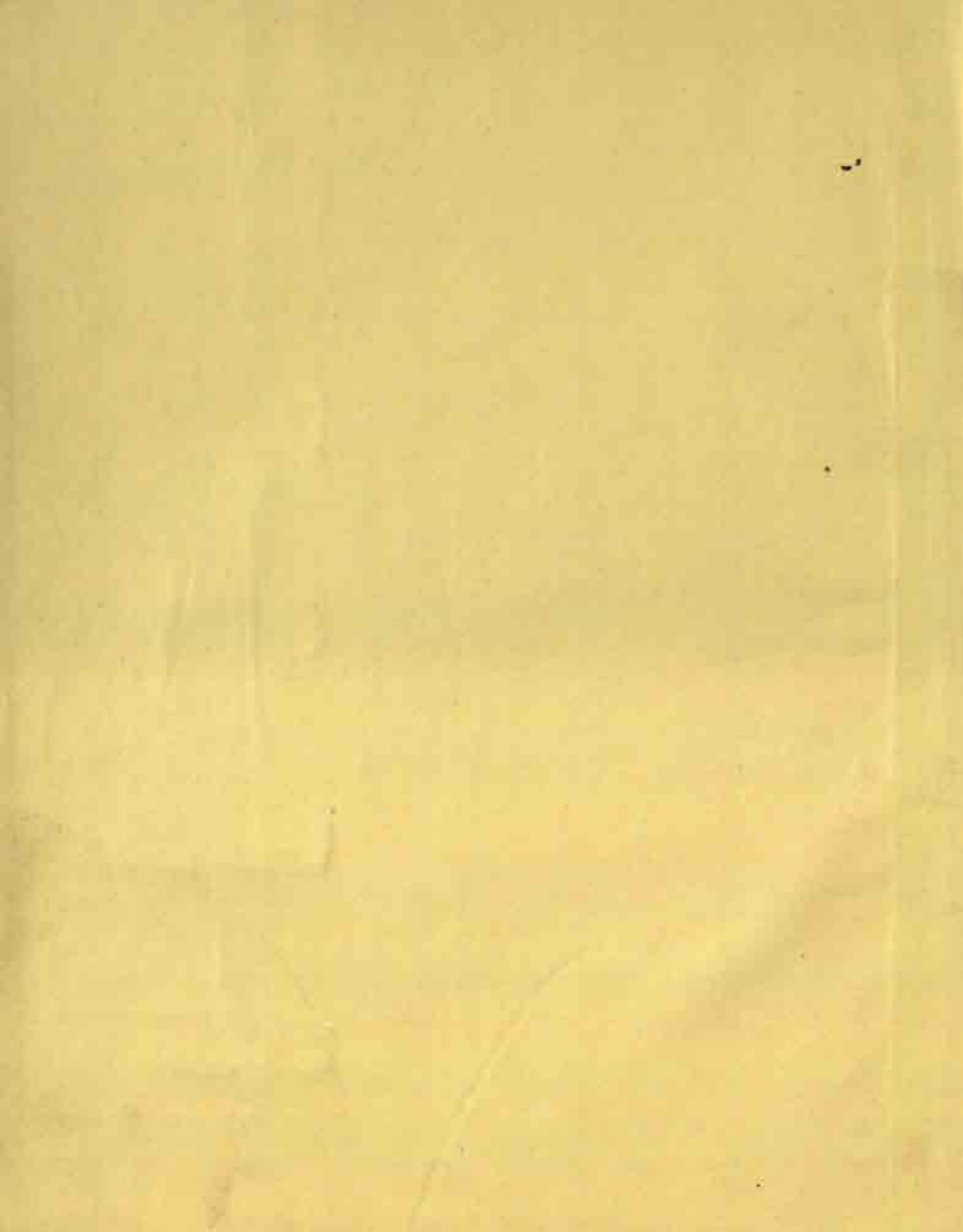
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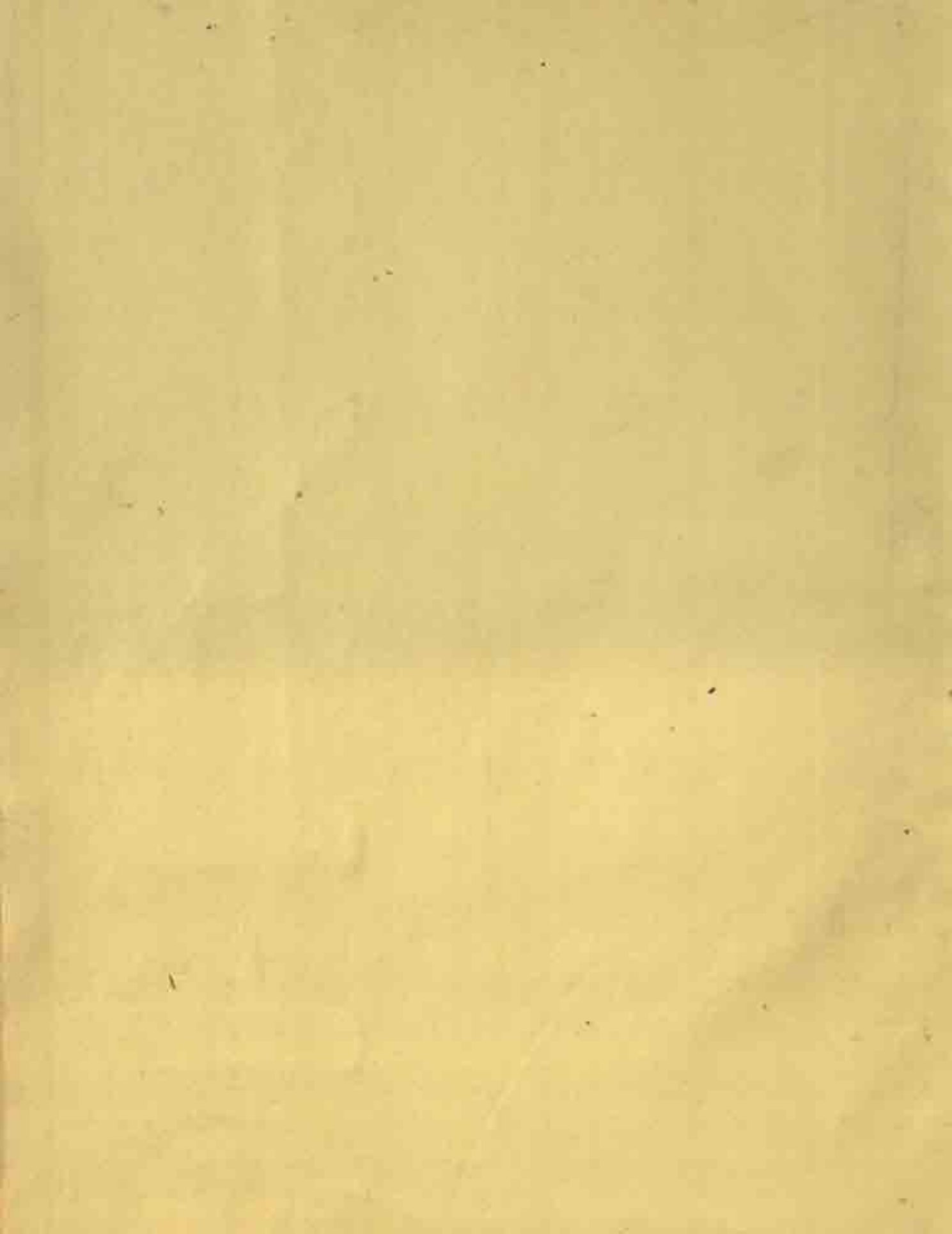
ANCIENT PAKISTAN

VOL. 3 - 1967



Period: 1

Period Pakistan Vol 3-1969



NOT TO BE ISSUED

Ancient Pakistan Vol. III - 1967

Special
number

(**Timargarha
and
Gandhara Grave Culture**)

50368



EDITED
By
PROF. AHMAD HASAN DANI

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Timor
and
Gondara Grave



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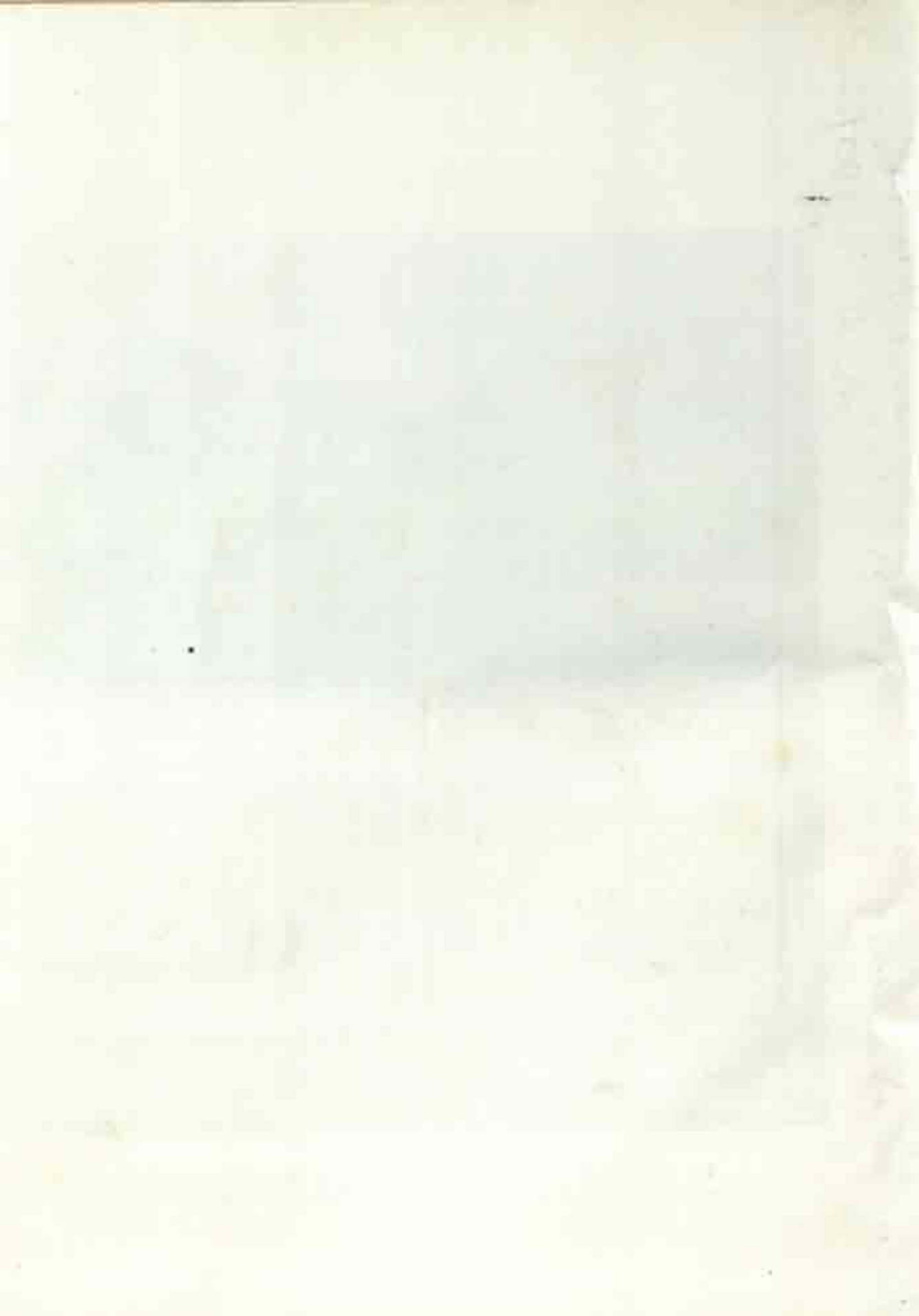
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A.P.

Pl. I. Timargarha Valley — Panoramic View



The village is situated in the picturesque surrounding of the hills with the Panchkora river as its life companion. The green fields and tall poplar trees give a tone to the natural background. Amidst them in the farther side of the river can be seen site Nos. 1 and 2 with the modern village huts in between. On the left is the modern hospital and on the right the towers of a fort are dimly visible. From the village the Bajaur road leads towards the river and passes by the Balambat fort, seen in the foreground. At the foot of this fort is site No. 3. The new colony of the civil officers is right in front.



FOREWORD

I am glad to see the completion of the five year project launched by the Department of Archaeology, University of Peshawar. This volume of the Bulletin is reserved wholly for the report of the third Project — *Timargarha and Gandhara Grave Culture* — a new field of archaeological investigation opened up by this University. In the first volume the Department reported on the discovery and excavation of the first stratified pre-historic cave at Sanghao in Mardan District. In the second volume a complete report on the excavation of the second city of Pushkalayati at Shaikhan Dheri (Charsada) was given.

I am further happy to note that this third project was initiated with the voluntary help of the Social Service students who participated in the actual excavation and helped in recovering the lost evidence of history.

The Gandhara Grave Culture has added a new chapter to the archaeology of Pakistan. So far we had heard of Gandhara only in connection with Gandhara art and in our country we have just started talking in terms of Gandhara Culture referring to the historical period of human activity in this region. And now with the Grave Culture we go back to the proto-historic period — to the dark period of the history of this region which was earlier dimly lighted by a few scattered traditions in the Sanskrit literature. These graves have placed before us materials of a people or peoples who created history in this region in the second and the first half of the first millennium B.C. It is about this time that we have heard of the activities of the so-called Aryans. Whether these grave people are Aryans or not is a question that I leave to the scholars to decide. But it is satisfying to note that we have been able to make an humble contribution towards the understanding of a part of human history. It is the policy of this University to continue research activity and to add, whatever little we can, to the stock of human knowledge. In this attempt of ours, I am sure, we will have encouragement from the philanthropists and cooperation from the world of scholars.

Momammad Ali, S. Pak.,
VICE-CHANCELLOR,
UNIVERSITY OF PESHAWAR.

22nd March 1968.

ACKNOWLEDGEMENT

This third and last project of grave exploration and excavation was planned in 1962-63 when I made my first trip to Dir and Bajaur with the kind permission and assistance of Mr. Wajihuddin, C.S.P., the then Political Agent of Malakand Agency. In the actual execution of the work I received continuous support, financial and administrative, from Mr. Rahatullah Jaral, C.S.P., the Political Agent of the newly constituted Dir Agency. It is due to his personal interest that our work could be successfully completed. This project, which was initiated at the instance of Mr. Mohammad Ali, the Vice-Chancellor, of the University of Peshawar, later became a joint programme when Dr. F.A. Khan, Director of Archaeology, Government of Pakistan, agreed to come to our financial help when we were in dire need. He not only personally visited the site several times and advised on many knotty problems, but also spared three of his staff members, Mr. Mohammad Sharif, Mr. Sadar Din and Mr. Manzoor Ahmad Siddiqi, to work with us. For one season Dr. A.H. Mirza of Karachi University joined in the excavation. However, the main burden of the work fell on the staff and students of the Department of Archaeology, University of Peshawar. Owing to my ill health it was not possible for me to be present in the excavation all the time. After giving the necessary direction and timely checks, I left the entire work to the shoulder of Mr. F.A. Durrani who organised the camp with the help of Mr. Sardar Muhammad and administered the excavation work. The start was made with the voluntary students of the Social Service group, who did the physical labour in 1963 at Thana and in 1964 and part of 1965 at Timargarha. At Thana the field supervisors were Mr. Farid Khan and Mr. Abdur Rahman. At Timargarha Mr. Farid Khan worked only in 1964 but Mr. Rahman continued along with Messrs. Fidaullah, Mohammad Kamal, Wilayat Khan Bhatti, and Shujaul Mulk. It was due to Professor Karl Jettmar that the services of Dr. Bernhard were procured for the anthropological work at Timargarha. His report along with a contribution from Professor Jettmar is incorporated in this volume. The photographs were taken by Mr. Mohammad Sabir the photographer of the Department while the line drawings were finally completed by Mr. Mohammad Daud. The Balambat pottery sheets were drawn by Mr. Fidaullah. The whole manuscript was typed by Mr. Maqbool Elahi, the past assistant in the Department.

It is my pleasant duty to thank the local officials who gave ungrudging help to us and many more visitors for their inspiration and encourage-

ment. In the work of publication Mr. Zakaullah of Khyber Mail Press took personal interest in seeing the volume through.

At the end I must acknowledge with deep gratitude the constant inspiration and guidance from Mr. Mohammad Ali, S. Pk., the Vice-Chancellor, and ungrudging help from the Registrars Lt. Col. Faizullah Khattak and Maulana Ahmad Hasan, and the Treasurer Mr. M.A. Khan.

Ahmad Hasan Dani

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Timargarha and Gandhara Grave Culture

Gandhara

Grave Culture

Part 1

INTRODUCTION

By

PROP. AHMAD HASAN DANI

PROF. AHMAD HASAN DANI

Time and
Growth
Culture

Part I

INTRODUCTION

THE HISTORY OF THE

INTRODUCTION

SECTION — I

GANDHARA GRAVE CULTURE— A NEW CHAPTER IN THE ARCHAEOLOGY OF PAKISTAN

Archaeological activities in Pakistan have covered mainly three fields: Prehistoric, Protohistoric and historic. Whatever studies in these fields have so far been made, remain isolated. No continuous history of man is yet available. There are many gaps in between these fields and even within each field there are problems — crucial problems that remain to be solved.

It was Helmut De Terra¹, who by his field work in the thirties of this century, placed Pakistan in the prehistoric map. His geological sequence for this part of Asia soon became classic, and the associated human cultures, studied by Paterson,² formed the basis for future theories and gave rise to the hypothetical term "Soan Culture". While De Terra's geological sequence has been modified by Zeuner³ and viewed with great doubts by others, H.L. Movius⁴ has attempted to define the culture and place it in the world context. The terminology proposed by Movius is again a matter of discussion⁵ while recent discoveries⁶ in northern and central India have produced ample evidence to view Soan materials in different perspective.⁷ On the other hand there has been no follow-up in the field for a further search of the materials or for building up the environment. The late Col. D. H. Gordon,⁸ in his amateurish attempts, visited a few caves in Gandhara and collected some microlithic tools, which have been referred to in his articles in a general way. The American anthropologist⁹ Henry Field had an exploratory trip from Karachi westward along the Makran coast and collected some more microlithic tools. Very recently, Dr. Johnson¹⁰ from Minnosotta University looked into some of the caves in Hazara and Rawalpindi districts, which, if explored properly, may provide proper context to the stray microliths found here and there. In 1963 the University of Peshawar laid an exploratory trench at Sanghao Cave¹¹ in Mardan district and the results were very encouraging. The quartz blade and flake industry took the his-

tory from the Middle to the Late Stone Age. Yet we do not know the succession that finally led to the early agricultural communities in Baluchistan.

It was De Terra¹², who first used the term "Protoneolith" for a type of blade-and-flake industry found in the Indus Zone. Dr. Fairervis¹³ went a step further and on the basis of a single small trench at Kille Gul Muhammad near Quetta coined the term "neolithic culture" for a pre-pottery assemblage in the lowest level, which, among others included a kind of blade-and-flake industry. Further excavations in southern Afghanistan¹⁴, Baluchistan¹⁵, and Sind¹⁶ have given a better picture of this pattern of life which is verging on nomadism — a stage which is over-shadowed by the influx of bronze-using communities. This is the picture in the southern part of West Pakistan. The northern zone has different story to tell. The first scene opens in the main valley of Kashmir¹⁷ where in the vicinity of Srinagar pit-dwellings of the so-called neolithic community have been excavated. The materials yet remain ill defined and ill connected. The Kashmir find is not an isolated phenomenon. We have been able to follow its traces in Swat and Dir as will be shown below.

The protohistoric sequence in Pakistan is mainly concerned with the Bronze Age Culture, which culminated in the Indus Civilization, so well attested in the excavations at Mohenjodaro,¹⁸ Harappa¹⁹ and other sites.²⁰ Since its recognition and proper definition in the twenties of this century by Sir John Marshall, this new field of archaeology has attracted greater and greater attraction. The late professor Gordon Childe²¹ placed it in the context of the Ancient Orient Civilizations, while at home several explorations revealed its wide extension from Suktagendor²² on the extreme western Makran Coast to Rupa²³ in Ambala district just at the Indo-Gangetic divide. Its further penetration towards the upper Ganges Valley²⁴ is peripheral while its onward trading posts²⁵ in Gujarat appear to be either a colonial enterprise or a survival in another context. Though the civilization is deeply rooted in the Indus pattern, its origins are still uncertain. Dr. Fairervis²⁶ has made a claim for possible precursor in one of the cultural complexes of Baluchistan but this thinking is probably influenced more by the intermediate geographic position of Baluchistan between Iran and the Indus Valley than by the actual evidence found so far. It is not necessary to limit one's horizon only to the land-routes through Baluchistan. There are other routes and ways of communication. Again the end of the civilization is still debated.²⁷ Though Dr. Khan²⁸ has pushed back its closing years to about 1750 B.C. its succeeding cultures²⁹ remain poorly described in the main valley of the Indus. On the other hand in Gujarat and Deccan, where

its succession has been duly phased³⁰ the context, environment and probably also the people differ materially. The neglect of these factors in interpreting the materials has told heavily on our understanding of the civilization. Even though its materials are available in abundance, I wonder how many anthropologists would concede to viewing them from the light of the later Hindu Culture that is essentially rooted in the Gangetic pattern. Yet that is the angle in the monumental work³¹ of Sir John Marshall and of most of the writers of the day. Particularly the Indian archaeologists and the old school of ancient historians of India catch hold of this cultural efflorescence and foist it as a sort of padding on to the Hindu Culture of later growth. If Indus Civilization has to be understood properly, it must be interpreted on the basic pattern of the Indus Zone³² and viewed in the greater context of the Ancient Orient Civilizations—a context in which the Gangetic world had no place.

On this basis the Civilization is a growth of the Indus system—a gift of the Indus founded on the technology of the intensive cultivation of land irrigated by flood water. It is this rich harvest which was exploited by a mercantile class well established in cities on the river highways. The control had already passed on to their hands and it is they who dictated the rigid civic system, the weights and measures, the games and pastimes, the writing vocabulary and religious discipline. The village rituals survived as affording fun to the city dwellers or at best practices of a backward community, that had to be tolerated. The moving spirit of the civilization lay in the set-up of the cities which exploited the villages. Once the main life was destroyed, what was left was only a rural scene in stark backwardness. Unless there was something to back up the old cities, all those trends which were associated with the civilization would fall to ruin. The rural would dominate the scene. The savage would conquer the civil. The rugged highlanders in their exclusive backwardness would pounce upon the villages of the plain and the twin feature of the Indus—the eastern plain and the western hill—would merge in the common struggle for existence. A new force must come to resuscitate the life. That has always come in the geographic scene of the Indus that lies midway between the settled communities of the Indian Gangetic system and the moving masses of Central Asia.³³

It is one such Achaemenian Iranian movement towards the east in the 6th century B.C. which opened the historic scene in the Indus Zone. The conquests of Cyrus and Darius once again brought to the forefront the contrast between the Indus and Gangetic patterns. The Indus bore the full measure of the Achaemenian legacy. The new writing system of Kharoshthi,

the coin currency, the *Karsha* weight and *Parsang* measures, the stone cutter's art and the new diaper stone masonry, the improved iron smithery and gem-cutting—all tell a story of a new civic life which must be the result of new bureaucracy and new administrative pattern introduced by the Achaemenians.³⁴ It is no wonder that it is at this time when the fame of the city of Taxila as an important educational centre spread eastward in the Ganges Valley. The scattered remnants of the Achaemenian age have been picked up here and there but the full measure of the time yet remains to be revealed in the excavation of a potential Achaemenian site. The legacy of this age is generally missed as it is overshadowed by the overwhelming account of Alexander's march towards the east, his overthrow of the Achaemenians and opening of a new era when the Greeks had upperhand in the affairs of Asia as far east as West Pakistan.

Before the Greeks could re-assert their power in the Indus region, there was an interlude of about 100 years from 321 B.C. onward, when an Indo-Gangetic empire of the Mauryans gave an administrative unity and helped in the interflow of the art-trends and cultural ideas in the two geographic zones. As a result many Achaemenian art currents and administrative practices are seen in the Mauryan system but the most important gain for West Pakistan was the gradual spread of Buddhism, which adopted this land as its second home and continued to inspire the common mass for centuries to come. Of the Mauryans the rock edicts³⁵ at Shahbazgarhi and Mansehra are the ever-lasting relics while the material culture of their time is dimly visible in the excavations of the Bhir mound at Taxila³⁶ and of the Bala Hisar mound at Charsada³⁷.

The beginning of the second century B.C. opened with the re-appearance of the Greeks,³⁸ this time from Bactria, in the Indus region. Their chequered history has been reconstructed mainly on the basis of their coins, and to them has been attributed exaggerated cultural contribution probably because of their belonging to the Greek stock. The excavations at Sirkap³⁹ in Taxila and at Shaikhhan Dheri⁴⁰ in Charsada have brought forth some materials to evaluate their achievements. Though the Greeks were rounded off in the 1st century B.C. by the Scytho-Parthians, their language and script persisted much longer. The Parthians, who came from the eastern shore of the Caspian Sea, re-opened the trade with Western Asia and imported many kinds of technical knowledge. However, the full benefit of these commercial contacts was reaped in the time of the Great Kushanas, who in the 1st and 2nd centuries A.D., united the three valleys of the Oxus, Indus and Ganges under their sceptre. It is the peace and prosperity of the Kushana

empire, which lay at the root of the development of the Gandhara art. Lot has been written on the origin and development of the Gandhara art but all these views are based on the study of the isolated sculptures, or parts of them, taken away from their context and studied through the spectacle of either Greek⁴¹ or Roman⁴² art. The Buddhist stupas and monasteries finding no champion in the land of their origin, are denuded of their treasures and today they stand naked with little to throw light on the evolution of the Gandhara art. The craze for the Gandhara sculptures has not abated yet, and this over-enthusiasm on the part of the scholars has robbed the real basis for the proper study of this art. Apart from the over-emphasis on the Gandhara art, the archaeologists have not cared to relate this art to actual life. We have, therefore, one-sided picture of the Gandhara art of Pakistan. However, enough materials have now been produced in the excavations at Taxila, Charsada and Bagram⁴³, which yet remain to be correlated. In their perspective new vistas of life are bound to emerge, that will give a right direction to the understanding of the Gandhara art.

The archaeology of Pakistan in the post-Kushana period is ill evidenced. On the suggestion of Sir John Marshall⁴⁴ it is generally believed that the Huns destroyed the Buddhist monasteries in the 5th century A.D., and they probably spelt disaster to the rich civilization built by the Kushanas under the inspiration of Buddhism and on the thriving commerce with the East and the West. Unfortunately no heed is paid to the accounts of the Chinese pilgrims⁴⁵ who travelled in West Pakistan either during the rule of the Huns or after them. The analysis of their accounts tells entirely a different story. When these details are combined with scattered pieces of archaeological material, we get a completely new picture. The age of Kharoshthi writing came to an end. The Sarada script obtained the field. The language of the mass, expressed in Prakrit, gave way to Sanskrit. The Buddhist monasteries dwindled and Gandhara art met its doom. The Hindu influences, Hindu deities and temples and the great leaning of the Hindu Shahi rulers to India point the direction to which the currents of life in the Indus region had then moved. The temple remains at Kafirkot⁴⁶ in Dera Ismail Khan district and the great mound at Hund on the bank of the Indus in Mardan district have ample materials to unfold the real story of the time. The politics of the time lay at the root of this change of vision—a vision which was soon to take a complete turn to the west after the coming of the Muslims.

In this narration of the archaeological history of the Indus Zone the protohistory of Gandhara is completely missing, and whatever we know of the protohistoric civilization of Mohenjodaro and Harappa, there is a long

gap between its end and the beginning of the historic period of archaeology under the Achaemenians in the 6th century B.C. What was going on during this interregnum, yet remains to be authenticated in the archaeological materials. Mythologies and literary traditions from Sanskrit (see below section 3) have been analysed and a story of the Aryans⁴⁷ has been built. Once Sir Mortimer Wheeler⁴⁸ and Professor Stuart Piggott⁴⁹ took hold of this Aryan theory and linked the Aryans with the destruction of the Indus Civilization, hoping thereby to close the gap between the protohistory and Sanskrit traditional history. This hypothesis remained ill-proven, as no definite Aryan archaeological materials could be found. The archaeological gap has been filled in India,⁵⁰ but the story is entirely different. The main home of the Rigvedic Aryans in the Indus Zone has not yet produced the required evidence.

The new discovery of the graves in Gandhara will go a long way to shed light on this dark period of Pakistan's archaeology. The Italians, who made the first discovery, have spoken of them as "pre-Buddhist"⁵¹ graves, probably because these graves were un-related to their main work on the Buddhist stupa and monastery at Butkara in Swat. But the term "Pre-Buddhist" is as indeterminate as the confused phrase "Buddhist period". What is the earliest Buddhist relic in Swat, is not yet ascertained. Should we take its beginning to the time of Asoka (second century B.C.) or to the time of Kanishka (1st century A.D.)? In this uncertainty what can be the meaning of "Pre-Buddhist"? It seems that finding no other comparable material in the locality of the excavation, the Italians vaguely used the term "Pre-Buddhist". But in the main Gandhara valley of Peshawar we have now two city excavations undertaken at Bala Hisar⁵² and at Shaikhan Dheri⁵³ in the Charsada area. Sequence of pottery built here has given us a definite clue to the understanding of the ceramic tradition of Gandhara. This has now been linked up with the Balambhat settlement site where two periods of settlement have been firmly established. The last period of Balambhat dates from 6th to 4th centuries B.C. (see below section 6). These last period settlers cut across the older walls and made their own dwellings. The earlier period belonged to a people whose skeletal remains have been found in one type of the graves at Timargarha. But their own houses overlies the graves of still older people, among whom burning of the dead was the common ritual. The graves containing burnt bones were destroyed by the later people. A study of the graves, excavated at Timargarha, has revealed three distinct periods with three different rituals—(i) complete inflexed burial, (ii) burial of burnt bones or ashes and (iii) fractional burial.

We have here three periods of graves prior to 6th century B.C. Only in the last period of the graves we get iron objects. In the earlier two periods bronze is usually found, though metal objects are scarce. In these graves of Timargarha we have materials which take us beyond the historic period and for the first time open the chapter of protohistory in Gandhara. At the same time they go a long way in filling the gap between the protohistory of the Indus civilization and the historic period of West Pakistan. A comparative study of the materials found in these graves and those found in the northern part of Iran has opened new avenues of cultural link between two countries and at the same time provided a proper chronological table.

Professor G. Tucci⁵⁴ has gone a step further and drawn a hasty conclusion, when he remarks: "Returning to the subject of cemeteries, it seems to me that it can hardly be doubted that they should be attributed to the Assakenoi of Alexander's historians. The Assakenoi are in fact the peoples which Alexander found after crossing the Panjkora and with whom he was compelled to fight hard". This definite attribution of the graves to a people who lived in the time of Alexander, is as wide the mark as referring to them as "Pre-Buddhist". The sequence at Balambat settlement site clearly shows that at least Timargarha graves antedate the Achaemenian period, a period which was brought to a close by Alexander's invasion.

In the settlement site at Balambat we have also found some ground stone tools: mainly of two types—pointed-butt stone axes and ring stones. Some other ground stone tools are scattered in the fields where the graves are buried. From Swat also come similar ground stone tools. But so far the actual neolithic site has not been located. At Balambat we observed some pit circles, but before we could excavate them, they were dug up by the local villagers. Thus the neolithic here remains ill defined.

However, the graves at Timargarha are coming up to throw light on the dark period of Pakistan's archaeological history, which was dimly visible in the mythologies and Sanskrit traditions.

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SECTION — 2

STORY OF THE DISCOVERY

The establishment of the Department of Archaeology in the University of Peshawar brightened up the prospects of archaeological research in Pakistan. The archaeological activities, which were mostly initiated by foreign missions, and the theories, which were built away from the scene of activity, could now find a suitable home within the country, and these could be viewed in the perspective of the local environment and the geographic factors that move man in his surrounding. It is with this idea behind

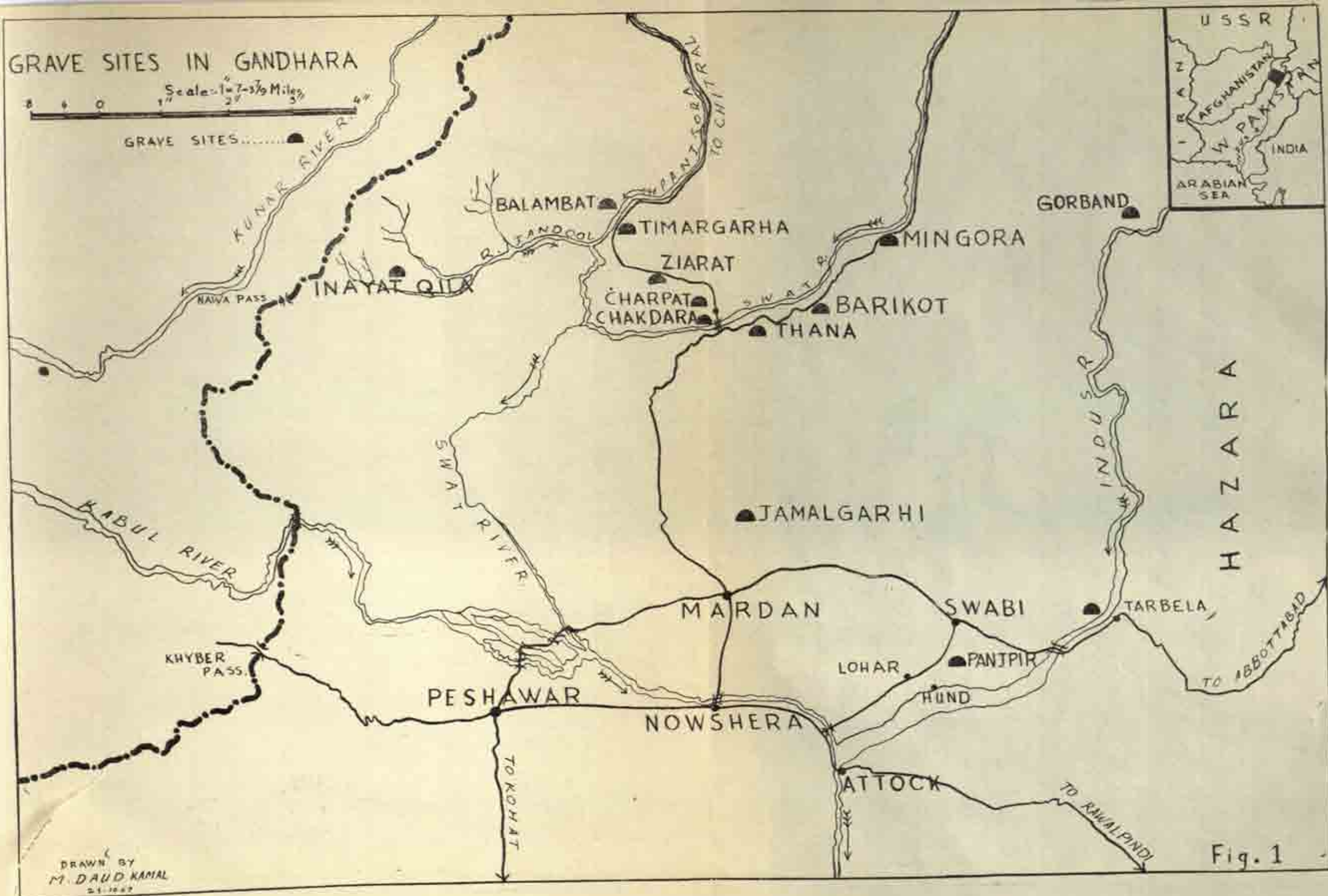
that archaeology was started at Peshawar, which is located in the heart of the main currents that have affected the archaeological world. Peshawar (ancient *Poshapura*¹, to be Sanskritised as *Parshapura* and not *Purushapura*²) has attracted the scholars of the world for the study of Gandhara art, as in its vicinity stand today many Buddhist monasteries and stupas which have been denuded of their sculptural treasures. The Gandhara sculptures have an appeal to the expert, the amateur and the art collector. But that is not so to an ordinary Muslim as sculpture to him is an image—an idol to be discarded and broken. The second field of study is rather historical as it centres round the romantic adventure of Alexander the Great and continues to rope in the storey of the Bactrian Greeks who have left behind large number of silver and copper coins to attest their rule in the 2nd and 1st centuries B.C. Alexander's march through the territory of West Pakistan is recorded in the contemporary accounts,³ and to trace the route followed by him has led to lot of controversy⁴ and also to geographical exploration.⁵ However it has not been given to an archaeologist to follow in his footsteps and stumble on traces of old that may have survived today. Alexander definitely marched through the areas of human population and followed a route that must have been most frequented, as he had Ambhi,⁶ the ruler of Taxila, as his main guide.

As Alexander's invasion has been the "sheet anchor" for determining chronology in this area, his route is bound to reveal many old sites to the archaeologists. With this idea in mind the University authorities were persuaded to send a team in order to follow the track of Alexander. The present author in the company of Dr. Munawwar Khan, Head of the Department of History, called on Mr. Wajihuddin, the then political agent of the Malakand Agency, who was himself well versed in the literature about Alexander and was good enough to produce many old records and maps and to discuss with us the possible routes. At the end he made all arrangements for our trip to the tribal area and also gave us a Tahsildar as our guide. Encouraged by Mr. Wajihuddin, we went to Thana, the home town of Dr. Munawwar Khan. Thana is situated on a hill spur not far from the Swat river, overlooking the Chakdara opening and giving a direct passage over the Shakkot pass to the main valley of Peshawar. Alexander must have skirted this town in his Swat campaign but unfortunately it is not mentioned by his historians.

At Thana we made our first discovery. In the night after the meal while we gathered round the fire, Dr. Munawwar Khan was trying to introduce me to his fellow companions in his Pashto—a language which I hard-

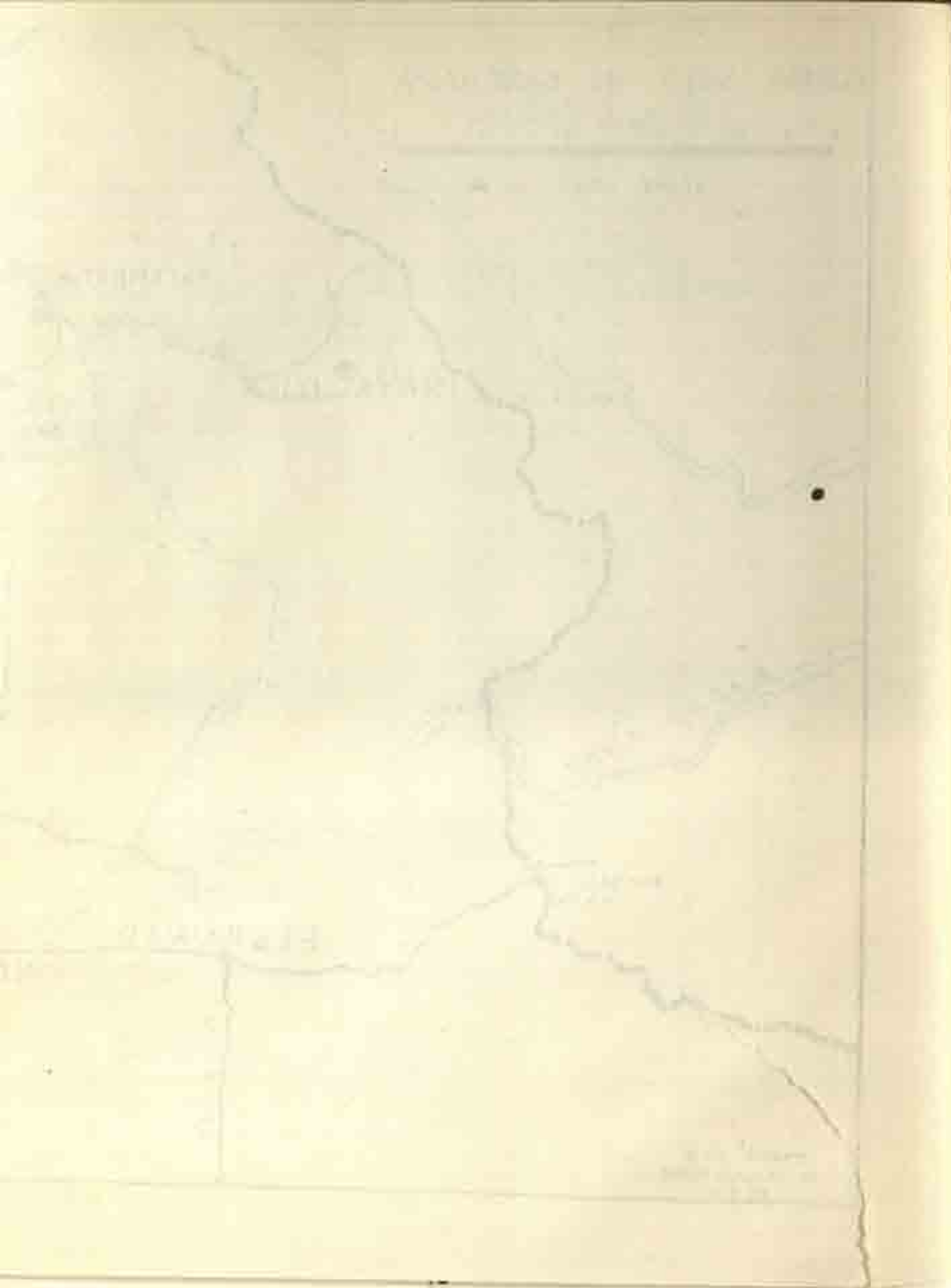
GRAVE SITES IN GANDHARA

Scale - 1" = 7-3/4 Miles
 GRAVE SITES.....



DRAWN BY
 M. DAUD KAMAL
 24-1987

Fig. 1



ly understood then. But when he used the phrase *But-parast* (idol-worshipper) for me, I intervened and asked him to let me know the gist of his talk. He explained that finding no other term for archaeologist in his language, he was using this phrase as the people in the locality knew fully well how the archaeologists were crazy for *Buts* (images). I strongly objected to the use of this phrase as I was not a *but-parast*, and secondly if people knew that I was after the images, it would be difficult for me to work in the area. I requested Khan Sahib to act as an interpreter for me and allow me to speak for myself. As I did not like my head to be broken by the Pathans, I did not dare to speak of the images or even of the Gandhara art. For me the archaeologist is one who is in search of the traces of ancient man, looking for him in old mounds, city ruins, dilapidated homesteads and old graves. As soon as I uttered the word, "graves", a villager stood up and said, "I have seen *Kafir* graves in the fields, the graves which have got pots in them and which are aligned east to west as opposed to the Muslim graves which lie north to south". This unique information was very heartening and early next morning we took him as our guide and went to the field. In an hour's dig our guide brought out the grave, of which he had talked. The grave lay in an extensive cemetery of old at Thana, which we later excavated in 1963. Our guide further pointed out that similar graves could also be seen near Chakdara. Our later exploration in that area revealed graves in the site of the State Dak Banglow at Chakdara and in the village of Charpat about one mile west of Chakdara.

Next day we crossed the Swat river over the British-built iron bridge and after leaving the Chakdara fort behind entered the Talash Valley of Dir State. By the road side we located many stupa mounds,⁷ the tallest of which was called *Andan Dheri*, near the ancient village of Uchh. About ten miles from Chakdara we had a view of a large number of derelict standing walls on the hill top on our left near the village of Machowa—obviously the ruins of a large fortified settlement. It is these ruins which are identified with the ancient city of Massaga by Sir Olaf Caroe⁷. These house ruins continued right up to the modern village of Ziarat, so called as there is an old tomb of a saint. The village is now shifted to the modern road side but the tomb, locally called *Gumbad*, is in the older locality. On our way to the *Gumbad* we passed by a Muslim graveyard. In one place a ditch had been dug, and in the section, we found, to our utter surprise, a Muslim grave resting on the top of a huge slab, below which was an ancient burial with some potsherds still sticking. This was our third discovery of the ancient cemetery.

Beyond Ziarat we crossed a *Khwar* (torrent) called Gour and our road winded up the hill in a serpentine fashion much to our discomfort. We

wondered why such a nasty road had been built by the British when it was possible to go round the hill alongside the *Khwar*. The Tahsildar came to our rescue and explained that on the hills opposite to us, known as Arang and Barang, lived the sturdy Mohmand tribe, who used to snipe at the army train moving down the old road which originally ran along the *Khwar*. In order to be safe from sniping, the British built this new military road at a higher altitude. It was for this reason that we could see no ruins on the hill road that we followed. But we had the advantage of seeing below the bend of the Panchkora river and how it took its turn through the Mohmand hills and left Ziarat far away on the other side of the hill. When we reached the top we had a beautiful panoramic view (pl. 1.) of the valley of Panchkora, where the village of Timargarha was situated. We were now reaching another world of green valley with poplar trees hedging the gardens of juicy oranges and pines shooting high on the hill slopes, variegated colours of terraced fields shining brightly in the morning sun, the greenery kissing right down the swift-flowing water of the river. From a vantage point at the village we saw the noble bend of the river and in the stillness of the night we heard the sonorous music of the rippling water, dashing against the boulders and rocks that had rolled down the river bed in ages past. But evening presented a still more wonderous picture. The hills that girdle around the village gradually rise up to their heights. In their laps lie sleeping many a concealed village, which you hardly catch in the glare of the day light. With the approaching night one by one fire is lit — smouldering fire, flaming fire, shining glow in the pitch darkness — as if the whole aflame in some festive ceremony. Humanity has returned home and is now kindling fire for food and comfort. How long past this scene has been raging in this valley? No one was there to narrate the story. But the river Panchkora merrily flowed singing the story of man in her eternal tune. As long as the river nourished the fields and quenched the thirst of man, there could be no lack of human population.

The road that we followed went ahead to Chitral but from the northern extremity of the village another road bifurcated that led across the Panchkora and around the fort of Balambat over to the bank of the Jandul (Chandawal of Babar's *Memoirs*)⁸ river, where there is a ford, traditionally known to have been a crossing for the caravans. A few miles down Jandul joined with the Panchkora and just before the confluence there used to be a ropebridge over the latter river. Since British time this bridge has been given up and the traffic now crosses over the bridge far to the north. But here about came Babar with his galloping horses, which drank the water of the river Panchkora. After receiving the submission of the

Yusufzais Babar went back and followed up the Kharappa route to Peshawar valley. It was at this very point that Alexander must have crossed the river either before or after his engagement with the *Gourais*¹⁰ in his onward march to carry on Swat campaigns.

Just close to the crossing stands a village called Khazana on an ancient mound, the word Khazana recalling Kozana or Kushana¹¹. Away from this place it was difficult to locate any site. The modern village of Timargarha has nothing of old except a mosque which includes some sculptured stones in its parapet and some carved wooden pillars and beams. But even this mosque, where lies buried the locally famous saint Timar Baba, cannot be older than two centuries. Such a barren prospect for archaeology was unbelievable to me! After a restless sleep in a local Dak banglow, early next morning I went out to loiter about a small *Khwar* that flowed down through the village and showed some sections cutting the neighbouring fields. Luck was not in favour because the object was not clear. Suddenly the village urchins crowded around to have a view of such a mad man who turned up and down the stones and pricked his knife in the tasteless earth. Why should there be such a large slab of stone? A piece of bone—whose can that be? One boy came boldly forward and said "you are a fool. If you need more of such bones, I show you a better place". I followed him blindly to the north of the village and he led me on to a ditch. What an amazing scene! The villagers had done my job. They had exposed good sections by removing the earth for manuring their fields. In the sections hang masonry walls, sometimes covered by a row of stones, and within were sticking bones—lot of them—with sherds scattered here and there. A little digging brought out a full skull and a complete pot: I thanked the boy and said, "I have got the full share of bones". Here was spread before me the whole graveyard that had been cut by the Chitral road and many a ploughshare had ribbed open the bones of old. Nay, the graves had penetrated right down into the village home which were standing over them. The village folks had no knowledge that they were sitting over the graves of by-gone people.

Our object fulfilled, we proceeded ahead along the Jandul river and reached the important state headquarter of Munda. Here again the road branched into two—one led to the north towards Shahi, beyond which lay Bin Shahi and further ahead ran the ranges of Hinduraj that separated Pakistan from Afghanistan. These are the offshoots of the well-known Hindukush hill, whose snow-capped tops showed in the distance. The preservation of such names like Shahi, Bin Shahi, Hinduraj and Hindukush, is

not without any significance. In this area occasionally we obtain the coins of the Hindu Shahi rulers. It is, therefore, not unreasonable to associate these names with those Hindu rulers who survived late in this area. When we proceeded further and reached the deserted village of Khar (correctly *Shahr*, meaning city), we were shown in a military camp a few terracotta objects collected from Tordheri, where a new fort was under construction. These terracotta figurines were typical of the Hindu Shahi period. Khar, which is so well described by Babar,¹² has today only a small plastered brick mosque of the time of Aurangzeb and a *chashma* (pond) which belonged to an old Mughal garden, now completely gone. The old city is prostrate on the ground. Further ahead the road led beyond Nawagai (Arigaeum of Alexander's historians) to Nawa pass—the pass through which Alexander must have entered Pakistan. We diverted our journey northward to Shinkot, wherefrom an inscribed casket¹³ of the time of Menander had been earlier found. The old mound stands in an open plain just by the side of a *Khwar*. At a short distance stands the modern fort of Enayet Qila, where it was not possible for us to go. Later Mr. F.A. Durani paid a visit to the place and noticed the scatter of a large number of grave stone slabs in the field. This was the furthest extent we traced the graves on the west.

On our return from Bajaur and Dir we proceeded to Swat where the Italians had been excavating Buddhist remains for a number of years. This area had been explored earlier by Sir Aurel Stein¹⁴ and later Professor G. Tucci¹⁵ had gone deeper into the problems of the Buddhist monuments here. But when we reached Swat, we found that the Italians had already excavated three cemeteries in the vicinity of Mingora and their store room was full of pots from these graves. The story of the discovery of these graves in Swat was nowhere told. We learn from C.S. Antonini that "In the years 1956-60, Professor Tucci had thoroughly explored the zones around the city of Saidu Sharif (Swat State), finding there, among other things, many ceramic fragments which he himself recognized as protohistorical. They formed part of the material which came to light after the infiltration of tombs. Later, the members of the Italian Archaeological Mission were able to localize the burial zone thanks to the discovery of human bones and slabs of stone".¹⁶ G. Stacul again writes: "during widespread exploration and research extending over several years throughout the Swat region (W. Pakistan), Professor Giuseppe Tucci, as early as 1958, detected the presence of various necropolises".¹⁷ But in the "preliminary report on an archaeological survey in Swat", published by Professor Tucci himself, no reference to any "necropolis" is made. Obviously the discovery is of a later date when the Italians had already started work on the Buddhist remains. It is likely

that the information about the graves may have been supplied by the local village diggers. G. Stacul¹⁸ himself records one such information about some tombs in Karora area. He writes: "In 1961, during the construction of a road that links the valley of the Swat with the valley of the Indus (West Pakistan), some tombs were found six miles outside of Karora, near the village of Kherai. Thanks to the courteous information of Major Riaz, of the Corps of Engineers of the Pakistan Army, the Italian Archaeological Mission carried out a first survey of the site, during which two vases from damaged tombs were recovered".

When we reported the discovery of these graves to Mr. M.A. Shakoar, the then Curator of the Peshawar Museum, he showed to us some pots sent to him by the political agent, Malakand Agency, which contained some bones and ashes. Later we recognized a type of terracotta figurine in the museum that must have originally come from one such grave. Still later Mr. Waliullah Khan, the then Superintendent of Archaeology, West Pakistan Circle, informed us of the existence of such graves at the foot of the hill where much later the Buddhists erected their own monastery at Jamalgarhi—a place which must have been passed by Alexander. In the early fifties the Irrigation Department was cutting an irrigation channel from the newly-built Dargai headworks. In the course of digging the earth near Pan-chpir (not far from Hund) near the Indus (See fig. No. 1) the workers had encountered a few graves. Mr. (later Dr.) Nazimuddin Ahmad, the then Assistant Superintendent of Archaeology, West Pakistan Circle, paid a visit to the site and collected some materials, but nothing was done to probe into the subject further.

The credit must go to the Italians for digging for the first time these graves in Swat and they were the first to speak of them as "pre-Buddhist."¹⁹ Professor Tucci extended the date further by attributing them to the "Asvakayana-Assakenoi" of the time of Alexander.²⁰ In the first Italian publication C.V. Antonini Vaguely surmised, "it seems to us particularly close to the ceramic production of the locality of Tepe Hissar II B".²¹ Even after recognizing this analogy, the Italians were too much obsessed with their Buddhist studies. Antonini further reiterates the fact that "they are pre-Buddhist, that they have fairly persuasive analogies to Iranian culture and partially too with that of Asia Minor".²² Unfortunately in the publication, except for this surmise no comparison is given. In the second publication again G. Stacul²³ preferred to use the title "Pre-Buddhist necropolises in Swat". He has been intelligent enough to classify the graves on the basis of stratigraphy into three chronological periods. But even finding good com-

parisons of pottery types with those from Tepe Hissar and other sites in Iran, he says: "We think it is right to stress the analogies with pottery in moved from the deepest levels at Charsada (6th—4th century B.C.)"²⁴ This bias for late dating is apparently due to Professor Tucci's attribution of these graves to the "Asvakayana—Assakenoi".

Right from the beginning we have had no such bias. In these graves we have materials that are bound to throw light on the bronze and iron ages of Gandhara—a protohistoric period that must take back the history of Gandhara before the time of the Achaemenians.



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9. *Ibid.* p. 376.
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17. *Ibid.*, Vol. 16, 1966, p. 37.
18. *Ibid.*, Vol. 16, 1966, p. 261.
19. *Ibid.*, Vol. 14, 1963, p. 25.
20. *Ibid.*, Vol. 14, 1963, pp. 27-28.
21. *Ibid.*, Vol. 14, 1963, p. 25.
22. *Ibid.*
23. *Ibid.*, Vol. 16, 1966, pp. 37-79.
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SECTION — 3

GEOGRAPHICAL AND HISTORICAL BACKGROUND

The story of the discovery, narrated in the last section, took us from the frontier of Pakistan in Bajaur to the neighbourhood of Hund, which

was the ancient crossing of the river. We followed in the foot-steps of Alexander the Great and climbed over many a hill and passed through several valleys until we were down in the plains of Peshawar. It was not possible for us to go into the hill-girt valley, where dominates the Khan of Nawagai—the village which leads to Nawa Pass (6000 feet high) on the western frontier and opens out through a Khandao ('break in the hill') into the plain of Bajaur. Southward there are several routes from Nawagai leading to Gandhav and onward to Shabqadar and Charsada. Two of them have been frequently used in the past—the Kharappa valley route and the Ambar pass route. Alexander chose to march into Bajaur along a perennial river and a fertile plain, where survives today the important centre of Khar. Our story of the graves begins in this plain. Onward an important hill torrent (Khwar) coming from Barwa joins the river Jandul at a point where stands the *tehsil* headquarter of Munda. Further on the river moves forward to meet with Panchkora, not far from Timargarha. Panchkora is generally identified with Guraeus probably seeking Gurae in the modern word (Panch) Kora. According to Alexander's historians the river gave its name to the land and also to the people, who are referred to as "Guraeans". In other words the names of the people, the land and the river are derived from the same basic root. That name should now be restored from the present survival of Panch Kora i.e. five Kora or *Kura* or *Kurav* or *Kuræ*. If we interchange the name we get *Kura-panch*, which strongly recalls *Kuru-Panchala* of the upper Ganges-Jamuna Doab. Should we seek in these people the forgotten *Uttara-kurus*, the Northern Kurus? The answer is difficult to give.

Beyond the land of the Guraeans to-day we cross over the Kamrani pass and reach the open Talash valley where there are two dominating points, Ziarat of Mujawar Baba and the old ruined city of Uchh. The valley converges on Chakdara pass, standing right over Swat river. Here in this valley Alexander met the forces of Assacenians and stormed their fort of Massaga, not far from Ziarat. At present a *Khwar* flows below the old fort and meets with Swat river near Chakdara. No other people's name is mentioned by Alexander's historians, though his forces stormed Ora and Bazira, which are identified respectively with Udegram and Barikot on the right bank of the river Swat. But the upper Swat valley is separate from that of Talash, and we also learn that the king of "Abhisares" in Hazara district was sending help to Ora. This must be across the river Indus over a northern point. Fortunately the Italians have excavated a grave site near Kherai not far from the Indus. Much later in history when the Yusufzai Pathans

crossed over to Swat, the older Swatis moved onward to Hazara where they are still seen.

The Assacenoï is generally restored to Sanskrit *Asvakayana* and it is to these people that Professor Tucci attributed the graves probably because we have little knowledge of any other people in the "pre-Buddhist" period of the history of this region. But while the Assacenians are said to be in Talash valley and probably also in Swat, the graves have a wider distribution.

From Swat several routes lead to Peshawar plain. Today we motor over the Malakand pass and come to Dargai (meaning "the village at the Pass"). At the eastern end from Barikot we climb up the Karakar pass and reach Buner valley and going out again through Ambela pass we come to Sudama plain of the Chinese pilgrims, wherein stands Shahbazgarhi. In between Malakand and Karakar we have the Shahkot pass that connects Chakdara, Thana and Jamalgarhi via Sanghao and Katlang. Jamalgarhi and Takhtbahi both stand on an offshoot of the Paja hill, which is broken in several places. The route via Takhtbahi rounds the abrupt end of the hill and that at Jamalgarhi passes through a gap made by a *Khwar*. The northern area is stony and dry and the area south of this hill is the fertile plain of Peshawar. There are two more outcrops in the southern plain — the noble heights of the Karamar hill that finish off at Shahbazgarhi and provide the stone block for the Asokan rock edicts, and the second provides a support for the northern bank of the river Kabul. In the northern area the graves have been located at Jamalgarhi and in the southern area at Panchpir and Pehur.

In Peshawar plain the main opponent of Alexander was Astes, the chief of Pushkalavati, who was the head of the people called Astakenoi, sometimes Sanskritised as *Hastinayana*, but more correctly *Astakayana* — a name which is preserved in Hashtnagar.

It is not possible to stretch back the historical geography of the time of Alexander in great detail. In the 6th century B.C. Gandhara formed a part of the Achaemenian empire. Darius sent a naval expedition under Skylax of Caryanda down the Indus but from him very little information has come down to us. Kaspatyrus, the place wherefrom Skylax started his journey, has not yet been correctly identified. Herodotus informs: "There are Indians of another tribe; who border on the city of Kaspatyrus, and the country of Pactyica; these people dwell northward of all the rest of the

Indians, and follow nearly the same mode of life as the Bactrians. They are more warlike than any of the other tribes and from them the men are sent forth who go to procure the gold." Herodotus has carefully recorded that the other Indians (Probably of the plain east of the river Indus) formed the twentieth Satrapy of the Persian empire while the northern tribes, which included "the Sattagydiens, the Gandarians, the Dadicae, and the Aparytae, who were all reckoned together", formed the seventh satrapy. We need not discuss the identification of the tribes. For our purpose it is enough to remember that they all paid taxes to the Persian emperor and that each one of them was a distinct tribe living in a defined region. For this very period of the Achaemenians we have another source in the great Sanskrit grammarian, Panini, who was born at Salature, identified with the ruins at Lahur, about four miles west of Hund (restored as mediaeval Wailind and ancient Udbhandapura). His grammatical work gives the name of the country as Gandhari or Gandhara and refers to the rivers Sindhu and Suvastu. Dr. V. S. Agrawala, in his *India as known to Panini*, has gleaned the materials from the Sanskrit sources and tried to Sanskritize some modern names in this region. He restores Dir as Dviravati — i.e. the land lying in between two rivers. Massaga he takes to be Masakavati, which was actually a river that flowed by the city. The Mohmand tribe, now living in the hill agency between Shabqadar and Bajaur, is recognised as Madhumant tribe, the Shinwari tribe as Asani, the Karshabun as Karshapana, the Powindas as Pavindas, the Wana plain in South Waziristan as Vanavya country, Tira as Triravati (the Land between three rivers), and finally the Afridi tribe as Apritas. He has further suggested Hridgola for Hidda or Hadda, Andhakavarta for Andkhui, Rohitagiri as the old name of Hindukush, and Tri-kakud as the old name of Takht-Sulaiman. The identifications of Dr. Agrawala are apparently appealing but they are based on the assumption that the present geography and the tribal distribution have remained constant. Fluctuations in the historical geography, tribal migrations in history and later historical records have all been set aside to satisfy the ardent zeal of the scholar. However, if all the Sanskrit names catalogued here, do refer to this region the knowledge of our historical geography is really enriched. In this doubt one thing is certain that the people of the hill are referred to by the general designation of *Ayudhajiviganas*, i.e. "people who lived by the profession of arms", — a description which agrees with what Herodotus has written about them.

Before the Achaemenians Gandhara was a well-knit kingdom. Prof. H.C. Raychaudhuri, in his *Political History of Ancient India*, sums up the evidence, "In the middle of the sixth century B. C. the throne of Gandhara

was occupied by Pukkusati (Pushkarasarin) who is said to have sent an embassy and a letter to King Bimbisara of Magadha, and waged war on Pradyota of Avanti who was defeated." He is also said to have been threatened in his own kingdom by the Pandavas who occupied a part of the Panjab as late as the time of Ptolemy".

The reference to the Pandavas recalls the whole story of the Indian epic, the *Mahabharata*, in which the Pandavas played a dominant role. But though the Pandavas are regarded in the Indian tradition to belong to the Kuru tribe, Prof. Hopkins, in his *The Religions of India*, thinks that they were an unknown folk connected with the wild tribes located north of the Ganges. This opinion is based on the strange custom of the Pandavas, particularly their polyandrous marriage system. In order to reconcile with Indian tradition should we take them as belonging to the branch of the *Uttara-kurus*? Whatever may be the truth, the appearance of the Pandavas in ancient history of this region, set the ball rolling that culminated in the great *Mahabharata* war. In the post-Vedic period the Kurus were the dominant tribe in the upper Ganges valley, while one of their kings, Janmejaya by name, is said to have advanced right upto Takshasila. According to the Indian traditional history, the *Puranas*, the Gandhara princes were the descendants of the Druhyu tribe. While Druhys will be discussed below, it is worthwhile noting that the emergence of the Pandavas and the *Mahabharata* war inaugurated a new era in the ancient history of Pakistan and northern India. It is after this period that we have a continuous history as told in the *Puranas*.

As far as the history of this region is concerned, we are in the realm of traditions. We may note others as well. Arrian, in *The Anabasis*, records about Nysa: 'In this country, lying between the rivers Cophen and Indus, which was traversed by Alexander, the city of Nysa is said to be situated. The report is that its foundation was the work of Dionysus, who built it after he had subjugated the Indians. But it is impossible to determine who this Dionysus was, and at what time, or from what quarter he led an army against the Indians. For I am unable to decide whether the Theban Dionysus, starting from Thebes or from the Lydian Tmolus, came into India at the head of an army, and after traversing the territories of so many warlike nations, unknown to the Greeks of that time forcibly subjugated none of them except that of the Indians.' In another place Arrian writes: "the Indians between the river Sindu and Kabul were in ancient times subject to the Assyrians, the Medes, and finally, to the Persians under Cyrus". We

have seen earlier the Persian conquest of Gandhara after Pukkusati, but of the earlier conquests we know nothing.

With the name of the Druhyus we come to still earlier period, when dim light is thrown on the tribes of this region from the Rigveda. The Druhyus appear as one of the ten tribes who fought in the *Battle of the Ten Kings* on the bank of the river Ravi. It is strange that the Kurus do not participate in this famous battle. In fact their name is not mentioned at all in the Rigveda. It is therefore legitimate to assume that the period of the Rigveda is pre-Kuru age. The Druhyus in the Rigvedic time are supposed to have lived between the rivers Chenab and Ravi, but later their princes are known to have occupied Gandhara. Along with them five western tribes are mentioned. "The Pakthas, Bhalanases, Vishanins, Alinas, and Sivas were the five frontier tribes. The Pakthas lived in the hills from which the Krumu originates. Zimmer locates them in eastern Afghanistan, identifying them with the modern Pakthun. South of the Pakthas stretched the Bhalanases for whom Zimmer suggests east Kabulistan as original home. The Vishanins, so-called probably because their helmets were horn-shaped or ornamented with horns, were, like their allies, a tribe of the north-west located farther down between the Krumu and the Gomati. Northeast of Kafiristan has been suggested as the location of the Alinas, who were closely allied with the Pakthas. The Sivas lay between the Sindhu and Vitasta in the Vedic period." But west of the river Indus in Swabi Tehsil we have still an ancient village bearing the name of Siva.

In the Rigveda we get the names of the rivers Sindhu, Kubha (Kabul), Suvastu (Swat), Krumu (Kurram), Gomati (Gomal) and a few other smaller ones, and also of the region called Gandhari. Beyond this literary evidence our sources fade out. To go beyond this time is to probe into the linguistic prehistory—a period when the philologists have talked about the arrival of the Aryans in this part of the world. Who were these people? Wherefrom did they come? What was their cultural equipment? The answers have been given on the basis of philological reconstruction. But their history yet remains to be substantiated in archaeology. Before we turn to the archaeological evidence, we sum up the historical outline below:

- 1.— The emergence of the Aryans.
- 2.— The age of the Druhyus and the five western tribes, the Pakthas, Bhalanases, Alinas, Sivas and Vishanins.
- 3.— The age of the Kurus, the Pandavas, the Mahabharata war, and the later Druhyus.

- 4.— The time of Pukkusati.
- 5.— The Achaemenian age.
- 6.— Alexander's invasion.

The true historical period begins from no. 5 onward. From 1 to 4 is the protohistoric period when dim light is thrown from literature. Prior to No. 1 is the prehistoric period, of which we know nothing from literature.



SECTION — 4

GANDHARA GRAVE CULTURE — A DEFINITION

In an earlier article I had titled the subject as "Gandhara Grave complex in West Pakistan¹" and further clarified, "The proposition does not imply that the graves are special to Gandhara. It simply means that in the present state of our exploration they are spread throughout this region. With the widening of our exploration we are likely to find them in the area east of the Indus river." That hope still remains to be fulfilled as it has not so far been possible for us to move out into that region². Meanwhile we have completed our study of the materials so far brought to light, and this study has enabled us to define the terms in a positive manner. We have passed the stage of the preliminary study and are now in a position to present the different facets of Gandhara Grave Culture.

The term Gandhara has so far been applied in archaeology to a particular school of art and the associated Buddhist culture that developed in this region in the early centuries of the Christian era. Prior to the beginning of this art archaeology has traced back the material culture to at least the dawn of the historic period when the Achaemenian Iranians, in the sixth century B.C., incorporated this region within their empire. Earlier than this time our historical notion has been vague and mythological. The graves have broken these myths and today we can talk in terms of real human achievement. The Gandhara Grave Culture has opened up two periods of archaeological studies in this region— those of the Bronze Age and the Iron Age. The Aryan myths of the Vedic literature will now be understood on the solid material foundation of these two ages. As the culture belongs to a people or peoples, whose names have not been revealed to us in our ex-

cavations, we have preferred to derive the archaeological terminology from two main factors: firstly the culture is known to us mainly from the grave goods and secondly it was first discovered in this region. We have again chosen the term "culture" so as to fit the material equipments to the hill pattern of the region where it is now being studied. Gandhara Grave Culture thus presents a pattern of living in the hill zone of Gandhara, as evidenced in the graves, and shows how the peoples, who were equipped with poor bronze and iron tools and weapons, adapted themselves to the natural resources.

As will be discussed in the following sections, this culture is fundamentally different from the Indus Civilization and has also little relation with the Baluchi village cultures. While the Indus Civilization was rooted in the intense cultivation of the fertile soil of the main Indus valley, the Baluchi village cultures grew athwart the land routes that connected the Indus Zone with the main theatres of civilisation in Western Asia. The Baluchi cultures represented a back wash of the civilisations that developed in the river plains on the east and the west. The Gandhara Grave Culture, though originating in the Bronze Age and continuing in that of the Iron, represents a different phenomenon of history and is apparently connected with another move, or moves, of the people, that shows strong links with northern Iran and Central Asia. They introduced the Bronze Age in Gandhara west of the river Indus and ushered in an era of plain pottery tradition, as opposed to the painted pottery of the Indus Civilization. The plain pottery is seen in two wares, grey and red. The plain grey ware is a harbinger of this culture and marks the introduction of a completely new tradition in West Pakistan. The further development of this grey ware when it came in contact with the painted tradition of the main Indus plain, yet remains to be seen. But it is not improper to seek the origin of the painted grey ware³, known from East Panjab and the Upper Ganges Valley in India, to the developments of this grey ware in the intervening plains between the Indus and East Panjab.

The next section will give the detail of three main burial ritual practices known from the graves: (i) inflexed burial, (ii) urn burial after cremation and (iii) fractional and multiple burials. These three practices, no doubt, speak of three different rituals and they reveal to us the knowledge of two different metal technologies, yet in the general pattern of life there seems little change. It is for this reason that we have used the term culture in the singular. It is easy to understand that the pattern was conditioned more by the hill environment than by the possible developments in the

plains. When in future new developments are seen in the plains, new terms would be evolved to suit the change. For the time we are dealing with the Gandhara Grave Culture of the hill zone, where the introduction of bronze as well as iron made life little different from the neolithic stage, as is surmised from a few survival of the ground stone tools in this late context.

The settlement pattern is very significant. All the sites show the people settling on the hill slopes more towards the stretch of the land beginning from the foot hill to the brink of the near-by flowing river. The terraced cultivation was no doubt the chief feature, as is also seen today, but the very fact that the graves are concentrated in a limited area, while the occupation goes right up to the brink of the then river bed suggests that the river water must have been used for limited irrigation, as is the practice in the present day. In fact away from the river we have not been able to trace the settlement to any great depth. How far the pasture land of the hill slopes added to the economy of the people is difficult to say? But it is fair to presume that while the grave people extended the earlier cultivation towards the river, the higher slopes were used for grazing the cattle.

Unfortunately we have not been able to find specimens of corns in our excavations nor have we been able to get a full report on the animal bones. It is, however, well to underline the fact that horse played a significant role in the life of the people.

The architecture was based on stone masonry. In the graves as well as in the last period settlement at Balambat we find rubble stone masonry used without any mortar, though mud plaster is seen in the houses. At Thana long slabs of schist stones were cut out from the living rock to serve as floor for the dead bodies. At Timargarha large slabs of stones were used to make the box-like graves. These stone blocks were properly chiselled, and the inner face, which lined the graves, were duly pecked with sharp tools in order to give a flat surface. As the walls are preserved just above the four datations, it is difficult to suggest whether the people made use of timber for holding the rubble stones, as is known today in this locality. We have no information about the village planning, nor have we been able to trace a complete house with all its requirements. No drain has so far been found. But the presence of circular and rectangular storage rooms with a connecting platform, suggests extra store of corns. On the whole the architecture was simple. No decorative element has so far been found.

We have little information about the religion of the people except their burial rites. In the settlement area, excavated by us, no temple complex

has been found, nor have we been able to discover any statuary or sculpture. We have, however, discovered a few terracotta human figurines, both male and female. It is not possible to take them as deities for worship at this stage. In the section on small finds it will be shown how they are technically related to the so-called 'baroque ladies' discovered from the historic sites in this region. Our specimen (Pl. LI) also shows cross-band (*channavira*) on the body but there are other fundamental differences. We do not find on them elaborate head-dress. They show only brief ornaments — a necklace consisting of circlets scratched around the neck. The back of the head is pressed with a finger. What could be the purpose of these figurines? They are obviously not toys, as the whole manner of depiction is highly ritualistic. If we could generalise from one specimen found in our grave, it is possible to surmise that these figurines have some totemic significance. The rarity of such figurines in the settlement site points to their not very common use by the people.

This totemic idea is not limited to the figurines alone. It is possible to see a similar meaning in the use of the visage urn in connection with the second type of burial. These urns prominently show the mouth, the nose, the eyes and the eye-brow as if by representing them, the urn typifies a stylised human face. These urns are definitely not meant for worship. Then what could be the sense behind this human facial representation? As the urns contain only human bones, it is not necessary to specify them by such representation as human burial. And when we realise that this type of burial is a development from the earlier inflexed burial and is again distinguishable from the later fractional and multiple burials, it is possible to imagine a special part played by the visage urns in relation to the rite of cremation. Even the later people, who did not practise cremation, when burying their dead in the older graves, did not destroy the urns found by them but removed them to a side. It seems that there was some sanctity attached to the burial rite though we do find some disturbance caused by the later people.

We have found no definite evidence of any human sacrifice practised by these people. Multiple burials are seen in the second and third types of the graves but in both these cases the bones could be preserved elsewhere and buried together later, or in a few cases we have the actual evidence of the re-opening of the earlier graves. A number of graves, particularly in the last period, have shown double burial, representing male and female skeletons. It is possible that they are husband and wife, but as they are not cremated, we cannot take them as a case of the burning of the widow on the

husband's funeral pyre. But the way in which the skeletons lie face to face, leg-on-leg, clasping each other, is highly suggestive of a particular rite that must have prevailed in the last period of the graves. Does this represent a willing sacrifice of the wife on her husband's death? In any case the burial customs, seen here, are fundamentally different from that known to the Hindus in India. As will be shown in the next section, only at Harappa in the post-Indus Valley period a few graves have been found, which contain inflexed burial of the type seen here in the first period. In these graves again the pot forms are simple and plain, though we have a few survivals from the earlier period. How do we account for these limited number of inflexed burials at Harappa?

The small finds and the pot forms discovered in the graves give us some more detail about the people. Besides the cooking pot, which was obviously a food vessel, we generally get a bowl-on-stand and a tall drinking vase. For drinking purposes we sometimes get a medium-sized drinking goblet and a small drinking cup. Sometimes we also have a handled drinking glass and a cup or bowl on footed stand. While the bowl-on-stand is, with a few exceptions, in red ware, the drinking vessels are usually in grey ware. The bowl-on-stand is a type different from the fruit-dish-on-stand seen in the Indus Civilization. The Gandhara Grave type is persistent throughout and must be associated with a particular kind of ritual. In the settlement site its number is limited. The grey drinking vessels are so dominant in the graves that it is possible to think of some special drink popular among these people. Spouted vessels are rather rare. Their number increased in the last period. For pouring liquid we also find jars with pinched mouth or a cup having a hole at the bottom. Food habits can be guessed from the flat dish (*thali*), which is very convenient for eating rice. Curry bowls and dishes have also been found. In the settlement site we obtained flat-bottomed troughs with lugs on either side. Some of these troughs were made of very poor clay and also not very well fired. They could be used for three different purposes—for kneading dough, for washing clothes and for baking bread. Several varieties of jar lids have been found. The knobs of these lids are different from those found in the historic period. One of the lid knob, found in Swat, significantly adopts the form of a horse. For storing liquid we get narrow-mouthed bottles and in the last period water was kept in the long-necked *Surahis* (bottle pitchers). We have not found any brazier in the graves, though in the settlement site we recovered a vase with holes from the Achaemenian level. Storage jars take the form of the enlarged version of the cooking pot. Same form is used for burial urns but for storing water we

have several shapes. One form, which still persists in India, is a globular vase with a narrow long-necked mouth. This is the *Kalasa* type, which the ladies generally use to carry water from a pond. The *Kalasa* is placed at the waist on a side and one arm goes around the neck to hold it to its place. The long neck is very convenient to take the arm around.

The metal objects and their techniques are very important in defining the culture. Apart from gold and silver, copper was the chief metal used in the first two periods. Iron came in use only in the third period. Copper was used with tin as an alloy and both the techniques of hammering and casting were known. Iron smithery was also quite well advanced but the weapons, like the spear-heads, do not show well-formed mid-ribs. However, the metal technology was the dominant factor in the life of the people. Though the number of the metal objects is limited, probably due to poverty rather than lack of knowledge, we find the influence of technology in other aspects of life. Some of the pots definitely show metal forms. The construction of stone-built graves and the quarrying of huge slabs of stones reflect the use of metal tools. They were also used for weapons, house-hold objects, toilet materials, ornaments and other miscellaneous purposes. It is therefore reasonable to infer that the Gandhara Grave people were already in the metal age. This metallurgy does not appear to have been derived from the Indus Civilization, but the comparative study makes it clear that the knowledge of metal was brought by these people from the west. They introduced a full blooded metal age in the hill zone west of the Indus — the area where so far we have found the persistence of the neolithic pattern of life.

Among the small finds in the graves the largest number is that of the long pins having varieties of head tops. They are all cast in bronze. Mr. Rahman has discussed below (see part IV) the purpose of these pins and has rightly stressed on their wide popularity. In the Balambat settlement site they survived in the Achaemenian level. We have also got pins of ivory but in this material the type is limited to one. The most noteworthy among these are the loop-headed examples, which have a single coil and have been rightly compared with the Hissar specimens. The presence of eye needles in the graves is remarkable as they indubitably attest the stitching of garments. Besides the antimony rods of ivory, we have a remarkable long handled small blade type of toilet object. Its purpose is not certain, though it is possible that it was used for mixing paste. Among the iron objects the long ladle-like spoon, the spear-head and three ringed cheek-piece of a horse's snaffle are worth noting. Among the ornaments we should spe-

cify the pendants, ear rings and finger rings. The finger rings are made of spiral copper wire while the ear-ring is remarkable with its spikes around the ring. Beads of precious stones were also in use.

The most prolific among these beads is the terracotta biconical type. These could hardly be used as beads. Some have taken them for spindle whorls while others take them for net-sinkers. They could be used for either purpose. It must, however, be pointed out that the present day net-sinkers are rather barrel-shaped and have bigger holes while the spindle whorls are generally truncated conical shape. In any case there is no bar to using them as net-sinkers. When it is known that the Panchkora river is good for fishing even today, it is reasonable to infer that fish was also then caught by some means.

On the whole the grave materials introduce to us a rapidly developing culture of a people or peoples who were fast growing. The development in the three different periods is remarkable and their rapid move throughout the region is none the less striking. In contrast with the Indus Valley Civilization, which was rather static through the centuries, the Gandhara grave culture was fast growing by not only borrowing materials from outside but also by developing new forms in course of evolution. This development is best seen in the changing forms of the pots. Whether we take the cooking pots, or the bowl-on-stand or even the tall drinking glass, we can easily trace the course of evolving shapes. This rapid change speaks of wider contact and buoyant youth. It is true that because of the poverty of the region we are unable to see its fully developed form. However, it is hoped that future discoveries in the plains may bring out more clearly the different facets of this culture.

NOTES

1. The article was sent for publication in *Asian Perspective* in June 1966 but because of some difficulties the journal could not come out in time. A summary was published in five instalments in *Pakistan Times*, Lahore, on 18, 19, 20, 21 and 22 September, 1966.
2. Now our programme is set to start exploration in February, 1968.
3. B.B. Lal, 'The Painted Grey Ware of the upper Gangetic Basin: an approach to the problems of the Dark Age', *Journal of the Royal Asiatic Society of Bengal (Letters)*, XVI (1960), pp. 89 ff.

SECTION — 5

RITUAL PRACTICES AND MATERIAL EQUIPMENT

The grave furniture and the material objects discovered at Balambat Settlement site abundantly make it clear that here we are dealing with people or peoples who in the first two periods knew the working of copper and in the last grave period got the knowledge of iron. Besides, gold and silver were also familiar though their ornaments were rather scarce. On the whole the use of metal was not very profuse. In the last period iron was exclusively used for weapons and implements. Copper objects were either cast or hammered out, and they mostly served as toilet materials but in Swat Copper harpoon, arrow-heads and knife-blades have also been found (see Stacul).

Among the copper objects the long slender pins with top heads predominate in quantity as well as in variety. They have been observed near the head or sticking to the skull, suggesting that they were used as hairpins, or probably to keep the scarf tied round the head. The presence of eye-needles in the graves is an important evidence for the stitching of the garments. The toilet equipment consists of antimony rods and an unidentified copper object having a flat blade on one end and long handle on the other, probably used for mixing red pigment. The ornaments include ear rings, finger-rings, pendants, beads and bangle.

The iron objects include spear-head, arrow-head, nails, spoon, "flat rectangular axe" (in Swat) and a cheek-bar of a horse's harness. The spear and arrow-heads show thickened mid-rib, described by Stacul as "swollen at the centre."

The animal terracotta figurines are conspicuously absent in the graves, though they have been found in the settlement site at Balambat. There we have found humped bull, ram's head and cat. Only in Swat a jar lid showed a handle in the shape of a horse. On the other hand from the graves have been found bones of goat, horse, stag, sheep, hare and snake. In Swat two complete skeletons of horses were also discovered.

At Timargarha we obtained only one terracotta human figurine from grave No. 183, which belongs to period III. Here the figurine was found near the pelvis of one of the two individuals buried in the grave. In the same grave the snake bones were found in the bowl-on-stand. This terracotta specimen is a male figurine with a cross band at the chest while the back of the head is pressed with thumb. Similar figurines have also been found in the Balambat settlement site. From Swat come many other varieties of human figurines, both male and female. One female specimen has a broad hip, slender waist and conjoined legs almost pillar-like—the prototype of the later mother-goddess. Stacul points out: "anthropomorphic figurines occupied a special position being placed under the arm-pits or head, or at any rate near the body." It is difficult to specify the purpose of these figurines. They do not appear to have been objects of worship. As they are limited only to the last period graves and further restricted to a few of them, they may have some totemic significance.

We are in a better position to speak of the burial rites of these people. Three distinct types of the disposal of the dead have been noted:

1) In the first type single individuals are buried in the graves along with funerary pots. Complete skeletons of these individuals have been found. These skeletons are generally aligned north-west to south-east, with rare exceptions, lying on one side, with their legs inflexed and hands drawn up towards the face, one palm of the hand generally resting on an open-mouthed flaring cup. It is possible that originally he was holding the cup. In general there are at least three types of vessels in such graves — a hand-made cooking pot of coarse red ware, a bowl-on-stand of red ware in medium fabric (see description on pottery), and either a tall drinking vase in grey ware or an open-mouthed small drinking cup in grey ware.

2) In the second type the individuals were burnt away from the graves. Their bones (a few of them), ashes and charcoal were collected and placed in urns. Sometimes the urns contained only bones, while the others had only ashes and some had nothing. It is in these urns that we get bones of more than one individual. This need not mean that other individuals were deliberately killed or burned along with the principal dead. We should not cite this as an example of human sacrifice, as is suggested by C.S. Antonini (*East and West*, Vol. 14, 1963, P. 15). The usual custom noted in India, is to collect the bones and ashes in urns for a later disposal. Here at Timargarha the urns were placed inside the graves. The bones or ashes were generally found in visage urns—large globular vases with an imitation

of human face on one side, showing a holed mouth, holed eyes, protruding nose and eye-lashes. The significance of this anthropomorphic representation is difficult to guess. Obviously it is not meant for worship but it has some relation to the concept of the dead.

3) In the third type several graves were found in which unburnt fractional bones of one or more than one individual were buried. Whatever bones were available were disposed of in the regular fashion of inflexed burial. The quantity of the bones varied from grave to grave. In some we obtained almost complete skeleton while in others only a few fragmentary bones were dumped in the middle of the grave. In many graves one skeleton was preserved to a greater extent while the bones of another were heaped in the middle. It is not possible that in all the cases the graves were disturbed. There is a strong possibility that here we have examples of burial after exposure — a practice which is so well attested in the ancient world. It is along with these graves of the fractional burial that we find the multiple burial of the unburned bones — a completely new ritual different from type No. 1. In some graves we found male and female buried, face to face, clasping each other. Do they represent husband and wife? Should we suppose that the wife is sacrificed at the death of the husband and is buried with him? Such questions cannot be definitely answered. But the manner in which one skeleton is lying in the proper inflexed position and the bones of another are dumped in the same grave suggests that the graves were re-opened at a later stage. Dr. Bernhard, the anthropologist who has examined the bones, is firmly of this opinion. If there was no custom of human sacrifice, and if the bones could not be preserved elsewhere, we must suppose that the graves were re-opened at some later stage when other persons died. It is in these multiple burial graves that the number of vessels is much large.

This practice of re-opening the graves brings us to the question of mixed graves — a terminology adopted by us for those graves in which we find a mixture of Nos. 1 and 3 or 2 and 3. We have never found a mixture of Nos. 1 and 2, suggesting that those who practised No. 2 type of burial did not have the custom of re-opening the earlier graves. It is difficult to conceive that two different burial rites should occur in the same grave. If such was the general practice, that should have been the normal rule. But when such cases are limited, and even here there is a marked difference of the depth of burial, or in the case of cremation intentional removal of the urns to a corner, it is reasonable to suppose that the mixed burials are really mixtures of two different rites, practised by two different peoples.

probably at two different times. This suggestion does not mean that one ritual was completely given up at the end of one period and then another type of ritual started in the next period. What is implied is that in the succeeding periods new types of rituals were introduced possibly by new immigrants or at least by new infiltrating cultural trends. The new introduction did not mean the total annihilation of the earlier people or their practice. The survival of the earlier practices have been amply noted in the excavations at Thana and in Swat. But what we really mean is that a particular grave must belong to a people practising one and the same ritual. Multiple burials showing same rituals are possible but burials showing different rituals in the same grave are hardly likely in this early stage, unless, of course, it is postulated that co-existence of the peoples might have led to mutual cultural influences and the adoption of the other's practices. This is possible, particularly in religious matters, after a prolonged period.

Children's graves formed a different grouping by themselves in so far as the grave pit is smaller and is dug close to the ground surface. As the pit was small, it was possible to get one long slab to line one side of the pit, and thus we generally get box-like grave for children (see below for the description). In some graves meant for children we sometimes get the skeleton of adults. This is, of course, an exception. The same rituals are observed in the case of the children as seen for adults. In the anthropological report Dr. Bernhard has by an error written "that the inflexed burial of a single individual was the prevailing burial type in the case of children". Actually he examined only those bones which could give some definite anthropological information. The other small graves he has omitted as will be seen from his report. However, the excavators have noted the details of all the graves excavated by them. Their report clearly shows that we have children's graves showing cremation, inflexed burial as well as fractional burial. Dr. Bernhard again points out that in many graves, where cremation was noted, children's bones were also found in the urns. Similarly in the multiple burial graves children's bones have also been observed. Their exact implication is difficult to give. But some guess is possible.

In India where cremation is today practised, the dead are generally burned by the side of a river or a tank on a funeral pyre, and after the burning the burnt bones and the ashes are thrown in the water. Some persons, who live far away from the Ganges river, collect some small bones in a pot and take it with them for immersion whenever they go on a pilgrimage to the Ganges. Today the Hindus do not erect tombs but they have

only *Samadhis* — memorials to commemorate the dead. That has been the usual practice among the Hindus in history. But here at Timargarha the remains of the dead were ultimately buried whatever might have been the rituals observed by them. In the case of the complete and fractional burials the disposal was in the inflexed position as far as the preservation of the bones could allow. In the case of cremation the remains were first placed in the urns and then such urns were placed inside the grave pit. It is rare that the bones were found outside the urns. The urns do not contain complete skeletons. Possibly they could not do so. Only limited number of bones were preserved inside the urns. What was done with the remainder, is difficult to say. Were they thrown in the river? Whatever they did, this type of burial rite is entirely different from that which the Hindus have been practising since historical time. Again the burial rites at Timargarha are entirely different from what is known in the cemetery at Harappa (see M.S. Vats — *Excavations at Harappa*, chapter VI). There Vats has noted two main types of burial — "earth-burials", in which the dead lay in an extended position on their backs. Only three graves (see his plate LIII, Nos. (a), (c) and (d) show inflexed burial. The second is "Pot-burial," in which the bones were placed after exposure. These two practices are not seen in the graves excavated by us.

Now, coming back to the multiple burial graves at Timargarha, the anthropological report shows the burial of individuals including male, female and children. Does this justify that one grave contained the remains of one family? Taking into consideration the trouble and time that were required to build the graves, we may fairly well conclude that the process was not an easy one. To save the trouble it was easier to use the same grave for more than one burial. This practice was, of course, not followed in type No. 1 graves. But in the other two types of graves this practice is usual. Again in multiple burial it is difficult to accept that the burial of strangers should be in one grave. The question of ownership necessarily implies that the persons buried together should belong to one kinship, probably to one family. Therefore it will not be wrong if we take them as family graves.

The detail of the burial rite cannot be fully made up. Besides the presence of ornaments, weapons and implements, several funerary vessels have been noted in the graves. One typical vessel is the cooking pot, which must be taken as a food container. The second is a bowl-on-stand or an offering bowl. In one such bowl bones of a snake were found. Should we take the snake for an offering? Or should we think that the snake somehow got into the grave later and ultimately stuck up dead in the bowl?

Though a few other animal bones have also been found in the graves, their number is rather limited. It seems highly unlikely that the animals were sacrificed for the burial. However, it is quite understandable that something must have been offered in this bowl-on-stand. Other vessels are connected with drinking — a tall drinking vase, a medium-sized goblet or a small drinking cup with flaring mouth. The very fact that in the inflexed burial graves the hand is near the drinking vessel, suggests some special significance to the drink. In the cremation graves, besides the burial urn, we have water pitcher of different sizes. But in the fractional and multiple burial graves the variety of the pots greatly increases. The typical addition is the food dish (*thali*), which became very common in the historical period, curry bowl of various shapes and sizes, long-necked *surahis*, and hour-glass type of drinking vase. The water pitchers of new shapes are found here. We also get a small cup with a hole at the bottom. It is obviously meant for pouring liquid. There is another handled vase with a pinched mouth for the same purpose. Among the lids we have different shapes of the handle. Some handles are inside the concave shaped saucer and some are outside. The horse-handled lid, found in Swat, is very significant. In one grave at Timargarha the looped handle of the lid was in the inner side of the urn (see photo in the frontis piece, where it has been deliberately kept up). Why the loop handle should be inside is difficult to say. Were the bones tied and hung up at the handle? Or, the handle has been wrongly placed at the outside of the lid. Usually the concave parts of the lids are facing upward.

At the end it may be pointed out that from Chitral we obtained a burial urn which shows a holed mouth in the same fashion as seen in the pots from our graves. As the Chitral pot is a chance find, it is difficult to say whether it belonged to similar graves or not.

SECTION 6

COMPARISON AND CHRONOLOGY

The discovery of cemeteries in such a widely-distributed zone of the northern part of West Pakistan is a significant advance in our knowledge of the ancient people who inhabited this land. They have taken the archaeological history from the mute objects to the dead bones of human beings. Even though we may not know their names, it is possible to visualize cer-

tain racial types (see next section for detail) and relate the cultural products with these typical individuals. But as cultures could be borrowed, races could also get mixed up. Their products are the common achievements of man. Our analysis of the cultural traits and the racial types are just attempts to trace the various channels through which the progress of man is conditioned. It is only in this analysis that we see the give and take of man, the conflict of interests, the clash of ideas and final juxtaposition of various forces that result in the achievements of man.

Earlier several cemeteries had been excavated in the northern part of Iran around the Caspian Sea and also in Central Asia. In West Pakistan the cemetery¹ at Harappa has been well-known. Some graves in Baluchistan² have also been dug up. It is in the light of these neighbouring cemeteries that we shall try to understand our graves and place them in their proper sequence.

First of all the evidence from radio-carbon dates. The examination is unfortunately very limited. It was done on the bone materials of two individuals from grave No. 101 at the University of Heidelberg, West Germany. The lower burial gave an absolute age of 3380 ± 60 years and the upper one 2805 years. According to our classification the lower burial belongs to period I, for which we get a date about 15th-14th century B.C. The upper burial belongs to period III, for which the date is 8th-9th century B.C. It is hoped that the Italians will publish the results of their tests and thus we will have some confirmatory evidence. Meanwhile confirmation will be sought in our comparative study.

We will start our comparison with our latest period at Balambat settlement site, where we were fortunate to discover the buildings and materials belonging to the Achaemenian period. So far in Pakistan the Achaemenian period materials have been found in the excavations of Bhira mound at Taxila by Sir John Marshall³ and at Bala Hisar in Charsada by Sir Mortimer Wheeler⁴. The Italian excavation of the settlement site at Udegram in Swat remains unpublished. It is therefore difficult to say what periods they have found there. But a storage jar (pl. XLVII, c), with a pointed bottom and rows of applied bands on the body, from our site has its counterpart in their excavation. Their specimen is now exhibited in the Swat Museum. This type of storage jar has not been illustrated either by Marshall or by Wheeler. It must, however, be noted that both at Bhira and Bala Hisar the Achaemenian period materials were not very significant. No particular type of building is associated with them. Wheeler alone has been clear in ana-

lysing the pot forms and giving a complete description, which is of great help for comparison. In our excavations the Achaemenian period introduces the painted pottery tradition. In the graves painting is not seen at all, except a thick black paint on the neck of the *Surahi* type vessel (our variety xix, see part III for detail). The painted pots bring in a new type of red ware having black paint on red slip. This red ware is entirely different from the one seen in the graves. The painted jar is a typical specimen (pl. XLVII, a), (see part VI for detail). From Taxila only gardrooned rim of a pot can be compared (See fig. 58, nos. 1 and 3, and *Taxila*, pl. 123, No. 75, but the shapes of the pots are different).

The pot-forms from Charsada are easy to compare. We have reproduced the comparable forms in fig. 61. Unfortunately Wheeler got only broken sherds. No complete sections could therefore be made. The first is what Wheeler calls "rippled rim ware" (*Charsada*, fig. 10/1 and fig. 11/1). There are many other examples illustrated by Wheeler. He has recognised the pot to be "a fairly large globular jar or cooking-pot, possibly round-bottomed". He further adds, "The buff-brown ware usually had a rough gritty surface, and was generally (perhaps not invariably) wheel-turned." This is our variety (i). Our complete specimens clearly show that they are cooking pots. We have several sub-varieties. The majority of our pots are hand-made and disc-based. Wheeler's description agrees with our fabric (b) ware, but we still prefer to use the term "red-ware", and not Wheeler's "buff-brown ware." We get the wheel-made examples only from period II onward, but hand-made ware remains the first choice and survives in our Achaemenian level at Balambhat. In Charsada it is apparently a survival and Wheeler dates it between 550-325 B.C. in the context of his excavation. His work has clearly shown the upper date for this pottery, but its earlier occurrence is not precluded. In our grave excavation we have seen how the hand-made ware comes first and afterwards we get the wheel-turned pots.

The second is what Wheeler calls 'soapy red ware' (*Charsada* fig. 10/4 and 11/5). He describes it as "richly red or reddish ware, sometimes hand-made and usually polished, with a pleasant soapy feel." This is our red ware of fabric 'c', which we get only in period III graves. Our pot forms are in very fine ware. Stacul describes it as 'red thin-sided ware'. But Wheeler's specimens seem to be rather thick sectioned. Our examples are all wheel-turned. We have several forms in this ware. Wheeler speaks only of semi-circular bowls or cups, pedestals from vessels of uncertain shape and wavy-lined bowls. His forms are entirely different from ours. But his fig. 10/4 comes closer to our medium-sized drinking goblet (our variety V). However, our ware is different.

Stacul⁶ has also compared *Charsada* fig. 10/3 with his fig. 70, g and i, and calls it "bell-shaped vase". We have described it under our variety (iii) — tall drinking vase. There are several sub-varieties. Stacul's examples fall in our sub-variety (a). Wheeler's specimen is in 'soapy red ware'. In our graves the drinking vases are all in grey ware. The red ware examples are few and far between, and even these are definitely not in 'soapy red ware'. In form the pots from *Charsada* and our graves show an apparent resemblance but actually there is a marked difference. The *Charsada* specimen gradually flares right from the base to the tip of the rim. Stacul's specimens as well as those found by us show first a vertical side upto the middle and thereafter flaring starts right up to the rim. That is the main principle in all our tall drinking vases, which keeps the waist narrow so that it is easier to grip it while drinking. This principle is not seen in the *Charsada* vase. However, it is possible to surmise that the *Charsada* example is a later survival.

We may compare also *Charsada* fig. 13/B with our pedestal-based deep bowl (variety XXVI, sub-variety b). Even *Charsada* fig. 13/A (not reproduced by us) has a distant similarity with Stacul's examples (see his fig. 71). Our examples are found only in period III graves. These have not been found in the Balambat settlement site. Wheeler's examples actually come from the unstratified site of Sari Dheri, about five miles away from *Charsada*.

Stacul has further compared *Charsada* fig. 11/10 with his fig. 74, c. This is our flat-based dish (variety XVIII, sub-variety a). We have found this only in period III graves. Actually this type of dish is seen on a stand, our variety (ii), sub-variety (g) (see Stacul's fig. 74 no. e). Both these types are rare in our graves. We have found only two such dishes in our excavations. But more common in period III graves as well as in the Achaemenian level are the *thalis* (compare our variety XIV with Wheeler's fig. 10 nos. 7 and 8, not reproduced here). *Charsada* fig. 19/97, described by Wheeler as dish with incurved sides, has a distant resemblance with the troughs found by us in the Balambat site (see fig. 56 nos. 2 and 3). But our examples have all straight sides with additional lugs.

Finally Stacul has compared his fig. 68 no. e with *Charsada* fig. 14/36 (not reproduced here). Wheeler's example is a rippled rim while Stacul's is not. The Swat specimen is the same as our variety (ix) — globular urn with flaring rim. It is most unfortunate that Stacul has bracketted this form with his fig. 68 no. f, which is our variety (XVI) — water pitcher

having a collared rim. This last type is found only in period III graves and also in the Achaemenian level. This is the only example of thick rim formation in the graves, otherwise all the grave pots have the general tendency of simple rim forms, which are either everted, flaring or incurved. Only the *thalis* and a few bowls show flat-topped rims.

The Charsada specimens do not bear as close a resemblance as the Balambat settlement pottery (Achaemenian period) with those of the graves. This is quite understandable as the proximity of the graves necessarily left their legacy behind. However, one fundamental difference which Stacul (p. 77) has underlined: "At Charsada, however, all the biconical and hour-glass types are missing. These constitute the main group of vases in the Swat tombs of period III". These are also missing from the Balambat settlement site, both from the Achaemenian level as well as from the grave period III level. If this absence from our excavation is representative, we may say that those fine forms were manufactured only for the graves. Again it should be noted that the grey ware pots continued in all the periods of the graves. They have also been found in all the levels at the Balambat settlement, though in the Achaemenian period they are rather scarce. The grey ware pottery is the hall mark of the graves. Their total absence from Charsada places the graves apart from the latter both in culture as well as in time. But when some grave pot forms survive in Charsada, they are of no more significance than their occurrence in the Achaemenian level at Balambat site.

It is unfortunate that the comparable materials for the Achaemenian level, other than a few sherds are not available in Pakistan. With us we have only the publication⁷ on "Excavations at Dahan-i-Ghulaman." We can compare our deep bowls fig. 59, no. 2 with the typical bowls from this site, (see his fig. 58 and 59). We have also got spout attached to this pot. This type is not found in the graves at all. But as Mr. Scerrato rightly points out this is typical in all the Achaemenian sites. At Dahan-i-Ghulaman has also been found *thali* (his fig. 61), as we have got several varieties at Balambat. Dahan-i-Ghulaman's simple deep bowl with tapering side (his Fig. 61 No. 3) can be compared with our ash-tray type of dish (Pl. XLIIIa). Another comparable example is our Fig. 58, No. 12 — a deep bowl with a central knob, serving the purpose of a lid. A variant of this type is seen at Charsada (Fig. 34/302 and 303) as well as in other historical sites. As Wheeler has pointed out this "has a wide distribution in time and space, from fourth millennium Mesopotamia to mediaeval and later India".

The determining factor in dating the later Balambat levels to the Achaemenian period is the presence of fire altars in almost all the rooms and evidence of rich iron industry. We can not take the fire altars as ovens because the type of the latter was entirely different in our excavation. These fire altars are always placed on high platforms or benches. They are not associated with any images. But on one of them there was a terracotta lamp *in situ* and others showed signs of burning. Again they can not be taken as fire places to be used during the winter. We do not know of any fire place raised high on a bench. We therefore compare these fire altars with those found at Dahan-i-Ghulaman. Our fire altars are in the private houses while in the latter place a public building for religious use has been found. On the other hand large amount of iron, including arrow-heads found in these levels recall the worlds of Herodotus, according to whom the local soldiers were armed with iron-tipped arrows. This statement does not mean that iron was introduced here by the Achaemenians. When Herodotus pointedly refers to this, it implies that iron smithery was a fairly established technique in this region. And we have seen how in the last period of the graves iron for the first time reached this part of the world.

The Achaemenian level structures cut across the walls of the last period grave settlers. The excavation has not revealed any break in the occupation. Hence the grave period settlement is taken immediately preceding the Achaemenian period. So far we have not found any grave in our excavations showing the typical cultural traits of the Achaemenian period. Even the stone masonry makes for the difference. Both in the graves as well as in their settlement structures dry rubble stone masonry is seen but in the Achaemenian period we see for the first time rough kind of stone diaper walls. All these evidences convince us to date the graves in the pre-Achaemenian period.

How far back can we go? In order to give the answer we will have to compare the excavated materials from the grave sites in Pakistan as well as outside. But before we do that, it is well to remember the definition of the grave culture given by us in an earlier section. Most important is to remember the change from the bronze age to iron age and the consequent transformations in the rituals as well as in the pot forms. We should also recall how the people of the iron age destroyed the earlier graves, reopened some of them and re-used them. Obviously there was some new zeal among the grave people of period, III, who had scant regard for the earlier people. Their equipment so materially differs from those of the earlier grave diggers that they appear to be new-comers, possibly invaders.

who broke into this region to establish their supremacy. It is their graves that are wide-spread throughout this region. It is therefore reasonable to suggest that they quickly spread out here and continued to maintain their hegemony for a long time. On the other hand period II people appear to have gradually advanced and improved from period I. There is no destruction, no complete departure and no separation. The pot forms show gradual evolution, better manufacture, technique as well as the introduction of some new forms. The fundamental change is seen in the rituals. It is possible that the inflexed burial people of period I now began to adopt cremation in period II. The change is not abrupt and the old practice is not given up completely. The first type of ritual continued even later. It is therefore reasonable to conceive of a gradual evolution of the culture in the bronze age.

Now coming back to the graves near at hand, we go to Harappa where two distinct periods of graves have been excavated. The R 37 cemetery is contemporary with the Indus Civilization. There the skeletons are laid in the extended fashion from north to south with the grave goods typical of that civilization. This practice of burial is different from those seen in our graves. In cemetery H at Harappa urn burials have been found but in those urns bones after exposure are preserved. On the other hand we have found burnt bones in the urns at Timargarha. The ritual is completely different. The pot forms are also completely different and they show a tradition of highly stylized painting. Below these pot burials in Cemetery H there was an earlier burial in stratum II, where about two dozen extended burials were uncovered. Some of the dead are lying in the inflexed position as those in our graves. It is also thought that some graves have fractional burials. The ritual is comparable with our last period graves but the pot forms and other material equipments are completely different. The painting on the dish lids makes these Harappan graves culturally apart. It is difficult to see any borrowing, one way or the other, between our grave people and those at Harappa. The inflexed burials at Harappa must be traced from other source wherefrom these people must have brought the painted pottery tradition. The same is true with regard to the cemetery at Shahi-Tump, excavated by Sir Aurel Stein. There again inflexed burials were found but the cultural material is fundamentally different. Again we have not seen cremation either at Harappa or at Shahi Tump. And we do not have grey ware pottery in these two sites.

The inflexed burials are attested in a number of cemeteries excavated in the northern part of Iran, e.g. at Tepe Hissar⁸ Shah Tepe⁹ and Tureng

Tepe¹⁰. It is in these Iranian sites that we have both the painted pottery tradition as well as that of unpainted plain pots. The first great site is Tepe Hissar, from which comparable pot forms are illustrated in fig. 61. As our pottery is plain red and grey ware, it is no use seeking correspondence with Tepe Hissar I, which is the main period of painted pottery there. In Hissar IIA the painted pottery continues but at the same time this period marks the introduction of plain grey ware from the north. Period II B is the main grey ware phase, when the painted pottery tradition came to an end. In Hissar III the grey ware continues with some new forms, and the end of Hissar is marked by the re-introduction of plain red ware, of which the evidence was scant.

The comparable forms from our excavation relate to the pot forms of Hissar II B onward to Hissar III C, with the main difference that at Hissar these forms are in plain grey ware while our forms are mostly in red ware of medium fabric (b). The first is a bowl-on-stand, Hissar 5070, which is similar to our variety (ii), sub-variety (b). The second is again a bowl-on-stand with its bowl carinated, Hissar 5056, which corresponds to our sub-variety (a), but while the Hissar specimen has a short hollow stem, our example has a tall solid stem. The third is again a bowl-on-stand, Hissar 4782, which corresponds with our sub-variety (d). It may be noted that we have also found a few examples of grey bowl-on-stand. All the corresponding Hissar specimens, cited here, come from II B level. We have taken this type of the pots first because they are the hallmark of our graves. They have not been found at Charsada at all, though in our Balambat settlement site this type persists. This is a group apart from the "offering stands of censers" found at Mohenjodaro¹¹ and Harappa¹². The examples illustrated by Sankalia¹³ from Navdatoli fall in two main varieties: first is the Harappan type and the second goblet-on-stand has a short solid stem. They are generally painted. In Iran we find this type in other sites as well. From Shah Tepe, P. 184 figs. 348 and 3506. (reproduced in our fig. 61) come from stratum II b.

Next we come to pedestal-based deep bowl, our variety XXVI, sub-variety (b), which has a parallel in Charsada fig. 13 B and also from Swat (see Stacul, No. 1, Fig. 71, g). This is comparable with Hissar 4177 from II B level. There are other examples from the same level. In our graves it is found only in period III graves. This is not a common type in the earlier graves. Not far removed from this type is the pedestalled cup, our variety (VII), which corresponds with Hissar 3300 from III c level. Stacul has illustrated several specimens of this variety. Charsada fig. 13 A is slightly different, as it has a straight-sided cup on a stand.

Next comparable form is a cooking pot-on-stand, our variety II, sub-variety (e), which corresponds with Hissar 4136 and 5215 from level III A. Like the Hissar examples our pots have also short solid stem. In our opinion this is an evolution from the earlier simple cooking pot form, though we do find a correspondence here at Hissar.

Stacul has compared the hour-glass type of drinking vessel, our variety (XIII) with some Hissar specimens in Hissar pl. XXXVII and XXXVIII. We have reproduced here two examples, Hissar 3971 and 5011. The correspondence is not striking. Our variety has an extremely narrow waist and shows a different manufacturing technique. In our examples the upper and lower parts are made separately and then finally joined in the middle. The Hissar specimen shows only concave side like our tall drinking vases, variety (iii). Stacul has further compared this hour-glass type with Navdatoli¹⁴ specimen, possibly NVT. T. 63 a (reproduced in fig. 61). The Navdatoli specimen is not biconical. It is round-bottomed and has concave sides with flaring rim. It is further painted with a row of stylized humans. Comparison has also been sought with Hassanlu¹⁵ specimens. Two of them have been reproduced in our fig. 61. These are handled tall drinking vases similar to our variety (iii), sub-variety (g). But Hassanlu examples have foot ring-base while ours have disc-base. Such handled drinking vases are also known in Tepe Giyan¹⁶ and Tepe Sialk.¹⁷

Now we come to narrow necked bottles, our variety (vi). In our graves we have specimens both in plain grey and red, and these are special to period II graves, though poor imitation survived later also. They come closer to Hissar 2190 from level II B and Hissar 3490 from level III c. Similar bottles come from Shah Tepe II b, Fig. 344 a.

The next dominant type in our period III graves is our variety XIX, *Surahi* type of long necked water pitcher, or what is usually known as bottle-pitchers. Our examples are in extremely fine red ware. We have illustrated three specimens from Hissar, No. 2164 from level III A, no. 3987 from level III B and no. 3525 from level III c. We also get examples from Shah Tepe (see his fig. 413) and other Iranian sites. A development is seen by attaching a straight spout to this vase, sometimes with a handle, our variety No. (XX), Shah Tepe fig. 394 and fig. 392, Hissar 4296, and also in Tepe Sialk, necropole B.¹⁸ A variant of this is a handled jug with a pinched mouth, our variety (XXIII). Such pinched mouth jugs are known from Hissar 5040, level III B, (not reproduced here) and Shah Tepe figs. 351 and 352 (not reproduced). Similar handled jug comes from Talyche¹⁹ in Persia.

Next we take up deep bowls, our variety (XXVI), sub-variety (a). Different varieties of such bowls have been found by Stacul²⁰ in his Kherai site (his fig. 5). We illustrate here two bowls from Hissar, No. 4115 and No. 4338 from level III C and two from Shah Tepe, fig. 308b and fig. 309. For the lids, our variety (XI) we have exact counterparts from Shah Tepe; Our sub-variety (c) is similar to Shah Tepe fig. 466 a, and our sub-variety (d) compares well with Shah Tepe fig. 466 b.

Another comparison for a triplicate pot on a stand²¹ found in Swat comes from Marlik excavation²² No. 26 (reproduced in fig. 61). Finally we may compare a trough from Navdatoli T. 25 ag. (reproduced in fig. 61), so common in our Balambat settlement site. But our examples have generally lugs at the sides.

Among the small finds we leave aside the spindle-whorls or net-sinkers (Pl. La, Nos. 1—4) and also beads (For detailed comparison see part IV). We take up particularly the pins illustrated in our plate XLVIII a and b. Similar pins are seen in Hissar pl. LIII, Nos. H. 3141, H. 2244 and H 4878. From Shah Tepe we have several in fig. 648, a, b, and c, and fig. 646 a, b, and c. The eye needle is also seen, Hissar 5265 and Shah Tepe 644a. The spiral finger rings (pl. XLIX b, No. 6) can be compared with Hissar 4262 and 4263, and Shah Tepe 636 with Stacul (No. 2) fig. 6.

The comparisons of our grave goods, particularly pottery and burial rites with those from the sites in northern Iran, opens up a new vista of cultural influences. The earliest comparable material comes from Hissar II B and latest from Marlik. As our grave people had no painted pottery tradition, it is no use seeking comparison with those cultures where painted tradition was the general feature. For this very reason we have omitted Hissar I and II A and even Shah Tepe I. As has been noted by the earlier writers, the introduction of plain grey ware possibly from the north into Shah Tepe and Hissar marked a definite departure from the earlier cultural trends. This grey ware tradition was also brought into Pakistan, but as the forms here are akin to both the periods II and III in Hissar, it is reasonable to infer that our grave people borrowed from both the levels of Hissar occupation. On the other hand when we note that along with the grey ware, our grave people developed the same forms in red ware, it is reasonable to suppose that their time was later. It is likely that they imbibed the red ware trend seen towards the end of Hissar III C occupation. On the other hand the plain red pottery has recently been dug at Marlik and Godin. Whatever little is known about the pot forms from these sites, they correspond more with those from our period III graves.

Our cremation burial graves are a group by themselves. They continued the pottery tradition of the earlier period and at the same time introduced some new forms both in grey and red wares. Such cremations are not noted in the sites of northern Iran. Sir Mortimer Wheeler²³ adds a footnote in his book "Whilst this chapter was in the press, Mr. A. Ghosh, of the Indian Archaeological Department reported cremations in the latest Harappan level of a site, Tarkhanawala Dera, discovered by him a few miles north of Anupgarh in north west Bikaner. It remains to be seen whether these burials are Harappan or intrusive." As the details are not published, it is difficult to make comparison with the Indian site. Again the cremation burial points to a time later than the last phase of Hissar.

How much later can we place our graves in time? We have seen earlier why we can not bring down the date of our graves to the Achaemenian level inspite of the remarks of Stacul: "Among the various cross-references remarked upon, however, we think it is right to stress the analogies with pottery removed from the deepest levels at Charsada (6th-4th century B.C.)"²⁴ In order to be precise about the date of our graves we should clearly distinguish the bronze age graves from the iron age graves. It is the first group of the graves which need to be compared with the early Iranian sites. Even here we have two definite burial rites: the inflexed burial rite was later practically replaced by cremation burials. As in Iran we are getting only inflexed burials, it is with that burial rite that the corresponding pottery tradition should find relationship. However, as the grey ware tradition is an intrusive element in Iran from the north, the same source might have pushed the people across the hills to Pakistan. But correspondence with both Hissar II and III forms suggests that the developments in Iran were fully taken advantage of by our grave people. On the other hand when the same forms are produced in red ware here, it is clear that our grave people advanced a step beyond that reached in Hissar. In other words our grave people knew the Hissar plain pottery tradition of grey ware but at the same time developed plain red ware pottery. It is therefore reasonable to suppose that there should not be a long duration between the end of Hissar and the beginning of the graves in Pakistan. If the end of Hissar III C is taken to be about 1800 B.C.,²⁵ the beginning of our graves should be placed in about the middle of the second millennium B.C. — a date which closely corresponds to that obtained from radio-carbon analysis.

Now, if we examine the graves of period I and even later ones, we get there a hand-made red ware cooking pot having a disc base. It is so

dominant a feature in the graves that we can not miss. It persists throughout the periods and survives even in the Achaemenian level. The disc base of this pot is so characteristic that it affects other forms derived from Iran. Except the pedestalled pots and bowls-on-stand, all other vessels have disc base with only a few exceptions, where we get flat base. It seems that the disc base was a special liking in these graves of Pakistan. It is possible that the disc-base was connected with a particular technique of manufacturing pots in this region, which was difficult to give up. This cooking pot type is in coarse red ware. Its parallel has not been found in Iran. It is likely that this was the pot form already known in this region before the introduction of the grey ware and medium red ware (fabric b) pottery, in which alone Iranian forms are seen. This suggestion is made in view of the survival of a few pointed butt stone axes and ring stones in the Balambat settlement site. These ground tools were not the main character of the site as the people already knew iron, but when a limited number is found, it is reasonable to take them as survivals. We located some pit circles in the neighbourhood hoping to excavate them the following year and to throw some light on this vexed problem of the ground stone tools. But before we could resume our excavation, the circles were already dug up by the villagers and the materials thrown away. In our share fell only one broken cooking pot. Under the circumstance we doubtfully put a hypothesis for an earlier neolithic settlement before the grave people appeared on the scene.

It must again be admitted that the graves of period I are so far very limited. Even in Swat their number is few. The graves of periods II and III are widely distributed. It is probably for this reason that Stacul has bracketed the earlier single burial graves with the cremation burials and placed them together in his period I. But our excavation at Timargarha is quite clear, providing stratigraphic evidence to separate them into two chronological groups. As we have remarked earlier, cremation is a later growth from the earlier practice, well documented in the evolution of the pot forms. These people, who practised cremation, do not appear to have been invaders from outside. We do not see any destruction or disturbance of the earlier graves as we do find in period III. It is therefore reasonable to suggest that period II graves followed immediately period I graves. It is from the pottery forms of this period that some survivals are seen in the historical time. In duration we should give a longer span to this period.

Period III makes a definite departure from the earlier periods in so far as it inaugurates the iron age in Pakistan. Along with the new ritual of the disposal of the dead after exposure, they brought new pottery tradition.

They built houses of stone, in which store rooms for corn were the dominant feature. Their weapons were better made — all of iron. They showed no regard for the earlier people. In the Balambat settlement site we found them robbing the stones of the earlier graves, disturbing the burnt bones and building their own houses on their top. Similar disturbance is seen in the cemeteries as well. The evidence suggests that these people were invaders who came in the wake of fresh conquests and quickly spread out in the area. They no doubt destroyed the earlier populace but also borrowed much from them. We have compared a typical triple pot-on-stand with similar specimen from Marlik. Their again the burial rite is comparable. Dr. Negahban also found a child's grave of about the same fashion as we have seen in our excavations. It is therefore reasonable to suggest a date very close to Marlik for the beginning of period III and a duration which must have covered the first half of the 1st millennium B.C. As this period was brought to an end by the invasion of the Achaemenians, the end of this period III should be placed in the middle of the 6th century B.C. Our dating is confirmed by the radio carbon date given earlier.

We may sum up the chronology period-wise:

Neolithic (?)	1st half of the 2nd millennium B.C. and possibly earlier.
Period I	16th to 13th century B.C.
Period II	12th to 10th century B.C.
Period III	9th to the middle of 6th century B.C.
Period IV	From the middle of the 6th to the 3rd quarter of the 4th century B.C. — the historical age of the Achaemenians.



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3. — Sir John Marshall, *Taxila*, Cambridge, 1951, pp. 87 ff. (abbreviated as *Taxila*).
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13. — H.D. Sankalia, 'New Light on the Indo-Iranian or Western Asiatic Relations between 1700 B.C.—1200 B.C. in *Artibus Asiae*, Vol. XXVI, Fig. 3.
14. — H.D. Sankalia, B. Subba Rao, S.B. Dev, *The Excavations at Maheshwar and Nandavoli (1952-53)*, Poona, 1958.
15. — T. Carter Young, 'A comparative Ceramic Chronology for Western Iran: Iran, Vol. III, 1965.
16. — Claude F.A. Schaeffer, *Stratigraphie Comparée et Chronologie de l'Asie Occidentale*, Oxford, 1948, fig. 246, No. 6.
17. — *Ibid.*, Fig. 262, Nos. 5 and 7.
18. — *Ibid.*, fig. 255, No. 65.
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20. — G. Stacul, 'Notes on the Discovery of a Necropolis near Kherai in the Ghorband valley (Swat-West Pakistan)', *East and West*, Vol. 16, Nos. 3 and 4, 1966, pp. 261-274. (henceforward cited as Stacul No. 2).
21. — C.S. Antonini, *Op. Cit., East and West*, Vol. 14, 1963, fig. 8.
22. — Ezzat O. Negahban, *A Preliminary Report on Marlik Excavation*, Tehran, 1964.
23. — Wheeler, *The Indus Civilization*, Cambridge 1953, p. 48, Ln. 1.
24. — Stacul No. 1, p. 78.
25. — Robert W. Ehrlich, *Chronologies in Old World Archaeology*, ed. by, Chicago, 1954, p. 242.

SECTION—7

WHO WERE THE GANDHARA GRAVE PEOPLE?

In the last part Dr. Bernhard gives a complete report on the skeletal materials. His conclusion is worth quoting: "Morphologically the population can be characterised as relatively high statured, long and narrow-headed, with narrow nose and a medium high to high face, the breadth of which is, however, more in relation to the cranial breadth. Though a slight Mongoloid admixture could be observed, the series from Timargarha can be considered on the whole as distinctly Europoid". He goes a step further and maintains that they "are closely connected with the southern migration of foreign people into the Pak-Indian subcontinent which began in the second millennium B.C. and continued in the first millennium B.C." This observation will be quite in keeping with the theory of entire population assessment of a given site, as is propounded by D. K. Sen.¹ But having said that, it is necessary to go deeper into the problem of the racial complex of the cemetery at Timargarha. Here Dr. Bernhard has again fallen back on the older concept of categories and though he uses the new descriptive terminology, his methodology is not much different. However, I leave this question of theoretical discussion to the physical anthropologists and come back to the problem of racial identification. Who were the people or peoples that made the Gandhara Grave Culture?

Dr. Bernhard has recognised two groups of foreign people in the graves: the first is termed *Eurdolichomorph* or *Proto-europoid* and this is the predominant type in period I graves, the second is termed *Leptodolichomorph* or the Mediterranean type and this is predominant in Period III graves. Alongside them the Mongolian strain has been traced only in two skulls. But there is another suppressed element, termed here as Veddids and intelligently distinguished from the *Veddoid*, *Australoid*, *Proto-australoid* or *Dravidoid*. This element has been indubitably found in three skulls — one male in trench CO in 1964 excavation and two females in graves 101 and 197, both appertaining to later fractional burials. Dr. Bernhard has also differentiated this from Harappa type A² and sought identities with similar type in Central Asia as well as in the hills of Central India. If Dr. Bernhard is correct, we could visualise the spread of the Veddids people from Central Asia through the Frontier hilly region into the hills of Central India. What culture did they represent? Obviously they were not the main persons who created the Gandhara Grave Culture, though they were present when this culture developed. The only other cultural trait noticeable here is the presence of the neolithic ground stone tools. So far the neolithic culture was not attested in West Pakistan but recently we have received support for our find from the discovery at Taxila.³ Should we attribute the neolithic culture to the Veddids people? Only future discoveries can amplify this hypothesis. It is, however, worth repeating that this element is not traced in the Harappan cemeteries. Has this absence any significance?

If we rely on the new analysis of the skeletal materials from Mohenjodaro and Harappa, as given by D.K. Sen, we have to follow his conclusion: "Two generalizations seem to be legitimate in this context. The first is that the populations at Harappa, Mohenjodaro and Lothal possessed rather broad noses. And the second is that the population at Lothal had, relative to those at the two other sites, broader heads this population was broad-nosed or chamaerhine, tall and long-headed in Punjab and Sind and with somewhat rounded heads in Gujrat".⁴ In connection with one group of the Lothal (Gujrat) specimens S.S. Sarkar has used the term "Aryan" and Sen remarks, "that Sarkar's conclusion in identifying Aryan skeletal remains at Lothal in the late Harappan period fits in admirably with the hypothesis that the Harappa culture was destroyed by Aryan invasion towards the middle of the second millennium B.C."⁵ This is rather going too much into a hypothetical field. The anthropologist is biased on the side of one school of the archaeologists who believe in the theory of the Aryan destruction of the Indus Civilisation. Without committing our-

selves to any such theory, we can distinguish the main population, who created the Indus Civilization, from those who developed the Gandhara Grave Culture. The description of *Eurdolichomorph* and *Leptodolichomorph*, as given by Dr. Bernhard, places these people in a different category.

If the analysis of our cultural material is correct, we find these new groups of people first bringing the knowledge of bronze and later the knowledge of iron along with other traits. They settled in an area where earlier lived probably the Veddid people. Unfortunately we know nothing about those people who practised cremation at Timargarha. Is it feasible to assume that they belonged to the same group as known from period I graves? If archaeological evidence is to be relied upon, this assumption will not be far wrong. In any case we can talk of two groups of people—the first migrating in about the middle of the second millennium B.C. and the second towards the beginning of the 1st millennium B.C. In this conclusion both archaeology and anthropology have led us to agree from two different angles.

It is most unfortunate that we have no written records from our excavations to supply names to the dead bones and the material culture unearthed by us. Can we take the help from the literary materials and attribute those names to these dead bones? Even if we do so, our conclusions will be purely hypothetical, subject to confirmation by future discoveries. However, it is well worth noting that in the same geographic region the earliest portions of the Rigveda speak of a people who appropriated for themselves the title of "Arya" as opposed to the conquered people. As our historical analysis in Section 3 (above) has shown, in the next stage we come to the period of the later Vedic literature, the traditions as recorded in the *Mahabharata*. The two historical periods coincide chronologically with the two archaeological periods and they agree with the two migrations of people from the west. The comparison can be further specified. In the Rigveda we know of, besides gold, only one metal called *Ayas*,⁶ generally taken to be copper, while in the later Vedic literature two metals are distinguished as *Tamra Ayas* (copper) and *Krishna Ayas* (iron).⁷ As regards the disposal of the dead it is noted: "The dead were either cremated or buried, and, if cremated, the ashes were regularly buried. This suggests that burial was the older method which was altered under the pressure of migration and perhaps the Indian climate".⁸ This Rigvedic reference accords very well with the graves of periods I and II. We can summarise the main features below:

- (i) The geographic scene of archaeology and history opens in the same region.
- (ii) The chronological period of both refers to the same time.
- (iii) The knowledge of copper or bronze technology is seen at this time.
- (iv) The disposal of the dead, first by burial and later by the addition of cremation, is also similar.
- (v) Literary evidence brings the Aryans from the West. The archaeological evidence also connects the grave culture with the plain grey ware tradition of the West.

There is thus a priori basis for equating the literary materials of the Rigveda with those now brought forth from the archaeological excavations. If this is accepted, we will have to seek the identification of the second group of migration which introduced iron into our region along with a new wave of invasion. Their practice of fractional and multiple burial after exposure is not known to have received great sanctity in the Sanskrit literature. In fact the Hindus later chose only cremation as the main form of the disposal of the dead. But we do not know when this change took place. In our region the archaeology has produced evidence for the persistence of the third type of burial. Even when the Indian archaeology has not produced material to support this type of burial, the literary evidence as well as the archaeological materials speak of a tremendous change that came in the second stage as a result of violent outbreak. Can we not understand in that perspective the germ of events that later became glorified in the *Mahabharata*? It is only in the later Vedic literature that we find for the first time the name of the *Kurus*, whose descendants played so dominant role in the *Mahabharata* war. It is these *Kurus* who spread out into the Ganges valley and established the Kuru-Panchala kingdom. It is after them that we have the name Kurukshetra. Surely the *Kurus* must have played some special historical role in the past. Could we recognise them in the new migrating hordes who are found in period III graves?

The answer to this question can be given only after careful exploration and excavation in Panjab. Meanwhile we turn to the Indian archaeological evidence. As early as 1949 Mr. B.B. Lal paid a visit to the ruins at Hastinapur, located about 60 miles north-east of Delhi and referred to in

the *Mahabharata*. He writes: "In the lower levels of the mound was found a fine grey ware with designs executed in black pigment (hereafter called the Painted Grey Ware). This was superimposed by another class of pottery known to archaeologists as the Northern Black Polished Ware Painted grey Ware also occurred at Ahichchhatra, another site mentioned in the *Mahabharata* the author undertook a trial-excavation at Tilpat, 11 miles south of Delhi, associated with the *Mahabharata* story, and it was indeed gratifying to find there the same ceramic sequence as was observed at Hastinapura. This encouraged the author further, and he planned a systematic exploration of over thirty sites mentioned either in the *Mahabharata* itself or alleged to have been associated with the story according to local tradition. The investigations more than fulfilled his expectations, since almost all the sites yielded the Painted Grey Ware from their lower levels".⁹ The chronological position of this Ware has been established by Lal in his excavation of the Hastinapura site. His main conclusions are quoted below in his own words:¹⁰

- (i) That the Painted Grey Ware was later than the Harappa Ware
- (ii) That the Painted Grey Ware well-preceded the Northern Black Polished Ware, though there may have been subsequent overlap between the two.
- (iii) That the Painted Grey Ware occurs at large number of sites in the upper Ganga basin.
- (iv) That on the basis of (i) and (ii) above, the Painted Grey Ware may be placed somewhere within the limits of 600 B.C. on the one hand and 1500 B.C. on the other.

With this chronology fixed for the archaeological material Lal brings in the relevant information from ancient Indian literature and says "that Hastinapura, Ahichchhatra and Kampil were respectively the capitals of the Pauravas, and north and south Panchalas, who formed a part of the early Aryan stock in India". He finally concludes, "that a large number of sites associated with the *Mahabharata* story contain the same ceramic industry, viz. the Painted Grey Ware, in their lower levels."

Even when we accept the sequence of the Painted Grey Ware and agree with the apparent correlation of this cultural sequence with that narrated in the main stories of the *Mahabharata*, the date cannot be

stretched back to 1500 B.C. This position was fully realised by Lal and therefore he dated this particular sequence at Hastinapur between 1100 and 800 B.C. It is clear that the Painted Grey Ware sites are apparently associated with the *Mahabharata* stories, and if this association is based on any reality, the date of these sites should not be earlier than the main events narrated in this great epic. Lal himself is inclined to accept the date of F.E. Pargiter for these events, i.e. middle of the 10th century B.C.¹¹ Why do we begin to get the Painted Grey Ware sites at this time? Before we give the answer, we analyse the factors underlying the earlier date of 1500 B.C.

This earlier date is supposed on the basis of Lal's exploration of some sites in the Ghaggar and Sarasvati valleys. But the later excavation of Dr. Y.D. Sharma at Rupar¹² has clearly shown a break between the end of the Harappa phase and the beginning of the Painted Grey Ware.¹³ The duration of this break is not definitely known. Therefore even if we accept the literary evidence, "that the combined stream of the Ghaggar and Sarsuti is identifiable with the Sarasvati and the Sutlej with the Sutudru, on the banks of which the early Aryans used to live", we have no means of fixing the date of "the early Aryans" in this region. Finding no clue in the excavations in India, Lal looked for comparative material in Iran and the West. He got hold of the same material in Iran, which we have cited above in section 6. But as we have seen earlier, these materials are all in plain grey ware. Lal also referred to a few painted grey ware sherds from Thessaly in Greece, and some from Seistan,¹⁴ and at the end he concluded, "The above-mentioned painted and plain grey wares with their sub-varieties, from Greece to Seistan via Iran, are assignable very broadly to the second millennium B.C. Within this period also falls the well-known inscription at Boghaz Keui (1360 B.C.) which records the names of Aryan deities like Indra, Varuna, Mitra etc. This coincidence, though not having much weight in itself, cannot be altogether set aside, and it may be well worth the trouble to study the distribution of painted and plain grey ware while trying to work out the movement of Aryan-speaking people in Western Asia and southern Europe".¹⁵ And now we have the plain grey ware in our region falling in the same period. It is this background which must be kept in mind while considering the earlier date 1500 B.C. assigned by Lal to the lower limit of the Painted Grey Ware.

But we have seen in our region how there had been two main periods of invasion of these Grey Ware people. While the earlier date of Lal tallies with the first invasion in our region, we have so far no evidence for extending this invasion into East Panjab and the upper Ganges Valley. But the second invasion came about the same time when the Painted Grey Ware cul-

ture is seen in upper India. Could we, therefore, not see the spread of this latter culture as a result of the second invasion from the West? A definite answer to this question will be provided only when our investigations are extended into Panjab east of the river Indus.

Meanwhile it is well to summarise the position as we get today from archaeology, anthropology and history. The archaeology has produced the materials for two waves of invasion of the plain grey ware culture, the first associated with bronze and the second with iron. This culture is different from the Indus Valley Civilisation. The anthropology has brought forth two groups of western people in the graves at Timargarha, who are different from those buried in the Harappan cemeteries. At about the same time the literary history has produced materials about a people who call themselves Aryans, who in the first instance lived in the land of the *Sapta Sindhu* and in the second stage, possibly after the *Mahabharata* War, spread out into the upper Ganges valley. All these coincidences occurred between the end of the Indus Civilization and the beginning of the historic period in the 6th century B.C. There is thus a strong basis for correlating the materials from different sources and viewing in that perspective the appearance of the hypothetical Aryans in history.



NOTES

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4. D.K. Sen, *Op. Cit.*, p. 204.
5. *Ibid.*, p. 186.
6. *Cambridge History of India*, Vol. I, p. 89.
7. *Ibid.*, p. 122.
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9. B.B. Lal, "Excavation at Hastinapura and other Explorations in the Upper Ganga and Sutlej Basins 1950-52" *Ancient India*, Nos. 10 and 11, 1954 and 1955, pp. 5-151.
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11. *Ibid.*, p. 149.
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15. Lal, *op. cit.*, p. 147.

Grave Excavations at Timargarha

Part II

INTRODUCTION	PROF. AHMAD HASAN DANI
SITE NO. 1	MR. F.A. DURRANI
	AND
	MR. ABDUR RAHMAN
SITE NO. 2	MR. MOHAMMAD SHARIF
SITE NO. 3	PROF. AHMAD HASAN DANI

Grove Excavations
of Timpanogas

Part II

INTRODUCTION 1
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TIMARGARHA

SECTION—1

INTRODUCTION

By

PROF. AHMAD HASAN DANI

Timargarha, literally meaning "fortified place of Timar" (or correctly Timur) is a good size village of unknown origin. The local people associate a grave on the road side near the High School to Amir Timur, the well-known Sultan. But no definite evidence is available to bring Amir Timur to this far off locality, and we know for certain that his tomb is in Samarkand. When we read about his chasing the *Kafirs* in the hills of the Hindukush, we are still far away from the present village of Timargarha (Pl. 1), which stands on the main road from Chakdara to Chitral, 25 miles north of the former and 113 miles south of Chitral, just above the flood bank of the river Panchkora. From the northern end of the old settlement another road leads to the river and further on to Bajaur. Timargarha thus stands on a trijunction of roads. As narrated in an earlier chapter, about two miles south of this place, the river Jandul, draining the water from Bajaur plain, joins with Panchkora (Fig. 1). At this point there was an ancient crossing over the river.

The village settlement on the road side is not very old. The people must have come down from the neighbouring villages to occupy this site after the construction of the road, which made communication easier. The present settlement hovers round two institutions—a state fort that is the centre of administration and a century old mosque, in the courtyard of which there is a grave of a locally famous saint Timar Baba. In the mosque we have some elegantly carved woodwork and a few antique carved plaques, removed from some nearby ruins. A hill torrent (*khwar*) divides the village into two halves—the mosque is in the northern half and the fort in the southern half. There is a row of shops, starting from the Bus stop and going up to the mosque. Today we have here schools, hospital and other Government offices, while a new colony of the officers has cropped up on the other side of the river. The other side is known as Balambat, where stands another fort.

Timargarha is surrounded by hill ranges of varying heights on all the four sides. The river Panchkora, which comes from the north, has cut a deep bed and spread a wide belt of silt on its left bank. It is in this silty bedded soil that the cultivation is done. The river is perennial and the current is quite strong. As it enters the Timargarha valley, the river makes a gradual bend, bypassing the ridge, on which stands the house of Timar Khan, and dashes against the granitic outcrop, where towers the Balambat fort. Many more ridges and outcrops shoot into the village from the neighbouring hills. These ridges have some earth on their flat tops and sides, which are turned into terraced fields. At the foot of one such ridge crop up the houses of the northern portion of the village, spread over right up to the *Khwar* on the south and to the main road on the west. Site No. 1 lay to its north. South of the *Khwar* the houses are again seen on either side of the road. As we walk towards the east along the *Khwar*, we leave a school building behind and then mark a lonely hut at a distance. Close to it the *Khwar* has left a deep section, showing traces of the grave burial. In the open field above this section is site No. 2. No Buddhist ruins are seen in these sites at all, though we located a few stone masonry walls at the ridge where Timar Khan's house stands. However, main Buddhist ruins are removed far away on the higher slopes of the hills. On the Balambat side the old ruins are near the fort and in its vicinity lies site No. 3.

SITE — 1

The site lies between the modern Timargarha hospital and the old village, east of the Chitral road just at the point where a by-road takes off towards the river and further on to Bajaur. It is situated at the foot of a rocky ridge that abruptly ends here. The actual boundary of the site may be defined. On the south is the old village of Timargarha. On the west runs the Chitral road. To the north-east stands the hospital but some modern graves lie in between. On the east is the bare rocky ridge. Just on the road side stands a well-built modern grave. But the old cemetery is not confined to this area. It definitely lies under the road and spreads westward beyond it.

The upper surface of the ground is not level but slopes towards north-east. Right in the middle is the deep pit dug up by the villagers for calcined soil. The ground to the north and south of the pit is at a lower level but the area to the south-west is much higher. In 1964 the trenches were laid on the low area to the north and south of the pit. In 1965 the

Fig. 2

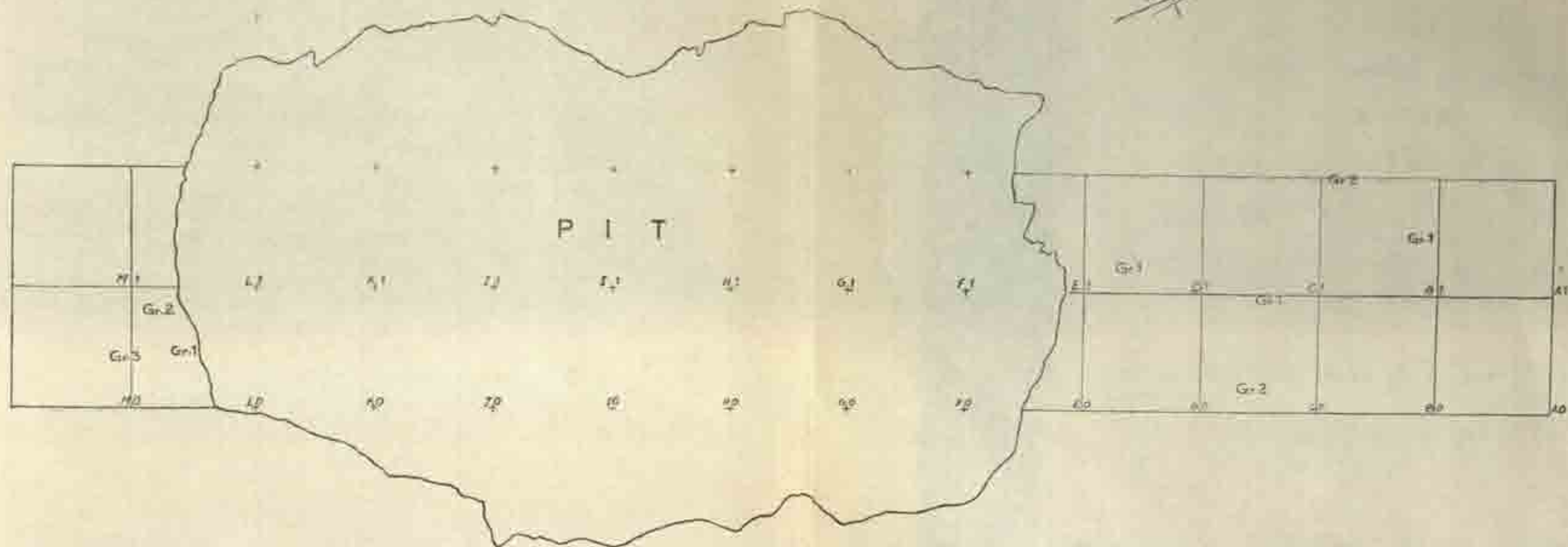
TIMARGARHA 1964

LAY - OUT OF TRENCHES



S.T.P.

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higher area to the south-west of the pit was taken up but another long cut was made to join this area with the pit.

LAY-OUT OF THE TRENCHES

In 1964 the trenches were first laid to the north of the pit in a grid fashion, each square measuring 25 feet either way (Fig. 2). From north to south they were numbered A B, C, D, E and so on. From east to west they were numbered 1, 2, 3, 4, and so on. Later these trenches were extended south of the pit in order to find out the position of the graves there. They were on the same alignment and numbered L and M. In the northern trenches only five graves were excavated and in the south only three.

In 1965 the main excavated area (Fig. 12) lay 70 feet south-west of the pit. A square area, 100 feet each way, was marked out with the zero peg at the north-east. This area was sub-divided into small squares of 20 feet and numbered 0, 1, 2, 3, 4 and 5 from east to west, and A,B,C,D, and E from north to south. As mentioned before, this excavated area was joined to the pit on the north-eastern side by a long trench, sub-divided into three small squares of 20 feet each and the end one into a smaller square of 10 feet. They were numbered A1', A2' A3' and A4'.

SYSTEM OF NUMBERING

In 1964 excavation the graves were numbered trenchwise, though the skulls, examined by Dr. Bernhard, have their own numberings. In 1965 all the graves in this site were numbered 101, 102, 103 and so on, as they were found in the course of excavation. It may be noted that in the low level area complete burials were found and in the higher area cremation and fractional burials were seen. But occasionally there was mixing and even re-opening of the older graves probably for lack of space.

NATURAL STRATIGRAPHY

The exposed section (Fig.3) of the pit enabled us to observe the natural stratigraphy of the site and thus place the graves in the main sequence of the layers. Below the ploughed soil of layer (1) was brownish earth mixed with lime (layer (2), which was the working floor for the grave diggers in trench LO. The grave pit was dug through this soil. But in the northern area this layer covered the graves and they were actually dug into layer (3), composed of clay. All the graves of the northern low level

area lay in this layer. Hence they belong to layer (3). The filling inside the grave pits composed of this clayey material mixed with white *chunam*. Below layer (3) was a river deposit of pebble and sand (layer 4), under which was the white clay, layer (5). The lower two layers are clearly river deposits, suggesting that the Panchkora river once flowed near about. Today the river has cut deeper bed about a mile further down.

In the south-western area, which was a higher ground, the excavation of 1965 season showed an extra accumulation of layer (see Fig. 13). This section across grave No. 122 showed that below the ploughed soil (layer 1), there was another layer of reddish brown soil, layer (2) from which the grave had been actually dug. Below it the layers repeated those found in the pit. Hence, as far as this higher ground is concerned, the graves belong to layer (2).

METHOD OF GRAVE CONSTRUCTION

Leaving aside the children's graves and a few exceptional ones, the method of grave digging and construction was generally uniform. The rule was broken only in the last period graves. In principle a circular or oval area was demarcated on the surface of the ground, which was excavated entirely to a depth ranging from three to six feet. Then in the middle of this circular pit a rectangular area was marked, which was generally aligned north-west to south-east. This lower pit was finally dressed with dry stone masonry of three to seven courses and the floor was hardened with beaten earth and grit. On this floor was placed the dead or their remains in urns along with other funerary urns. At the end the lower grave pit was covered by sealing stones without filling it with earth. But on the top of the sealing stones the earlier excavated earth was filled by ramming, probably raised higher than the ground level of that time. A circle of stones was then put to demarcate the limit of the grave. The find of head stones in the case of some graves suggests that keeping of such stones might have been the usual practice. This method of construction has led us to use the following terminology:

The Head-stone, the upper stone-lined circle or oval, the upper pit, the sealing stones, the grave pit, the dry masonry of the grave pit and the gritty floor.

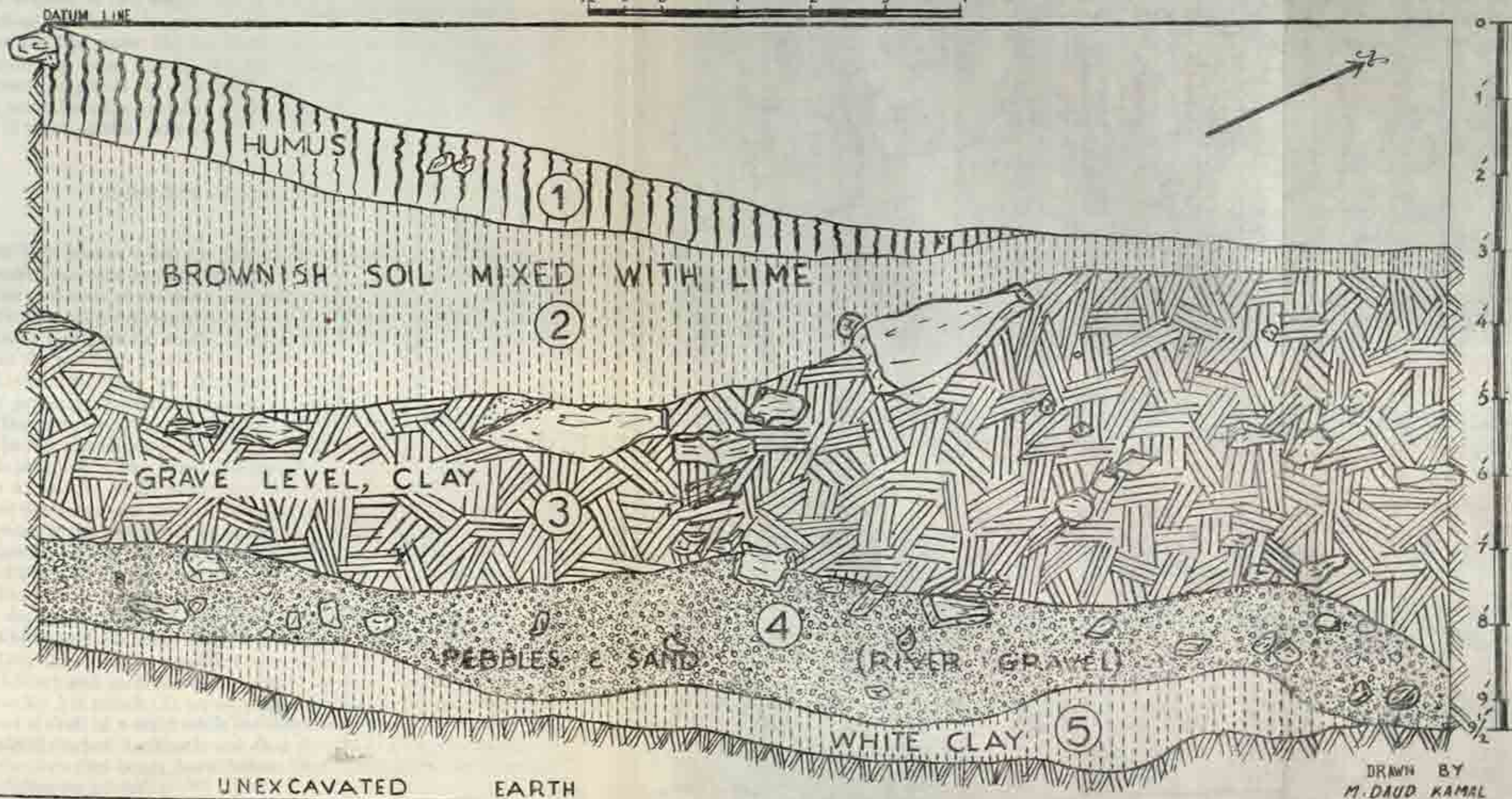
It may be remarked that in some cases we have found an earlier burial in the lower grave pit and the upper pit used for a later burial.

TIMARGARHA 1964

SECTION ACROSS THE EXPOSED PIT

Fig. 3

72 6 0 SCALE 1" = 0' 3"



The children's graves do not have the upper pit at all, and hence they cannot have the upper stone-lined circle. In most cases the disposal of the children's remains are done in smaller rectangular grave pits. These pits are further dressed in two ways: (a) single blocks of stones line the pits one on each of the four sides and one or two blocks cover the top. This has been termed box-like grave; (b) dry stone masonry walls line the pit, which is again covered by stone blocks. This has been termed masonry graves. In both the cases the graves are near the surface of the ground. It may also be noted that sometimes the remains of the grown-up individuals are encountered in these smaller graves.

TPOLOGY OF 1964 GRAVES

In the first season, when the number of graves was small, the typological classification was rather difficult. In all the eight graves, excavated that year, the skeletons of the dead were found. There was no case of burning at all. First of all we separated the five graves found north of the pit from the three found in the south on the basis of stratigraphy and also on the fact that the southern graves did not have the upper pit nor the upper stone-lined circle. The first we called type A and the second type B. In type A the three graves excavated in trenches A1 and B1 were intact and showed similar features, while two graves excavated in trench CO were both disturbed. In this trench grave No. 1 showed one perfectly well preserved skeleton, disposed of in the same fashion as in the case of the three graves in trenches A1 and D1, while in between the legs and hands of this man were heaped the bones of a second individual, the meaning of which was not at all clear. Should we have taken this as a double burial of the same-time? The confusion was clarified when we found two burials in grave No. 1 in trench LO. There the bones of both the individuals were preserved intact. That was definitely a case of double or rather multiple burial, as we also found the bones of a child. This double burial was clear, but not the first one. Why should the bones of the second individual be thrown in a heap? In 1964 the question remained unsolved but in 1965 a solution came (see below) and such graves we termed as mixed burials. When we opened grave No. 2 in trench CO, we were again confused. On the top on a platform was a skull of a child while the actual burial of an individual below was again disturbed. Anyhow it was clear that the child burial was much later than the disturbed bones down below. Thus typologically we obtained in 1964 the following groups:

- A.— Inflexed burials of single individual.
- B.— Multiple burial.
- C.— Children's graves.
- D.— Mixed burials or disturbed burials.

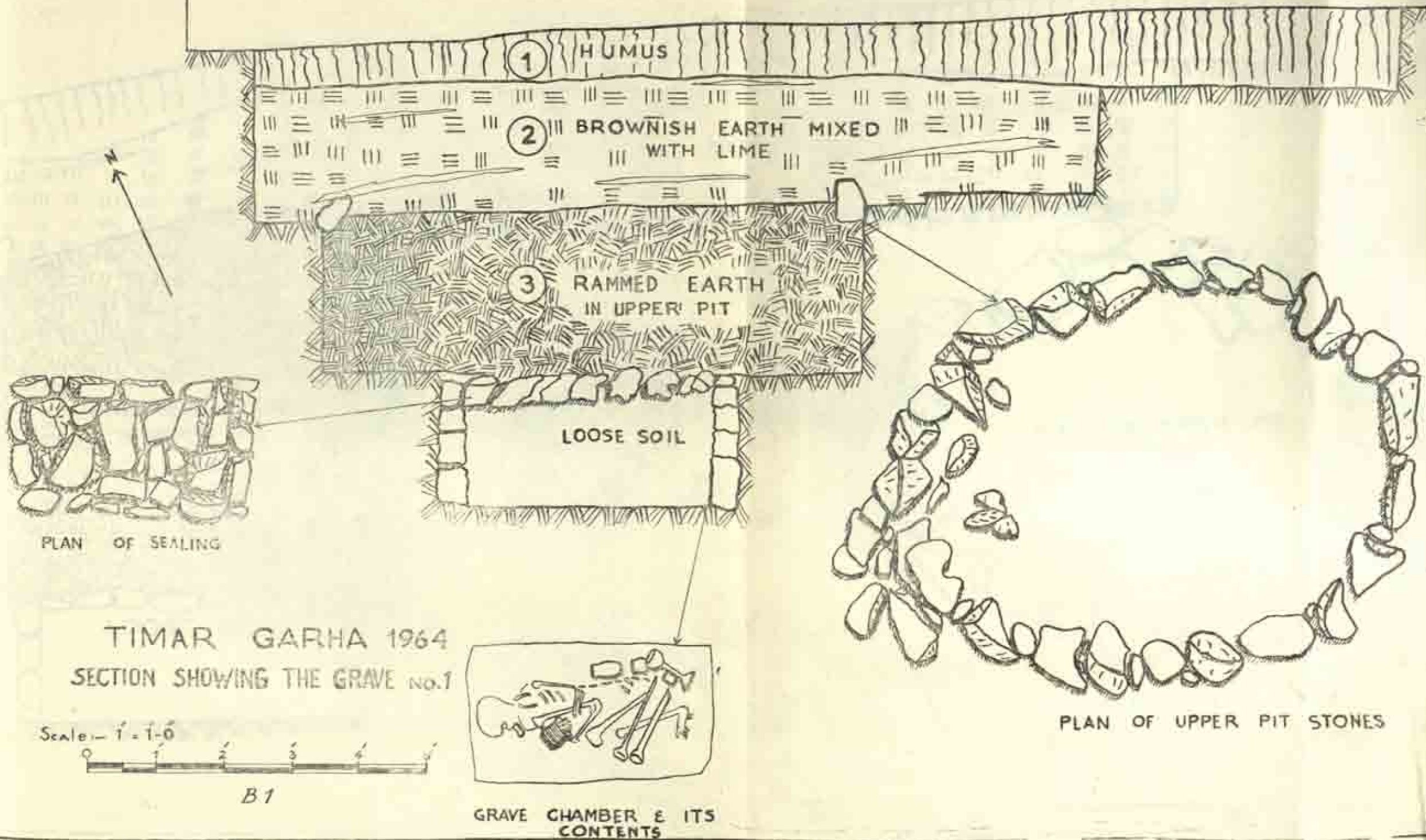
In the detailed description given below A and D are bracketed together, and B and C in another group as they are definitely later in date.

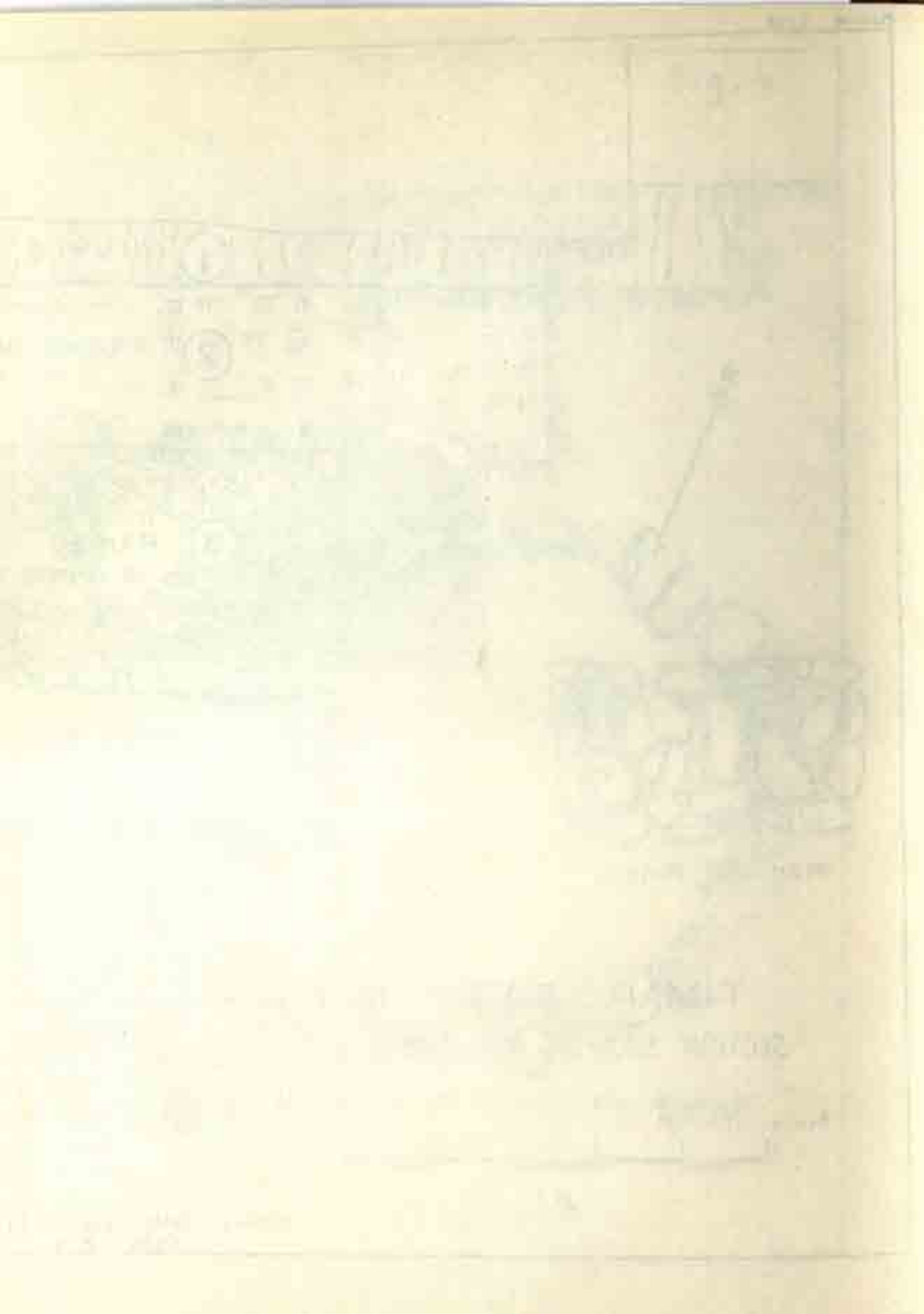
TPOLOGY OF 1965 GRAVES

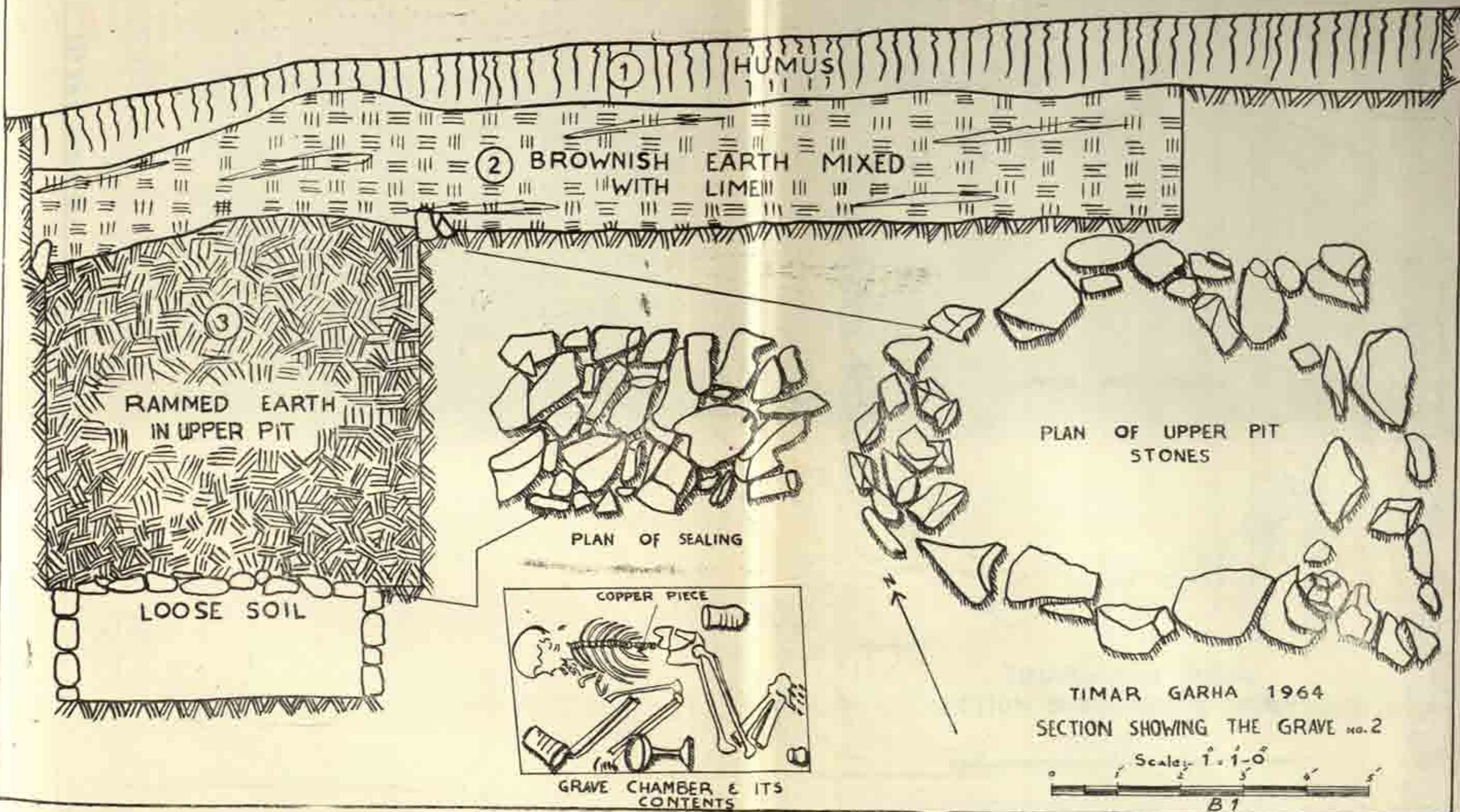
In 1965 the number of mixed burial was large. These burials were of two different kinds: some graves had cremated bones in big urns and some scattered unburnt bones outside, while others showed, like last year, burial of a complete skeleton in the usual fashion and a secondary burial of some bones in a heap. In a few graves there was a definite difference in the depth of the burials, as will be clear from the detailed description. Other graves showed burial of only fractional bones, i.e. no complete skeleton was found in the grave. As a result it was easy to conclude that some graves definitely belonged to a type, where only partial burial of bones was the custom. In such graves sometimes we got multiple burial. Thus we get three different rituals — (i) complete inflexed burial, (ii) burial of the cremated bones, and (iii) fractional and multiple burial. No grave had Nos. (i) and (ii) together. But wherever found, it was either (i) and (iii) or (ii) and (iii). And when this observation was supported by the actual difference in the levels of burial, it was easy to conclude that No. (iii) type graves are of the late-comers, who re-utilized the earlier graves. It was reasonable also to expect that we should not have in the same grave both the rituals — cremation and fractional burial. The test of our hypothesis lay in the discovery of large number of separate graves showing three different rituals. Obviously the mixed ones are deliberate later interruptions. Hence in our description below we have separated the mixed burials and presented the evidence as we obtained.

On the basis of stratigraphy No. 1 graves are placed in a chronologically earlier group than No. (ii) graves. Thus we obtained the following types of graves in the chronological order:

- 1) Complete burial of single individual in inflexed position.
- 2) Burial of cremated bones or ashes in urns or outside the urns,







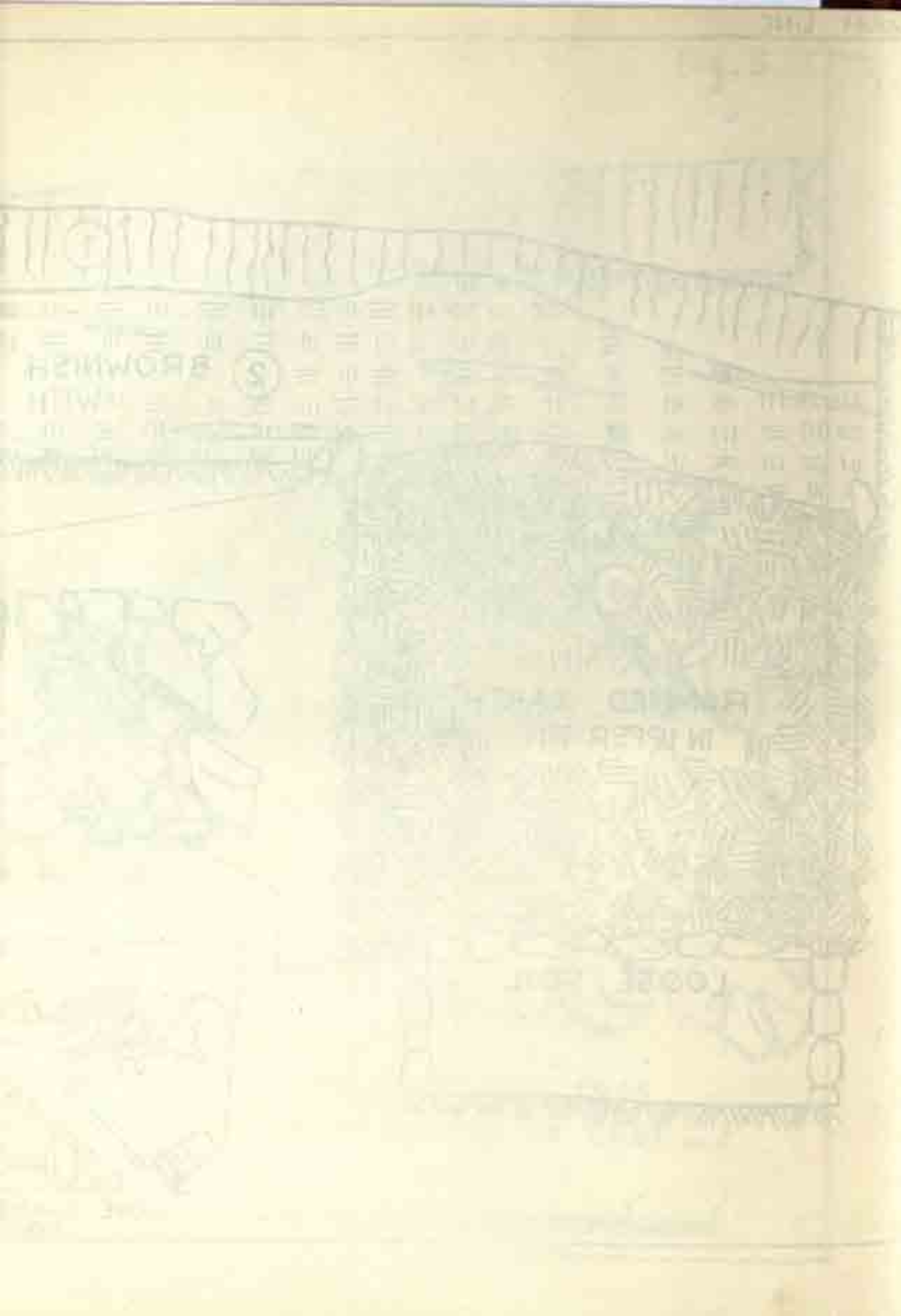
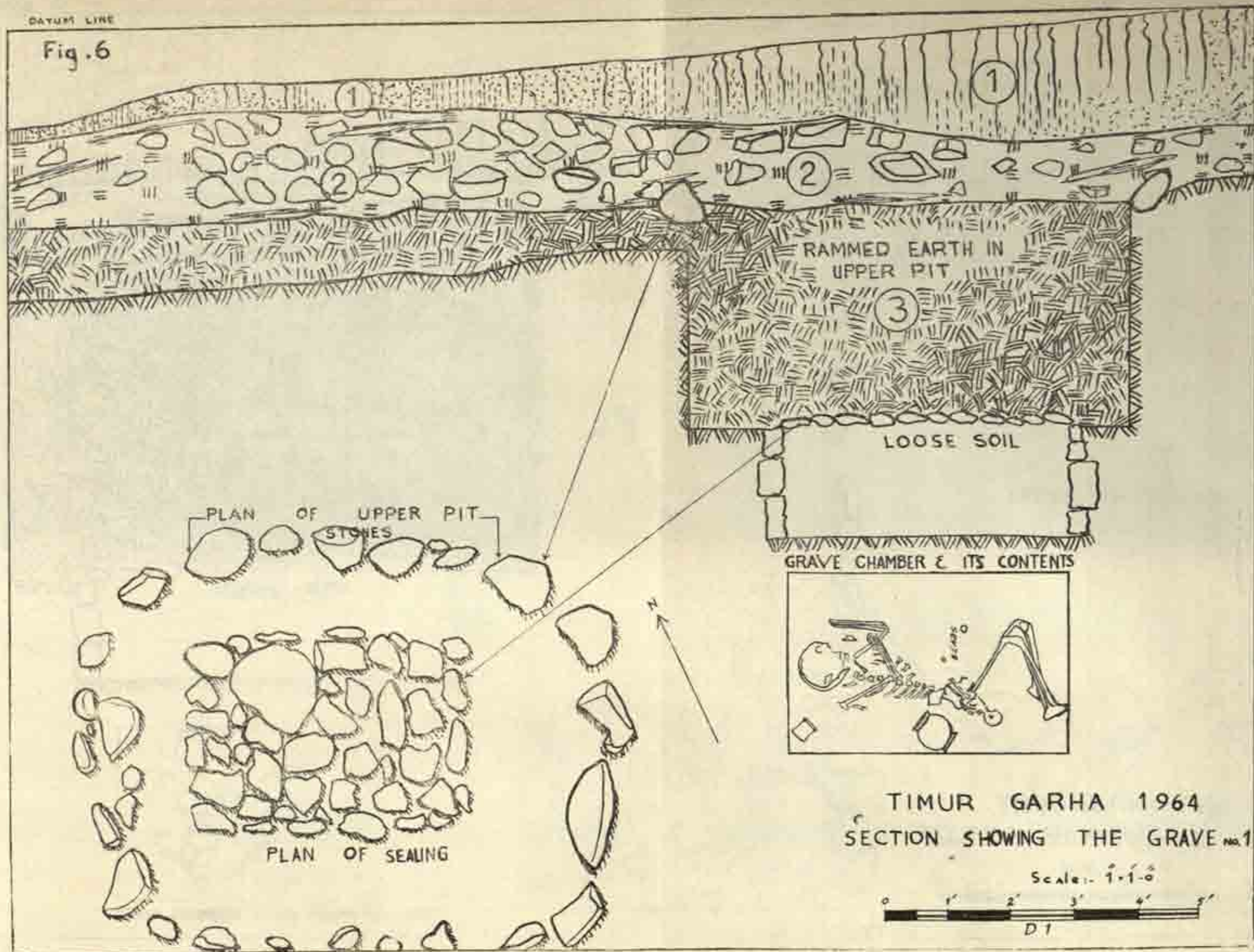
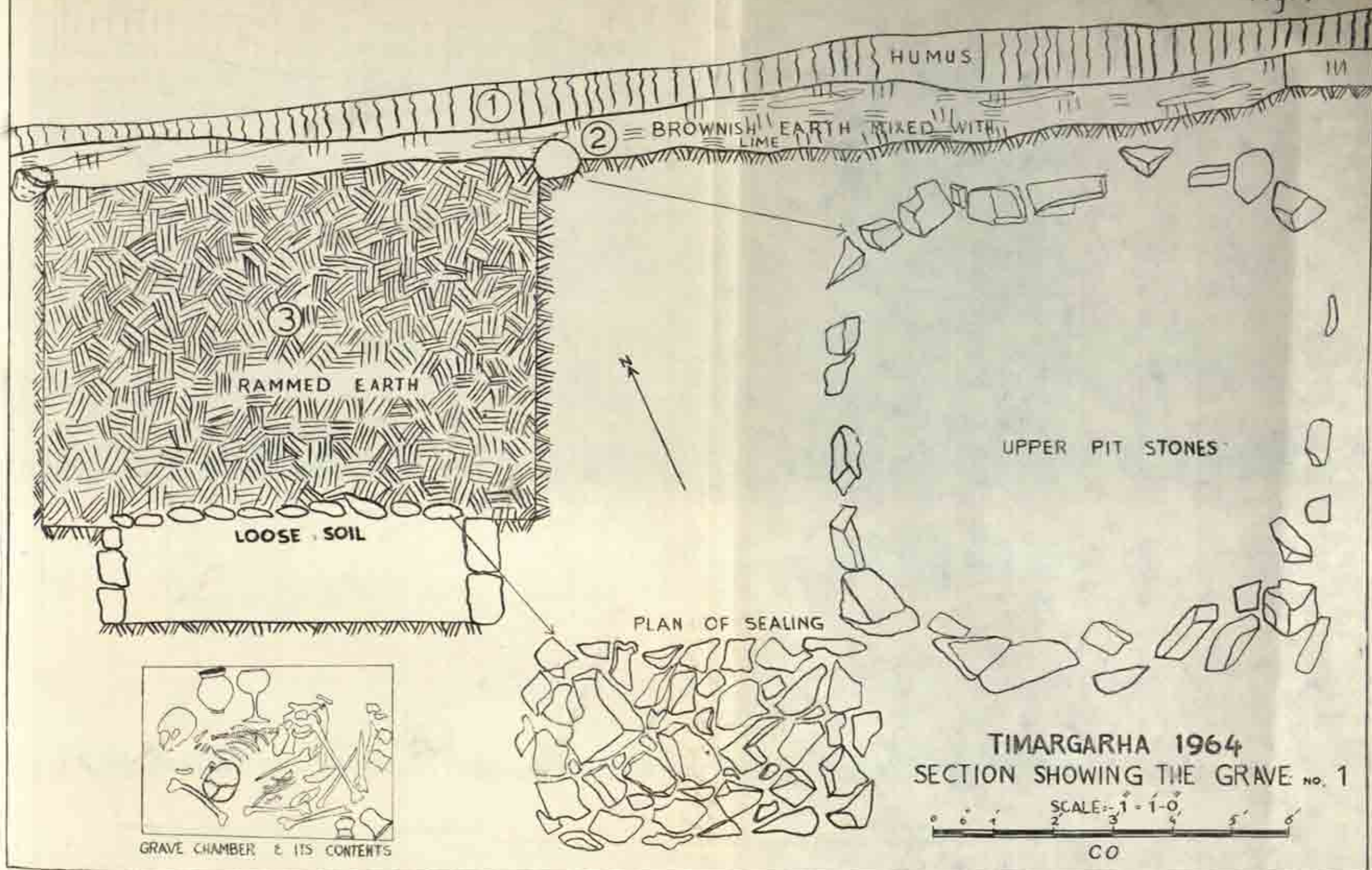
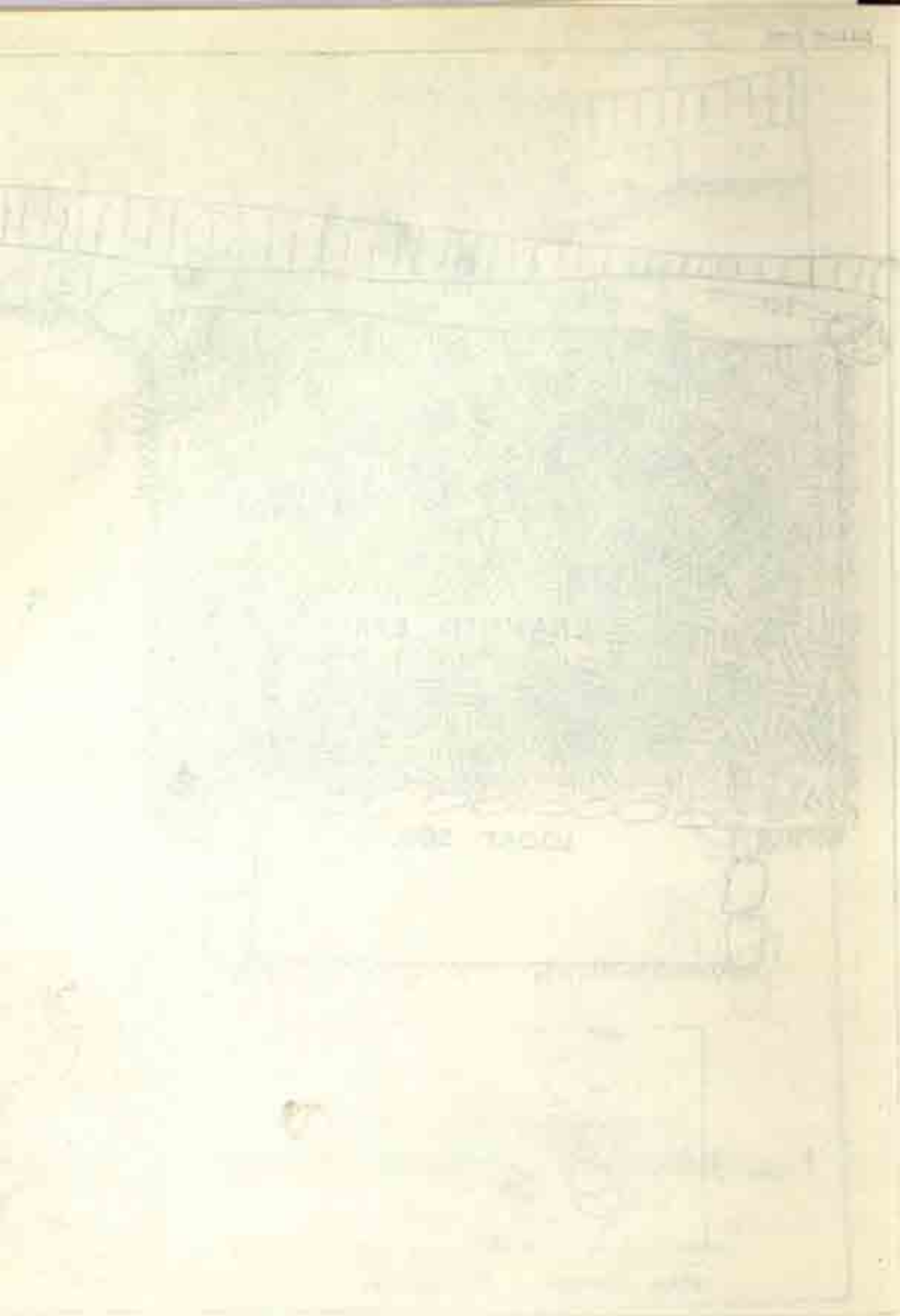


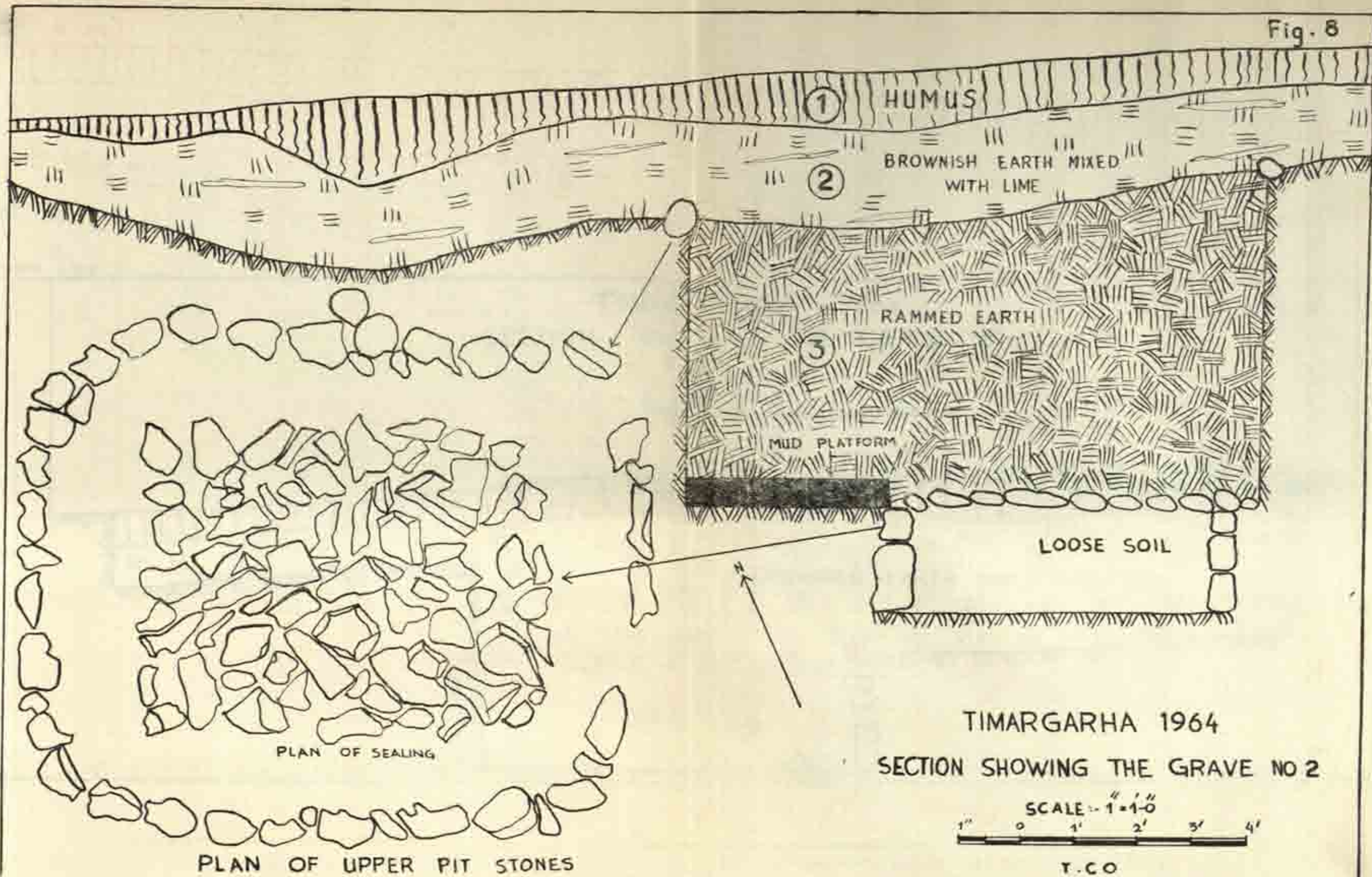
Fig. 6



TIMUR GARHA 1964
SECTION SHOWING THE GRAVE No. 1



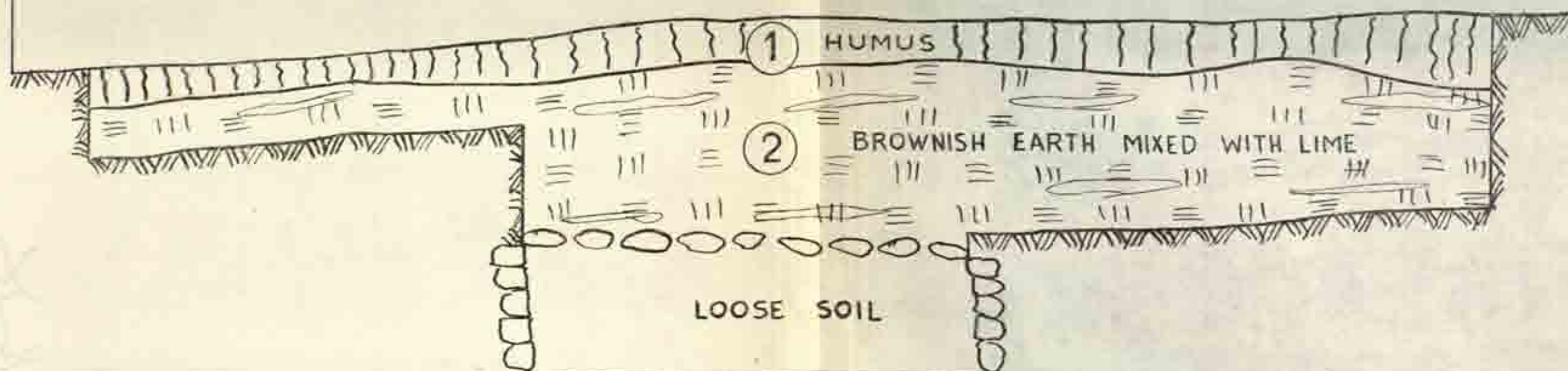
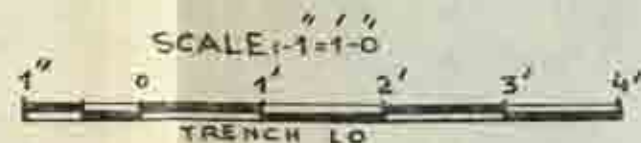




DATUM LINE

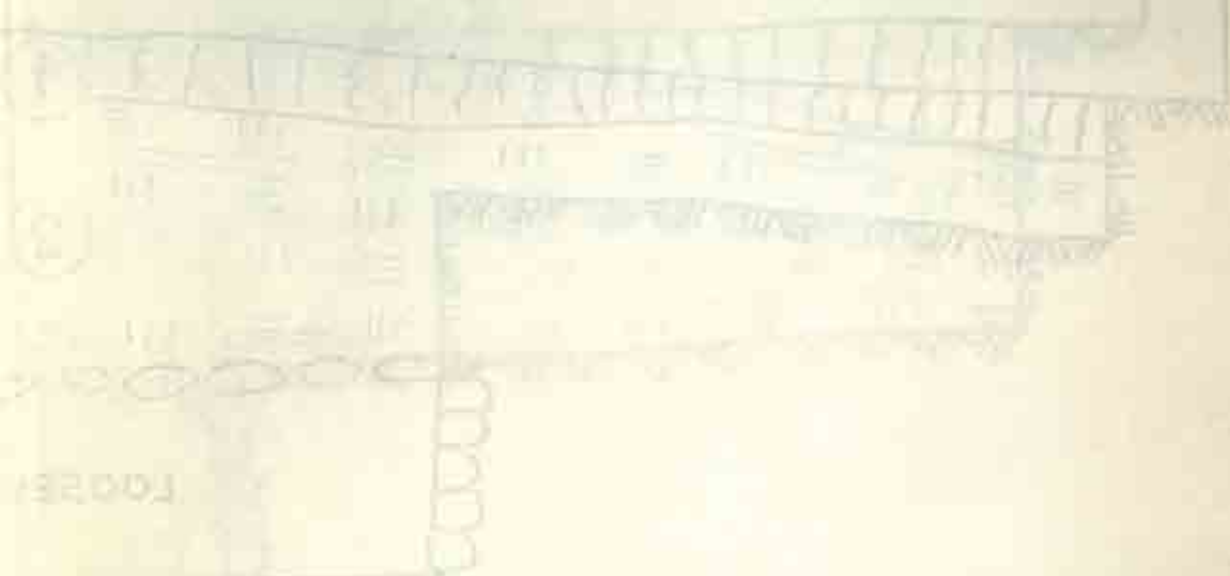
TIMARGARHA 1964
SECTION SHOWING THE GRAVE NO.1

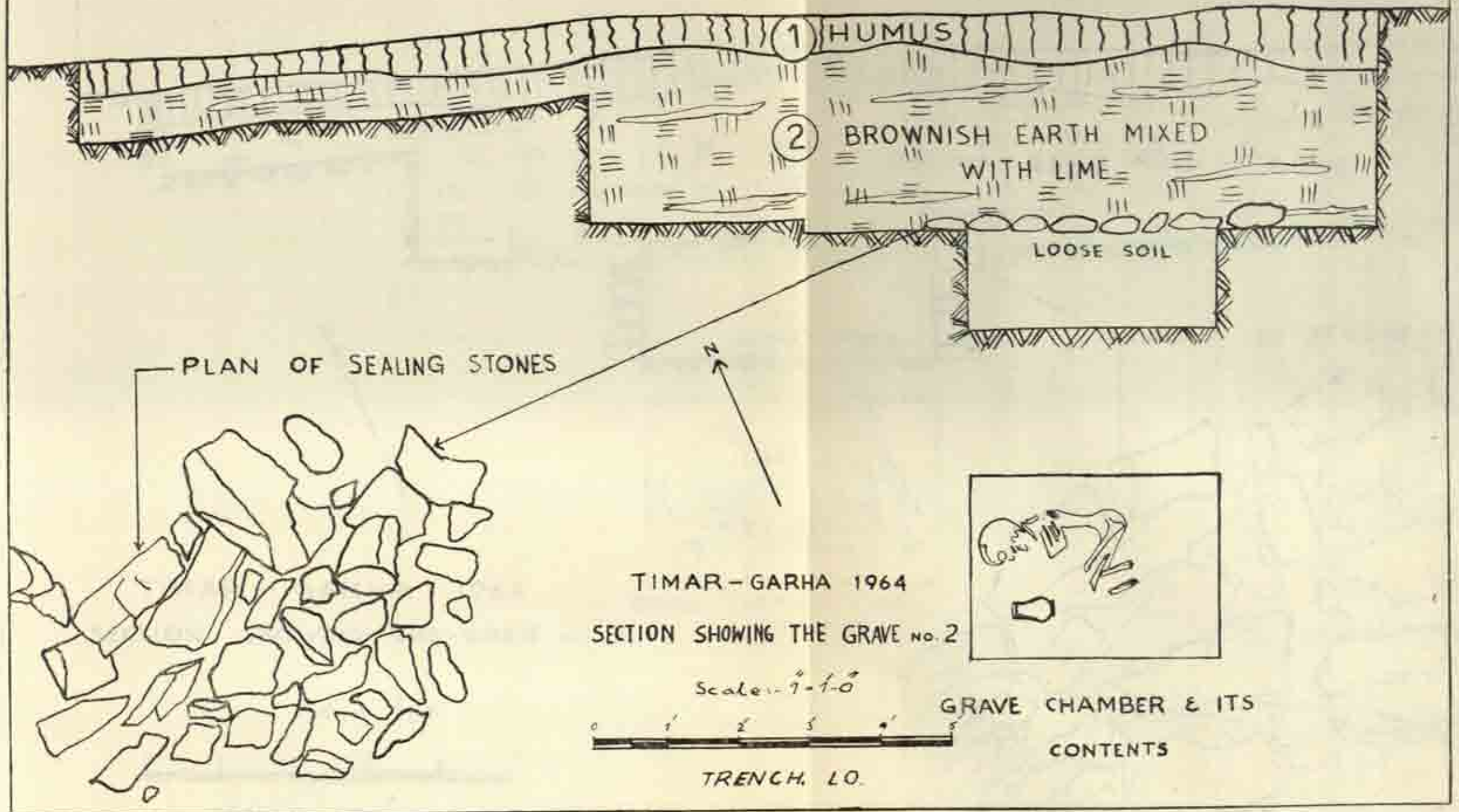
Fig. 9

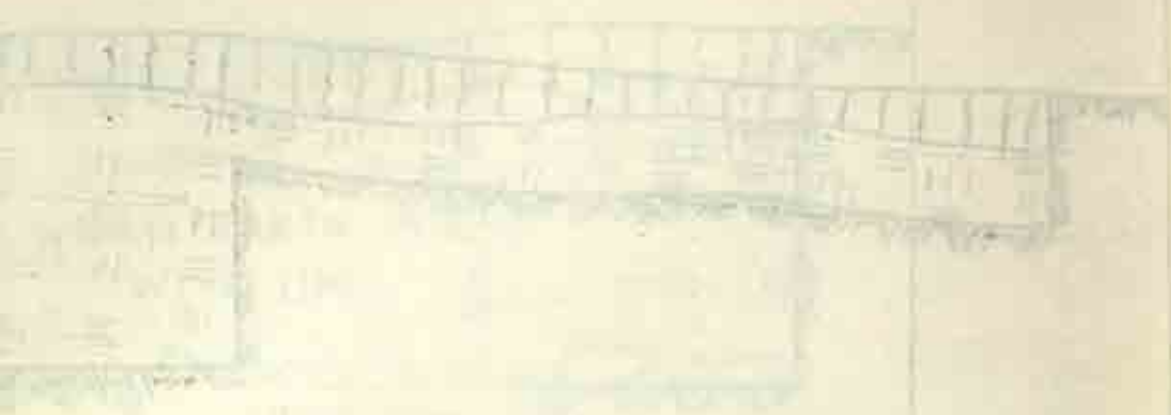


SECTION 20032

Fig 9



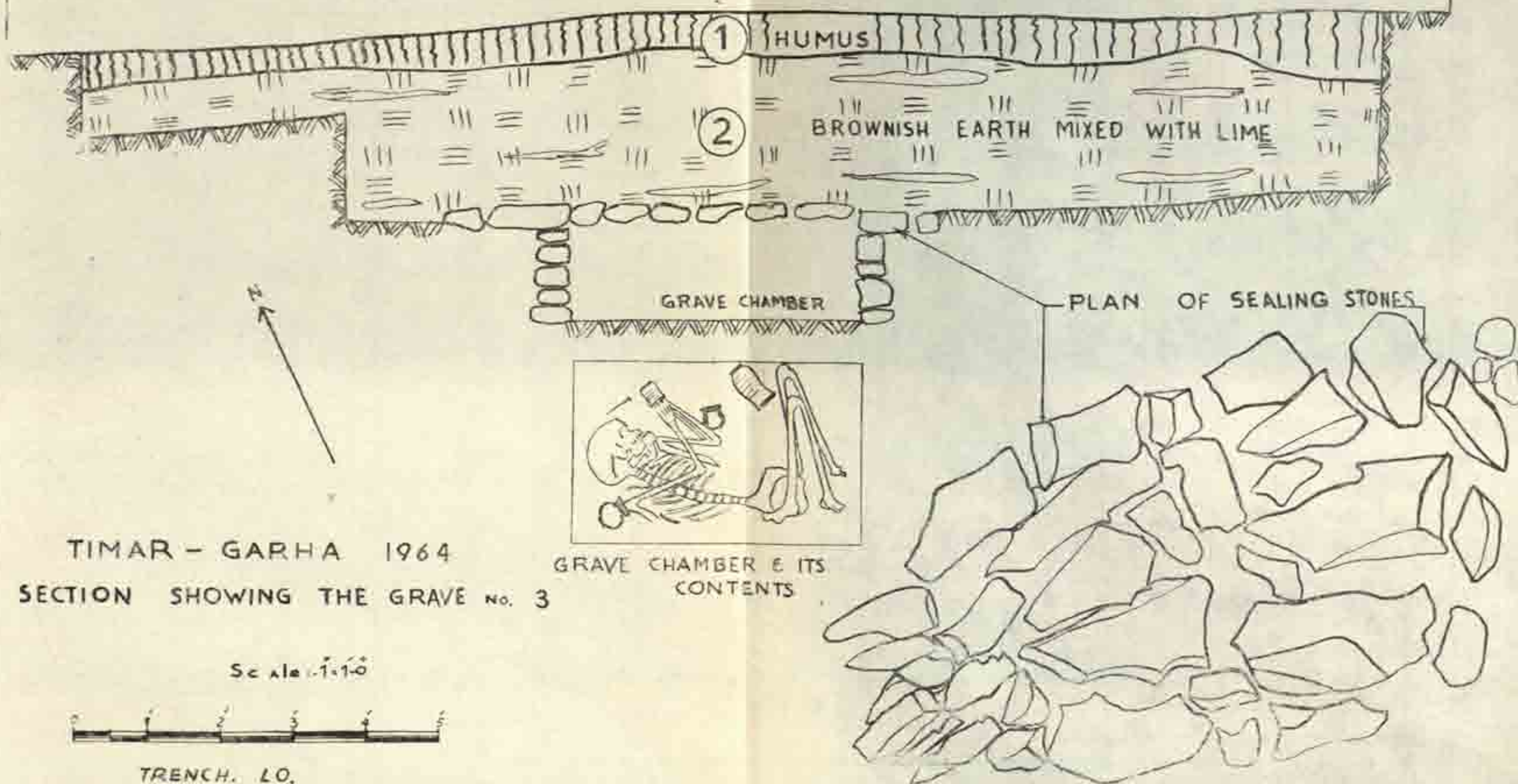




PLAN OF SECTION D.W. 17

PLAN OF SECTION D.W. 17



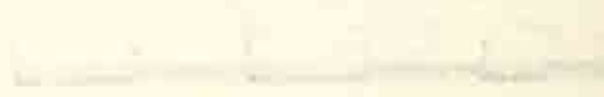




SECTION SHOWING THE GROUND



SECTION SHOWING THE GROUND
TERRAIN - RAIN



SECTION 1

either single or multiple.

3) Burial of fractional bones or multiple burials.

The detailed analysis of the graves is given in the description.



TIMARGARHA SITE NO. 1

Section 2

GRAVES OF 1964 SEASON*

BY F.A. DURRANI

Type — A: Complete Burial

Grave No. 1, trench B1: The grave lay in the northern part of trench B1 close to the baulk (Fig. 2). Immediately below the ploughed soil, making layer (1), of varied depth, ranging from six inches to one foot, was noticed the brownish earth, mixed with lime, of layer (2). This layer was nearly one and half feet thick. When the second layer was being removed, rough stone blocks were observed at its bottom, about 2½ feet from the mean ground level (Fig. 4). They were found to be single-lined stones forming an oval (Pl. IVa), measuring 7 feet from north to south and 5 feet from east to west (internal measurement). At the north-west lay three head stones. These stones lay directly on the top of whitish clay which formed layer (3). As no pit was observed above the stones, it was clear that the first two layers were later accumulation. But within the oval and below the stones a very hard rammed earth was encountered. This was obviously a filling in a pit dug earlier, which was of the same shape as the stone lining. The rammed earth continued to a depth of 2½ feet, at the bottom of which lay flat stones (Pl. IVb) sealing the main grave chamber. Henceforward the rammed earth filling will be termed as the upper pit. When the sealing stones were removed, the chamber was found to contain loose earth and right on the floor lay, on his side, a complete skeleton (Pl. Va), oriented north-west to south-east with the skull facing westward, legs flexed and hands drawn towards the face. The chamber was built of four

*The original text, submitted by the author, has been thoroughly revised by the editor.

courses of dry stone masonry and measured 3'8" by 2'-1". It was 2" deep. Inside the chamber an open-mouthed drinking cup (Reg. No. 1) lay close to the hands while four other funerary vessels were found near the leg bones. They are a bowl-on-stand (Reg. No. 2), another drinking cup (Reg. No. 3), a small hand-made cooking pot (Reg. No. 4) and a tall drinking vase (Reg. No. 5) (see Fig. 21). For the description of the skull see No. 01 of Dr. Bernhard's report in Part VII.

Grave No. 2, trench B1: This grave lay in the western part of trench B1, partly lying under the baulk and partly extending into trench B2 (see Fig. 2). After removing the ploughed soil of layer (1), we reached layer (2) of brownish earth mixed with lime (Fig. 5). About 2 feet 8 inches from the mean ground level stone blocks were observed, making an oval shape, measuring 7 feet from north to south and 5 feet from east to west. The jumble of blocks at the north-west probably related to head-stones. Below these stones was rammed earth which filled the upper pit of the same shape and went down to a depth of 5'-8". On removing this rammed earth, we came to the sealing stones, which covered the grave chamber. The chamber, which was full of loose earth and built of four courses of dry stone masonry, was rectangular in shape, measuring 4'-9" by 2'-11" and was 1'-9" deep. On the floor lay a complete skeleton (Pl. Vb) on his side, oriented north-west to south-east, with his legs flexed, hands drawn up and face turned southward. Near the hands was a tall drinking vase (Reg. No. 7), while three more vessels were placed by his side—a bowl-on-stand (Reg. No. 9), another tall drinking vase (Reg. No. 8) and a hand-made cooking pot (Reg. No. 6) (See Fig. 21). Near the belly was a small copper piece. For the description of the skull see No. 04 of Dr. Bernhard's report in part VII.

Grave No. 1, trench D1: In this trench when the ploughed soil of layer (1) was removed, we came across a flimsy construction of a comparatively late date in layer (2). At some places the stones made two courses but they were generally strewn all over the layer as shown in section (see Fig. 6). When the loose stones were removed, we reached the top of the grave stones, which made a ring of rough oval shape, 3 feet below the present surface. The ring of stones, which had an inner measurement of 7' by 6' 7", fixed the location of the grave in the southern half of the trench (See Fig. 2). Below these stones was rammed earth, which filled the upper pit, 3 feet deep. Underneath were the sealing stones which covered the grave chamber, rectangular in shape and measuring 4' 7" by 3'. The chamber, which



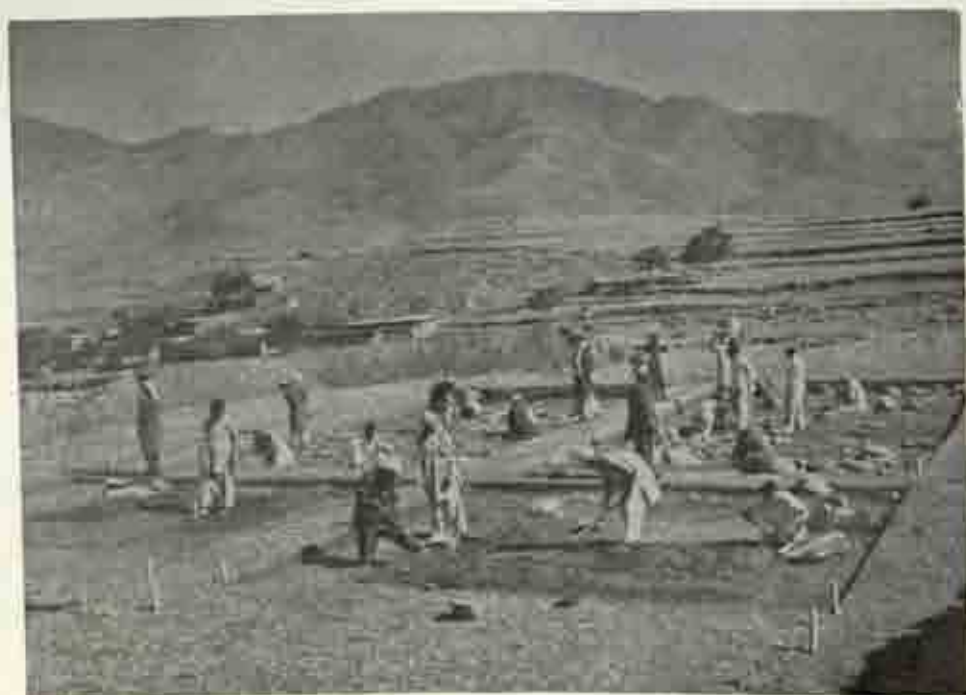
a. Timargarha, Site No. 1—Lay-out of trenches in 1964 excavation.



b. Timargarha, Site No. 1—General view of 1965 excavation.



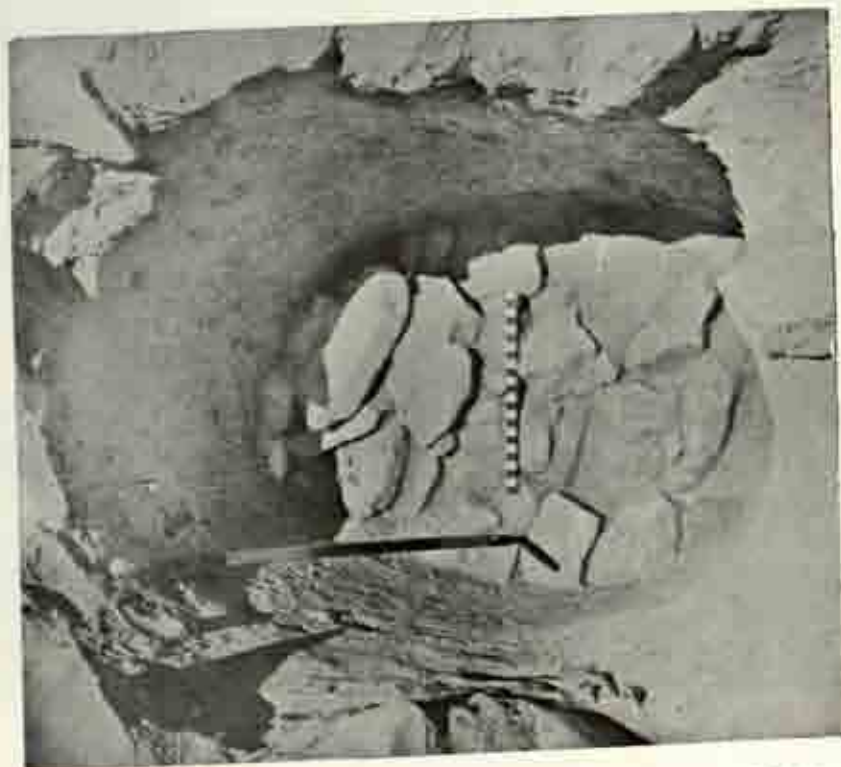
a. Timargarha, Site No. 2. General view of 1965 excavation.



b. Timargarha, Site No. 3. General view of 1965 excavation.



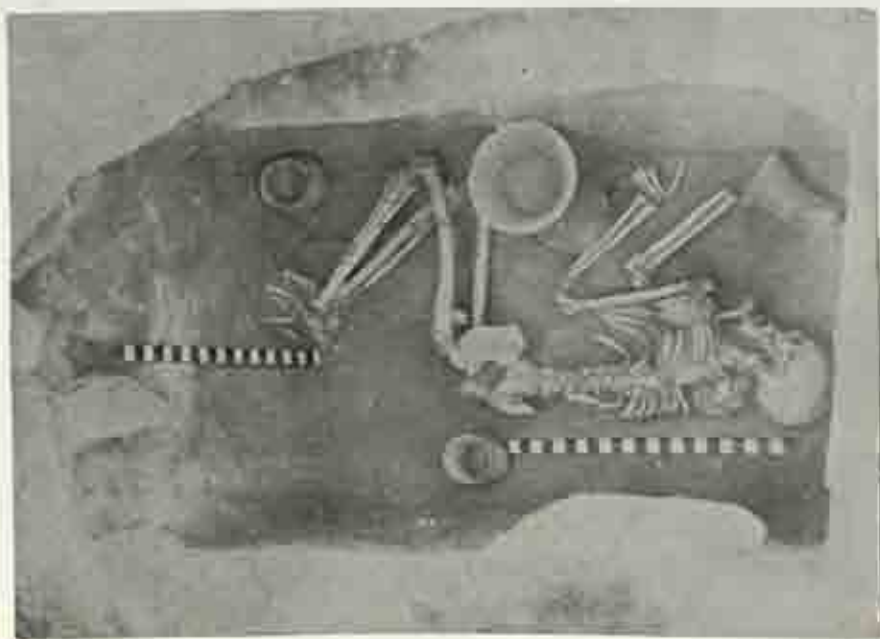
a. Stone circle in grave No. 1, trench B 1. (1964)



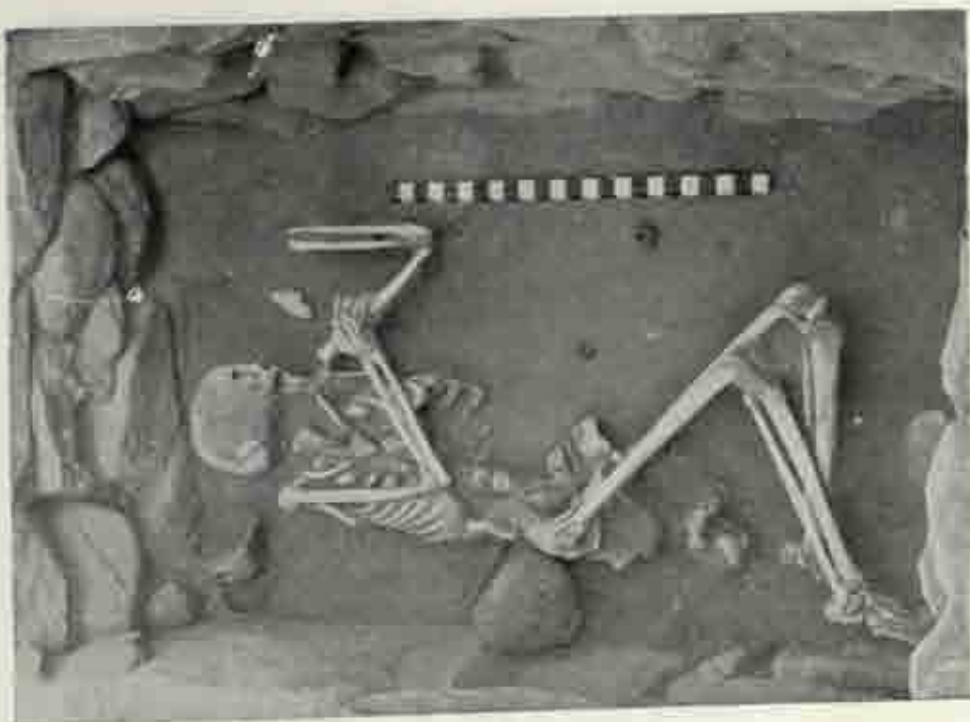
b. Sealing stones below the circle, grave No. 1, trench B. 1, (1964).



a. Complete burial in grave No. 1 trench B 1 (1964), showing three stages—the upper stone circle, the top of grave pit, and the floor.



b. Complete burial in grave No. 2, trench B 1 (1964).



a. Complete burial in grave No. 1, trench D 1 (1964).



b. An earlier flexed burial with a later heap of bones in grave No. 1, trench CO (1964).



a. Disturbed burial in grave No. 2, trench CO (1964).



b. Multiple burial in grave No. 1, trench LO (1964).



a. Fractional burial of a child in grave No. 2, trench LO (1964).



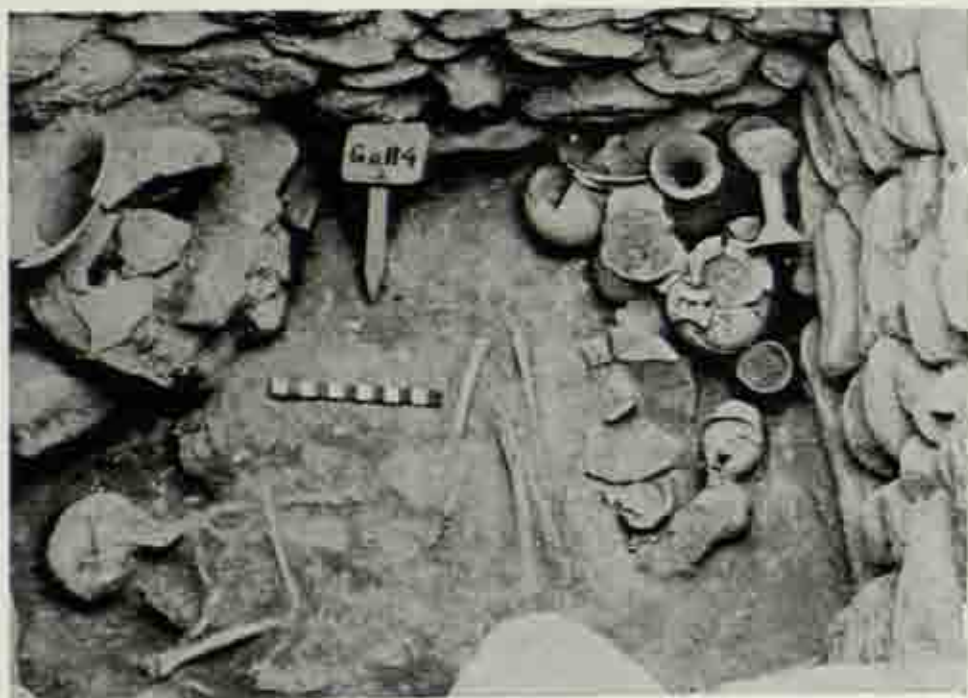
b. Almost complete skeleton in grave No. 3, trench LO (1964).



a. Grave 103. Complete burial in flexed position.



b. Grave 113. Mixed—earlier burnt bones on the right and later unburnt bones on the left.



a. Grave 114. Mixed—earlier burnt bones in a pot with a visage urn at the bottom and later fragmentary skeleton at the top.



b. Grave 117. Mixed—fractional bones in the centre and visage urn at the bottom corner.



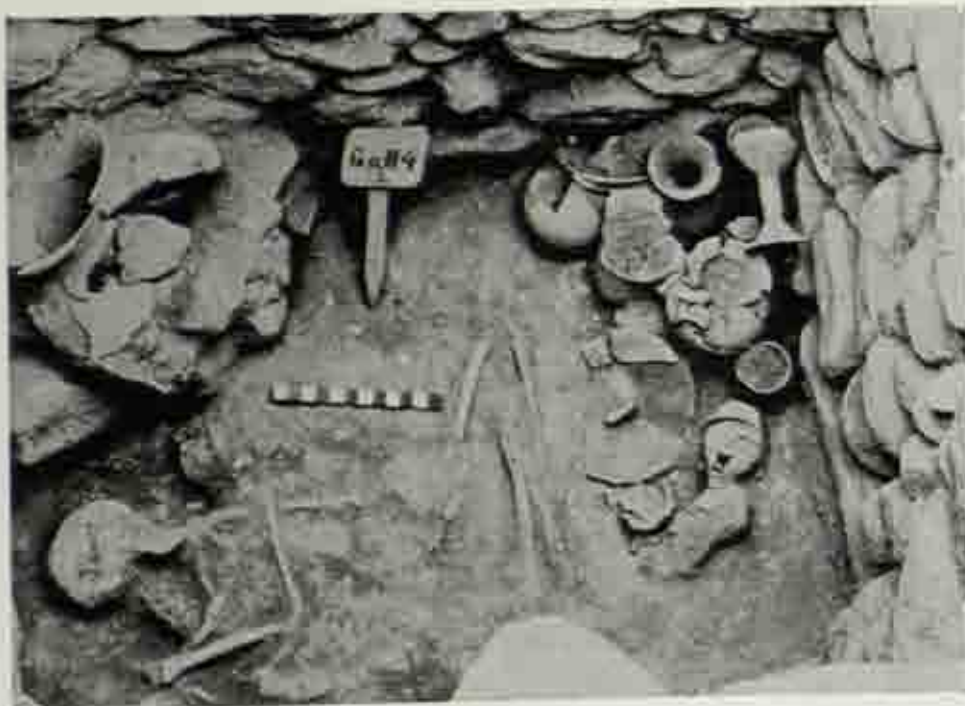
c. Grave 149. Mixed—fractional bones in between pots and burnt bones in a jar.



a. Grave 122. Group of pots including two visage urns with burnt bones.



b. Grave 119. Group of pots and burnt bones of several persons.



a. Grave 114. Mixed—earlier burnt bones in a pot with a visage urn at the bottom and later fragmentary skeleton at the top.



b. Grave 117. Mixed—fractional bones in the centre and visage urn at the bottom corner.



c. Grave 149. Mixed—fractional bones in between pots and burnt bones in a jar.



a. Grave 122. Group of pots including two visage urns with burnt bones.



b. Grave 119. Group of pots and burnt bones of several persons.



a. Masonry grave 112



b. Box-like grave 121



c. Box-like grave 150



d. Box-like grave 179



a. Grave 184. Box-like grave of a child with burnt bones



b. Grave 127. Child's grave with ash



c. Grave 143. Child's grave with ash



a. Grave 142. Human bones dumped in between pots at a higher level.



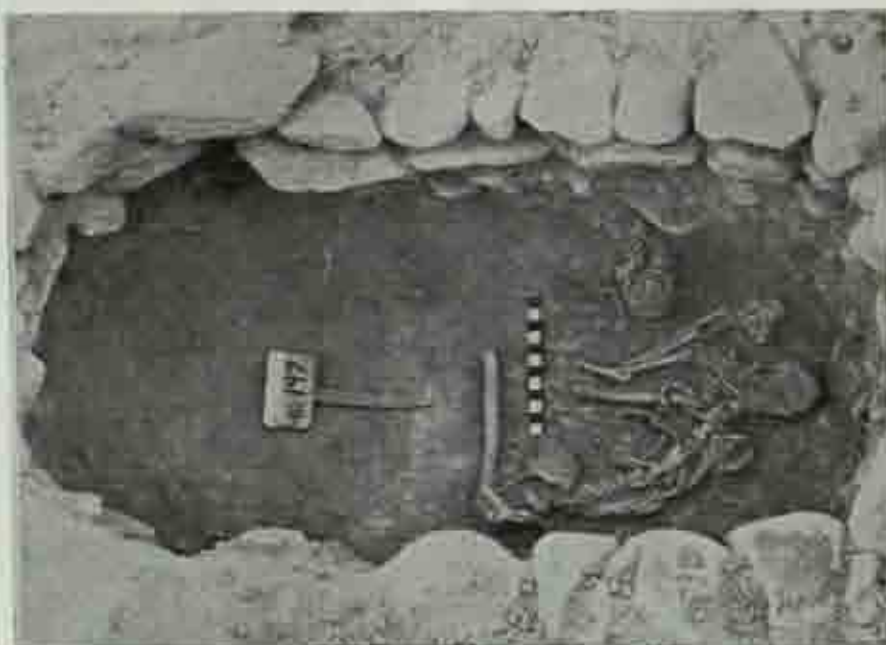
b. Grave 142. Disturbed human burial at a lower level.



c. Grave 104. Complete burial later disturbed by fractional burial.



d. Grave 162. Bones of the upper burial dumped in between the pots.



a. Grave 197. Complete burial, slightly disturbed.



b. Grave 197. Late fractional burial on the top of (a)
Mark the scattered bones.



a. Grave 109. Fractional burial with funerary vessels.



b. Grave 125. Fragments of human bones with those of animals.



c. Grave 111 b. Fractional burial with four funerary vessels.



a. Grave 134. Jumbled bones with nine vessels.



b. Grave 137. Scattered human and animal bones in between pots.



c. Grave 139. Human bones dumped in between pots.



d. Grave 148. Fragmentary human remains in between pots.



a. Grave 157. Human burial in flexed position but disturbed.



b. Grave 165. Grave pit with fragmentary bones.



c. Grave 173-a. Grave pit with fragmentary bones and pots. This was above grave 173 b.



a. Grave 177. Fragmentary bones.



b. Grave 180. Scattered human bones.



c. Grave 182. Fragmentary bones with one pot.



d. Grave 183. Scattered bones in the middle with a terracotta figurine in the centre.



a. Grave 185. Fragmentary bones with pots.



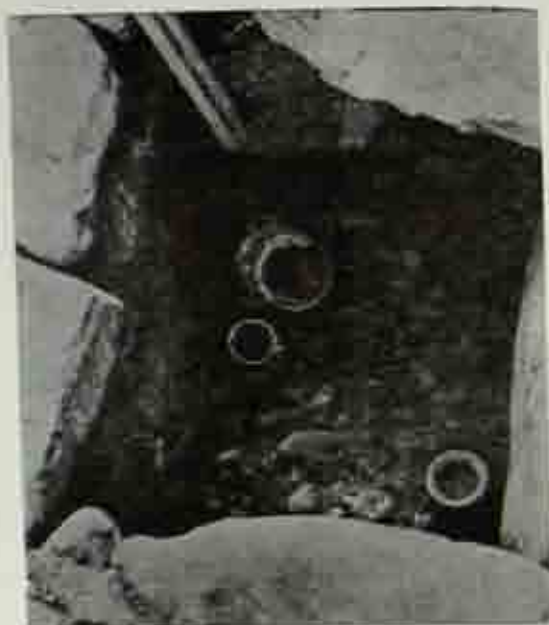
b. Grave 190. Almost complete skeleton in a pit grave.



c. Grave 191. Small box-like grave with bones of an adult.



d. Grave 192. Almost complete skeleton.



a. Grave 105. Decayed bones of a child with three pots.



b. Grave 140. Fragmentary bones of a child with four pots.



c. Grave 146. Fragmentary bones of a child with two pots.



d. Grave 153. Box-like grave with bone fragments of a child.



a. Grave 155. Small grave.



b. Grave 156. Box-like grave.



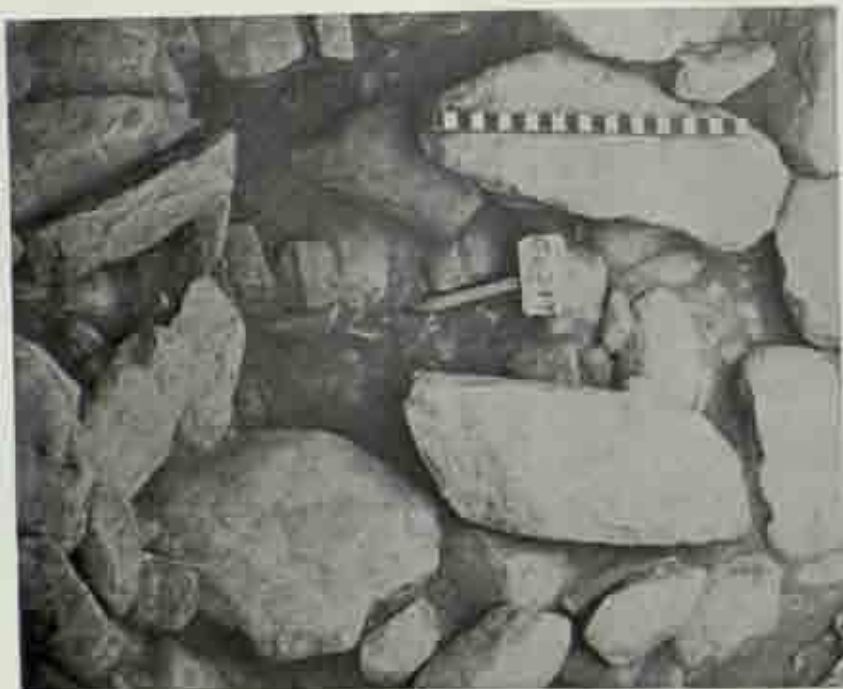
c. Grave 159—Huge blocks making the grave chamber.



d. Grave 188. Box-like grave.



e. Grave 189. Pit grave.



a. Grave 217, Disturbed sealing stones.



b. Grave 240. Bones of fractional burial scattered on the floor. Cremated bones (not visible) were found at a lower level.



a. Grave 201. Urn containing burnt bones along with other vessels.



b. Grave 213. Funerary vessels along with visage urn and ash.



c. Grave 218. Visage urn with fifteen funerary vessels.



d. Grave 251. Urn with burnt bones and other funerary vessels.



a. Grave 237, Urn with burnt bones.



b. Grave 245, The funerary vessels in a child's grave



a. Grave 202, Fractional burial with funerary vessels.



b. Grave 204, Fractional burial with four vessels.



c. Grave 210, Heap of bones of several persons with five vessels.



d. Grave 212, Skull and other bones along with seven vessels.



a. Grave 223. Fractional burial with ten vessels.



b. Grave 228. Fragmentary bones in the chamber.



c. Grave 247. Fragmentary bones along with eleven complete vessels.



d. Grave 254. Multiple fractional burial along with funerary vessels.



a. Grave 256. Fragmentary bones of an adult with six vessels.



b. Grave 220A. Child's box-like grave with four vessels.



c. Grave 244. Small grave of a boy.



d. Grave 250. Small grave of two boys.



a. Grave 253, Box-like grave of a child.



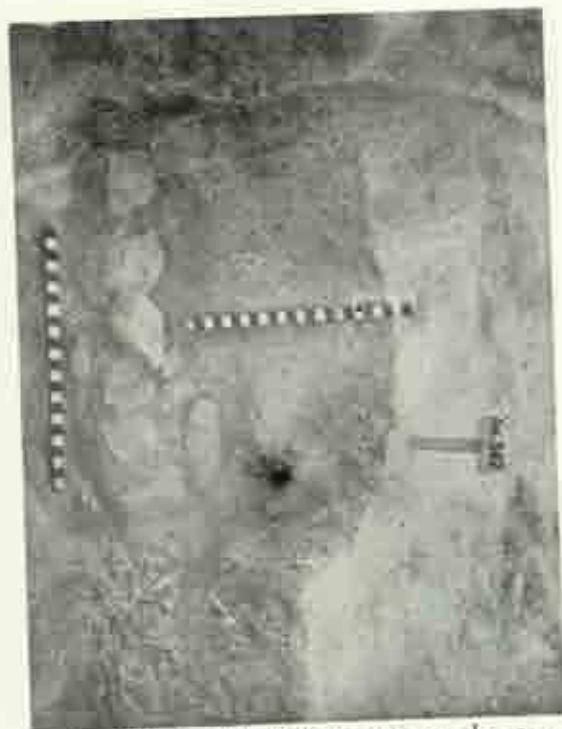
b. Grave 262. Small grave but having the bones of an old woman.



c. Grave 270, Fractional burial of an adult with three vessels.



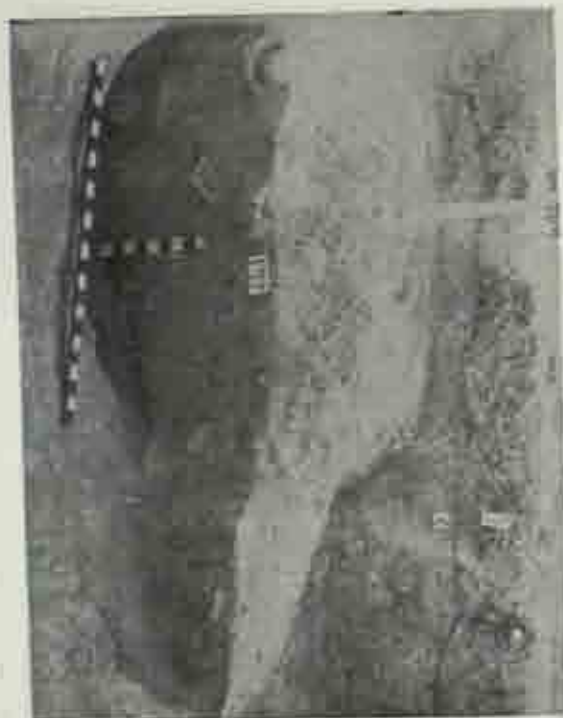
a. Pit 301. Stones, pottery and ash in the pit



b. Pit 302. A tall drinking vase on the top left with some stones in the pit.



c. Pit 302. Section across the pit. Excavator points the layer sealing the pit.



a. Pit 304. Pot-sherds, stones and ash in the pit.



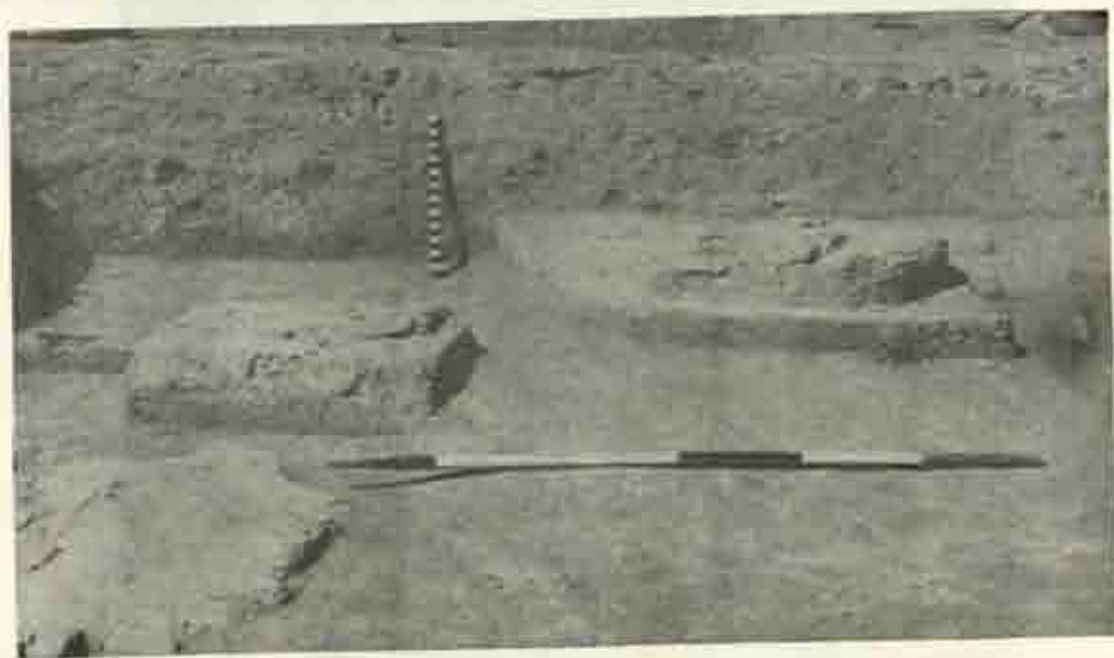
b. Pit 310. Pot-sherds and stones in the pit.



c. Pit 316. Burnt earth in a hearth.



a. Thana. General view of the site marked X with the hills behind and modern graves by the side of the trees in the foreground.



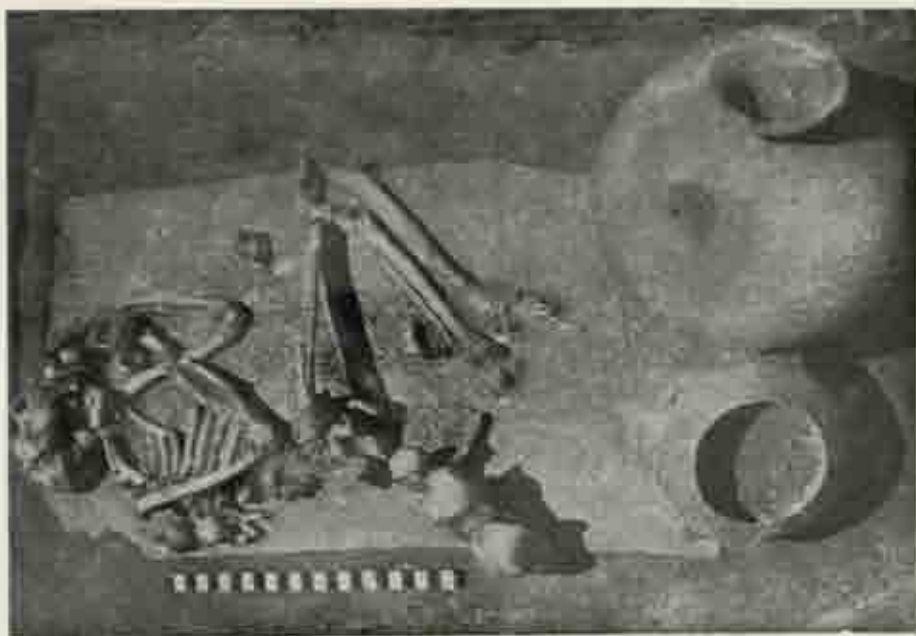
b. Thana. Trench A. The top of the three graves, Nos. 1, 2 & 12.



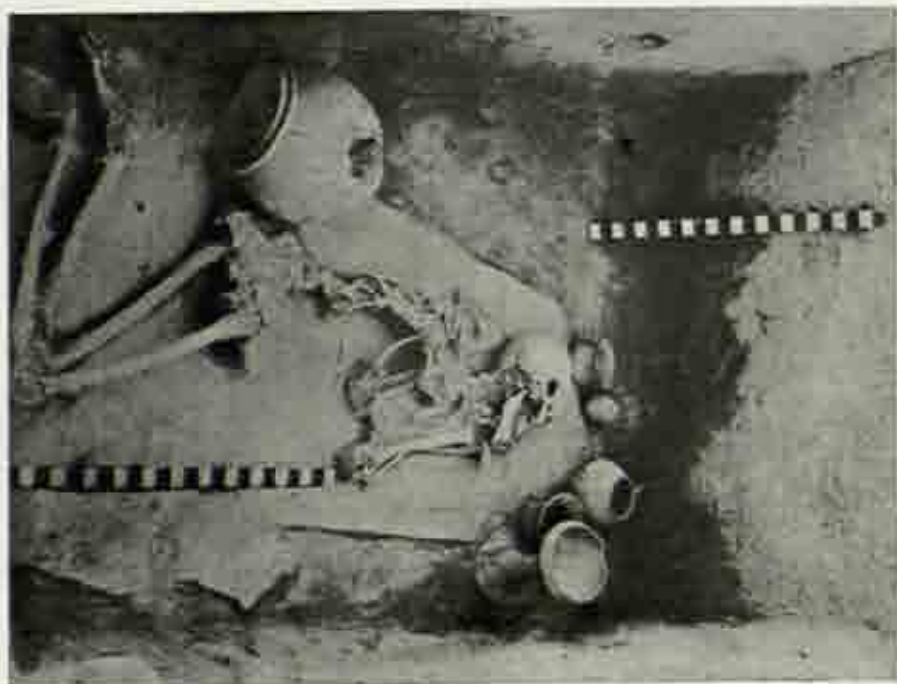
a. Thana. Grave No. 1. Child's skull and a few bones with two vessels on a slab.



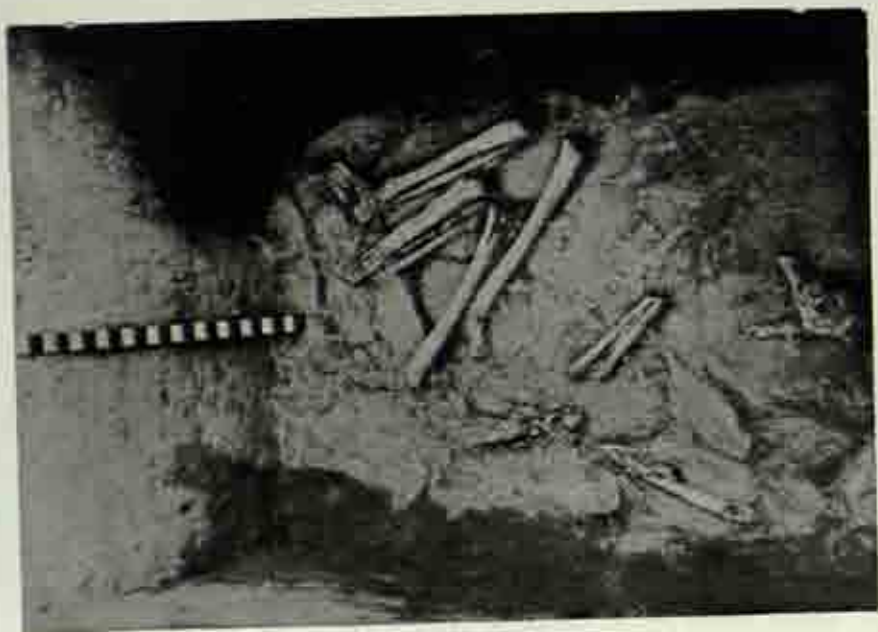
b. Thana. Grave No. 2. Complete inflexed burial.



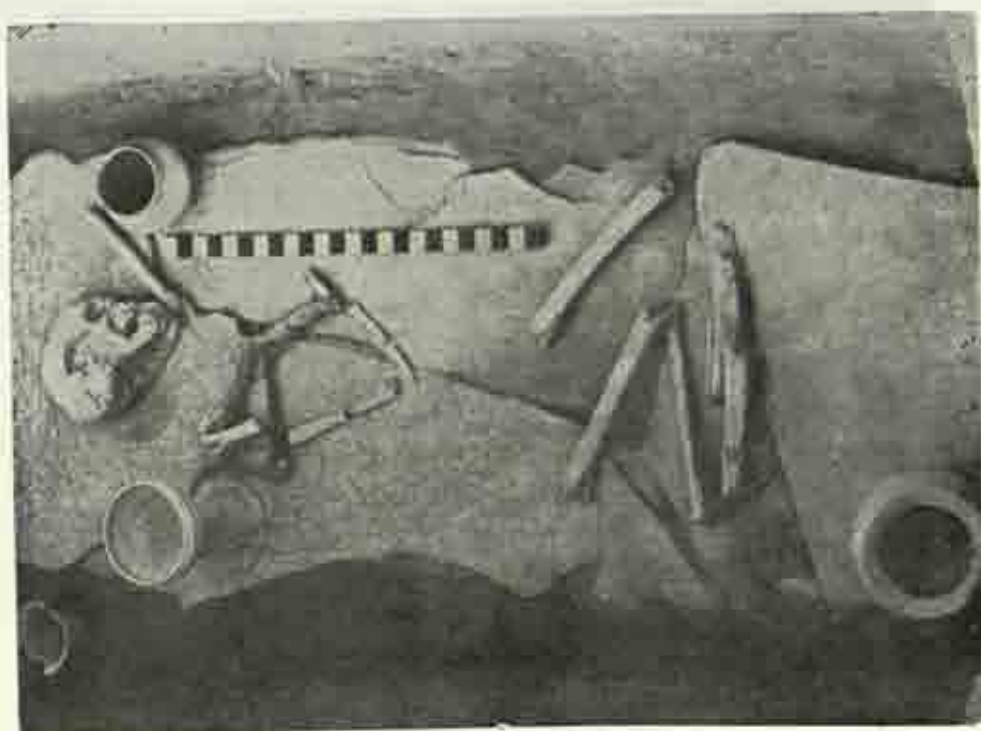
a. Thana, Grave No. 3. Complete inflexed burial but note the big urn on the right.



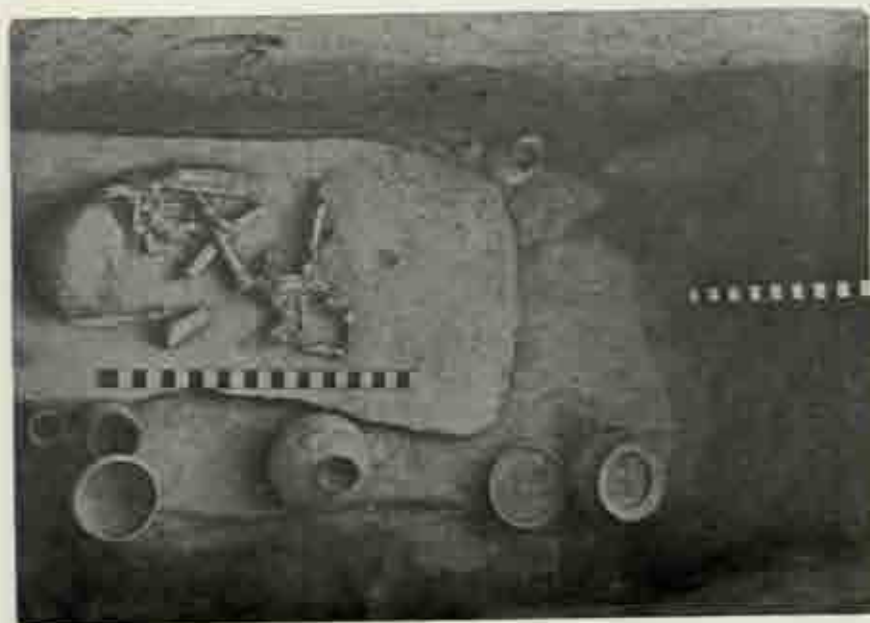
b. Thana, Grave No. 5. Complete inflexed burial with funerary vessels.



a. Thana. Grave No. 6, Fractional burial on gritty floor



b. Thana. Grave No. 7, Fragmentary bones on a slab with four vessels.



a. Thana. Grave No. 8. Skull and other bones on a slab with funerary vessels on a lower slab.



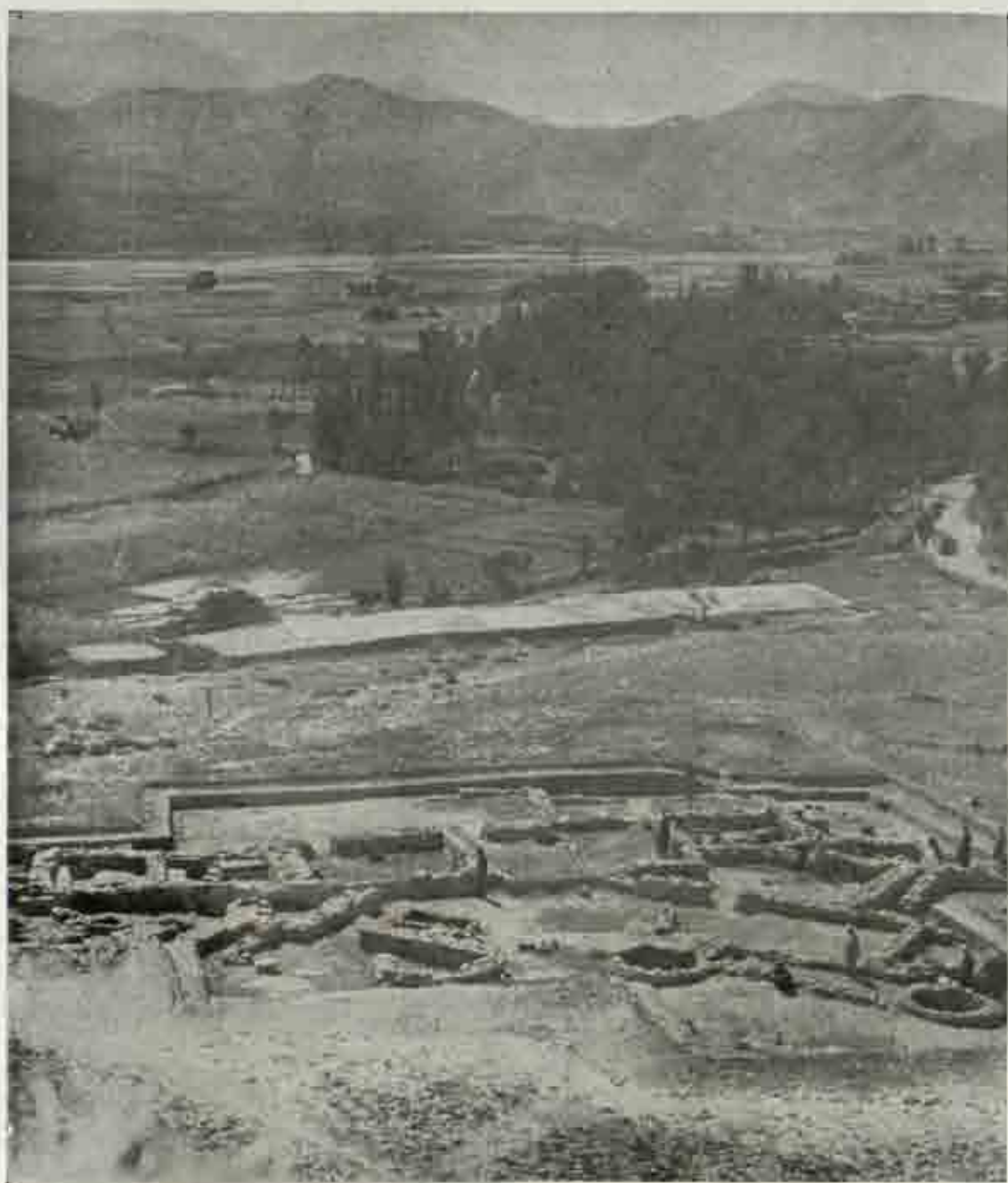
b. Thana. Grave No. 9. Complete inflexed burial.



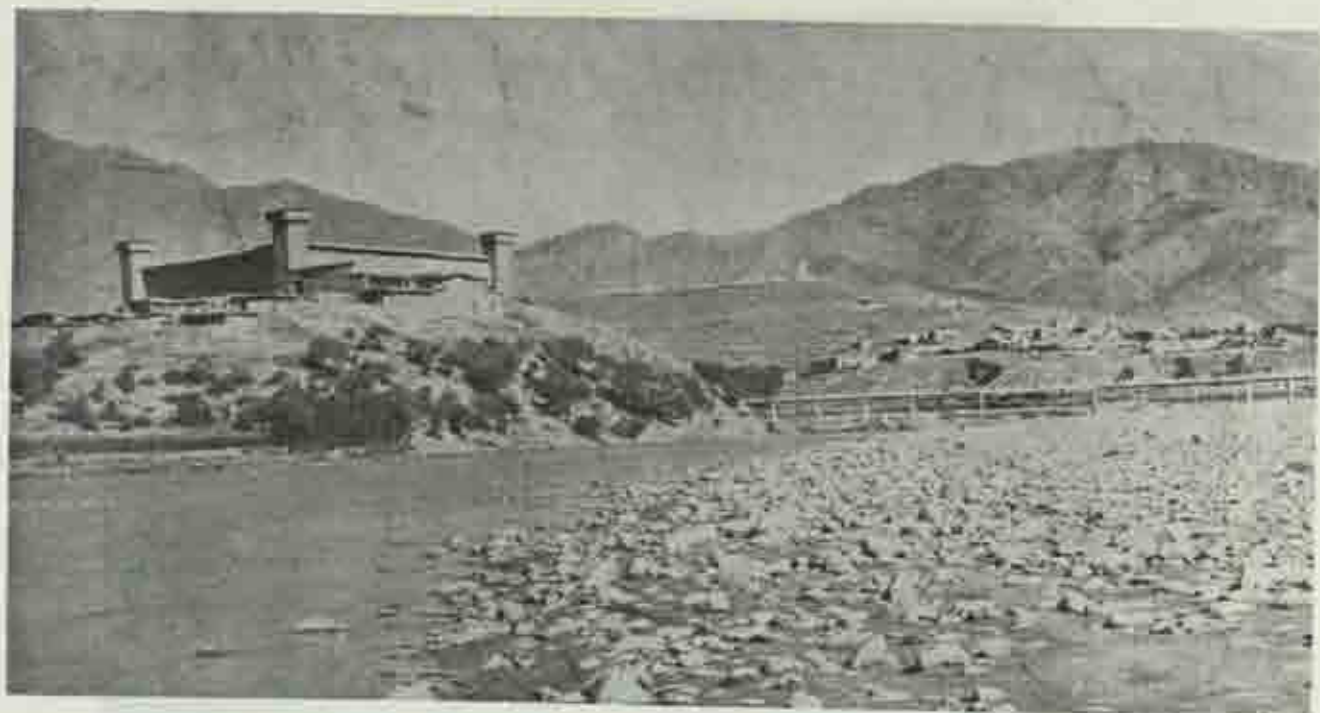
a. Thana. Grave No. 10. Partly preserved bones on a schist slab with one vessel.



b. Thana. Grave No. 11. Narrow-necked vase-like urn with ash in a pit.



Balambat. General view. Excavated remains in the foreground.



a. Balambar fort and bridge, modern colony behind.



b. Balambar. Excavated remains. Front row: Grave settlement. Second row: Achaemenian settlement.



a. Balambat. General view, western half, facing room No. 3.



b. Balambat. General view, eastern half, facing room No. 3.



c. Balambat. General view, looking east of room No. 2.



a. Balambat. Oven in trench BO.



b. Balambat. Oven in room No. 10.



c. Balambat. Room No. 3. Oven, jar lids, fire place and medicinal grinding stone.



a. Balambbat. Jar in room No. 4.



b. Balambbat. Remains of the fire altar in room No. 4.



c. Balambbat. Jar in room No. 3.



a. Balambat. Room No. 2. Ritual seat for fire worship.



b. Balambat. Room No. 9. Fire altar with side alleys.



a. Balambat. Section across circular pit in trench E 1.



b. Balambat. Circular pit in trench D 2.



a. Balambat. Grave under the walls in trench D 2.



b. Balambat. Grave cut by the later walls in trench C 1.



c. Balambat. Another grave in trench C 1.



a. Balambat. Pottery group on the floor in the corner of the walls in trench CO.



b. Balambat. Grave pots in trench C 1.



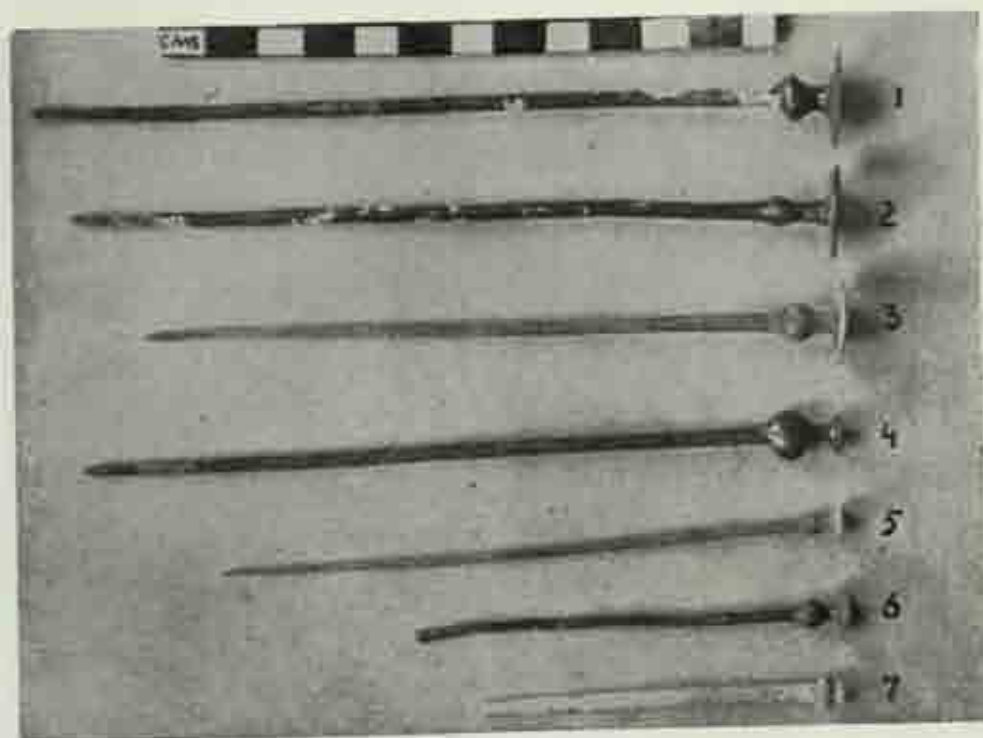
a. Balambat. Painted vase of the Achaemenian period.



b. Balambat. Achaemenian jar with its lower half rough.



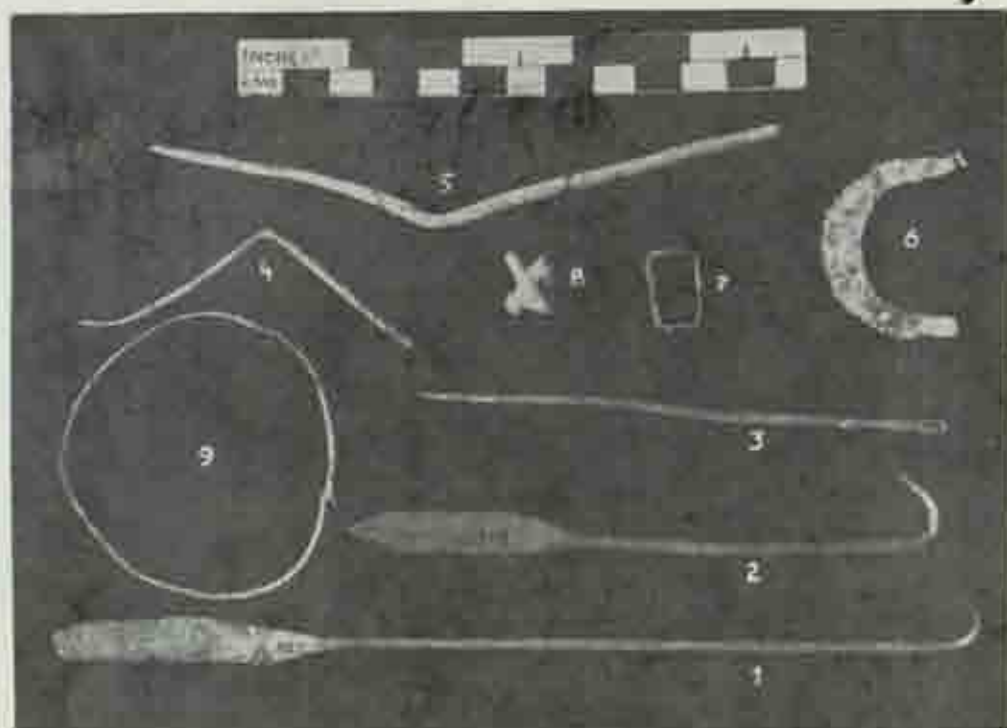
c. Balambat. Pointed bottom storage jar, Achaemenian period.



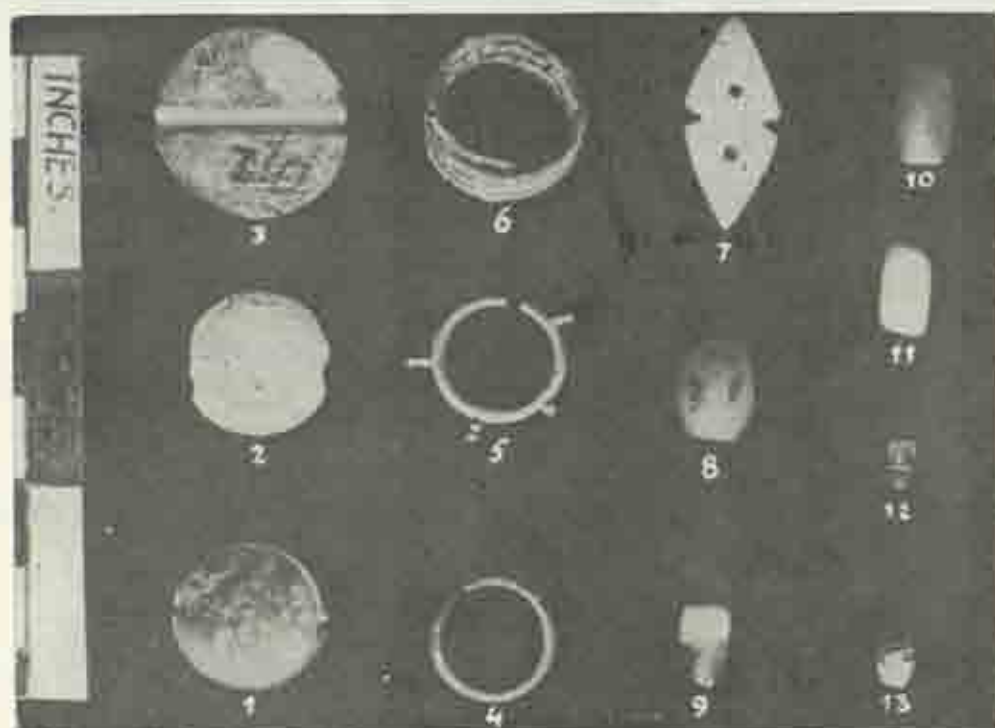
a. Type a: Nos. 1—6 copper; No. 7 ivory



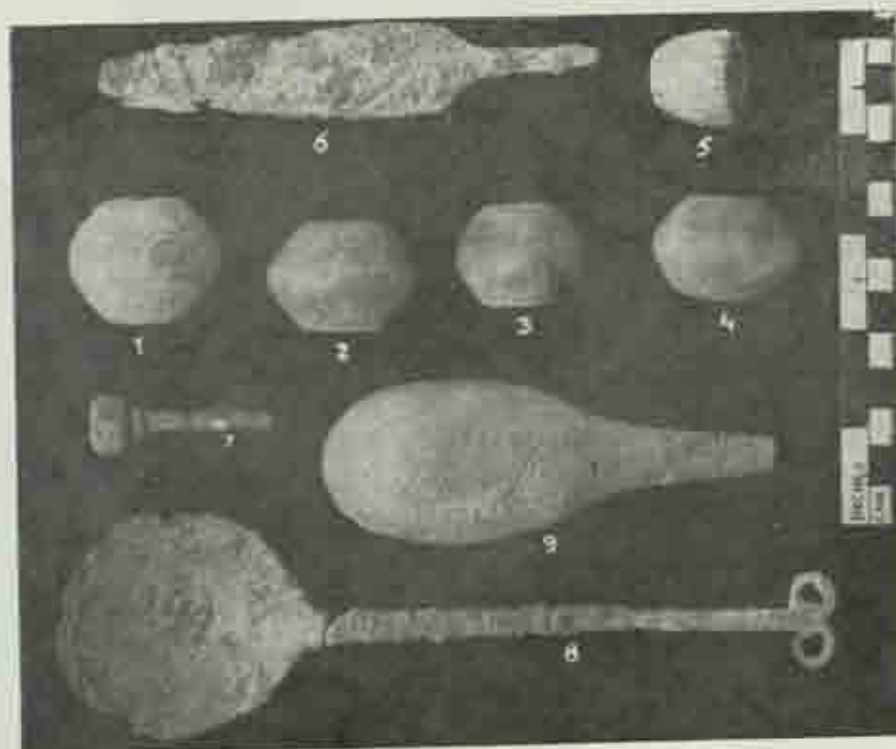
b. Nos. 8—10 type b; No. 11 type c, Nos. 12, 13
type d; No. 14 type e; No. 15 type f.
Nos. 9—14, copper; Nos. 8 & 15 ivory.



a. Nos. 1, 2 toilet objects; Nos. 3, 4 needles; No. 5 antimony rod; No. 6 pendant; Nos. 7, 8 unidentified copper objects; No. 9 bangle.



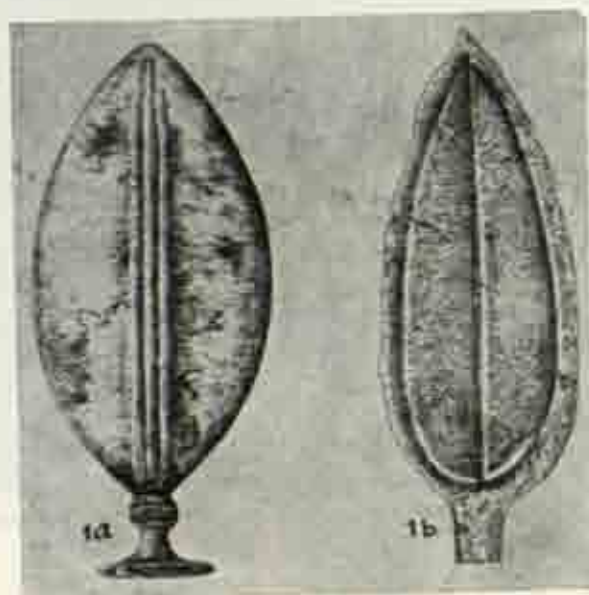
b. Nos. 1—3 composite beads; Nos. 4, 5 ear rings; No. 6 spiral finger ring; No. 7 bone pendant; Nos. 8—13 stone beads.



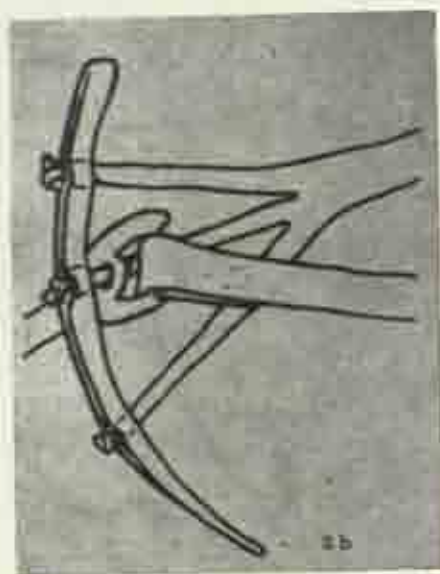
a. Nos. 1—4 terracotta net sinkers; No. 5 Schist net sinkers; No. 6 iron spear head; No. 7 iron nail; No. 8 iron spoon; No. 9 terracotta antimony phial



b 2a. Iron cheek piece, Grave 142



b 1a. Leaf-shaped object from Leobanr. (Museum Mingora, Swat). b 1b. Copper blade from Sukuluk hoard, Kirgisia (after Kuzmina 1966).



b 2b. Method of connecting a three-hole cheek piece to the bridle straps.

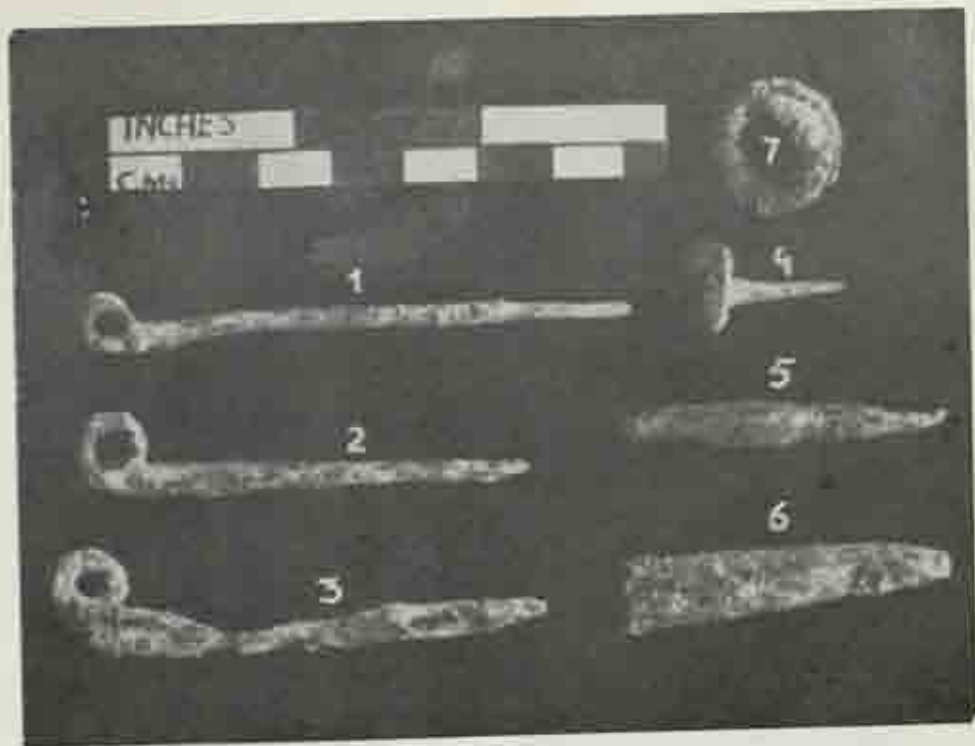


a. Terracotta human figurine, Grave 183, front view

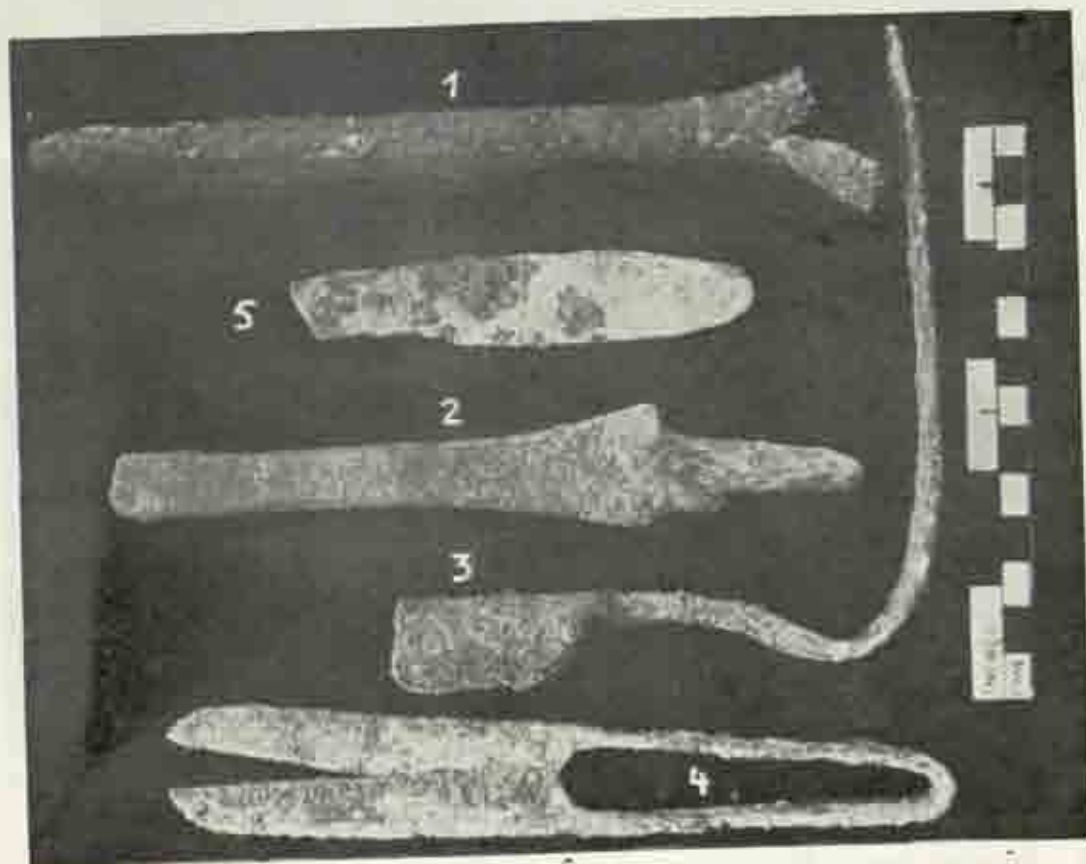


b. Terracotta human figurine, Grave 183, back view

Pl: LI. Timargarha



a. Nos. 1—3 loop headed pins; No. 4 nail; No. 5 arrowhead;
No. 6 tip of walking staff; No. 7 finger ring



b. No. 1 fire blower; No. 2 chisel; No. 3 gardening implement;
No. 4 sheep-shearer; No. 5 knife blade.



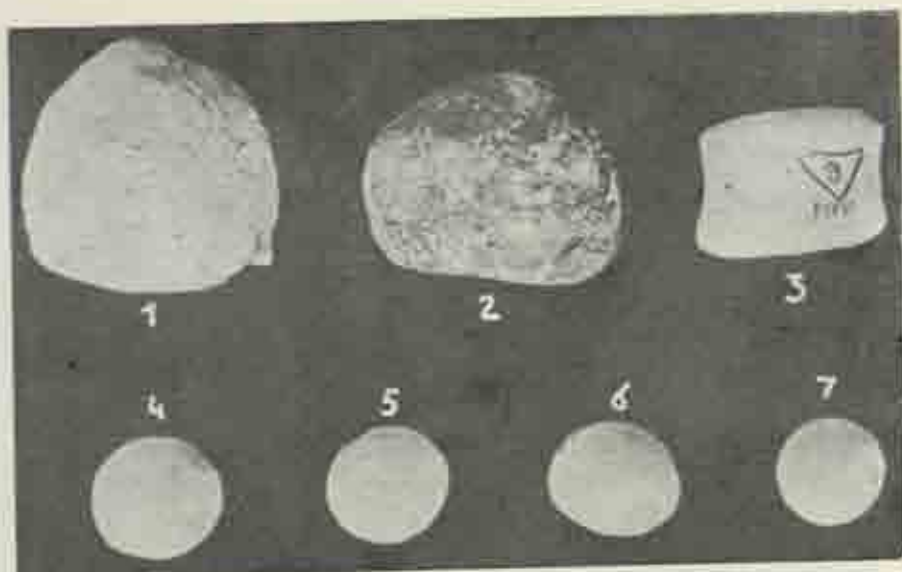
a. Terracotta objects: Nos. 1-4 animal figurines; Nos. 5, 6 human figurines



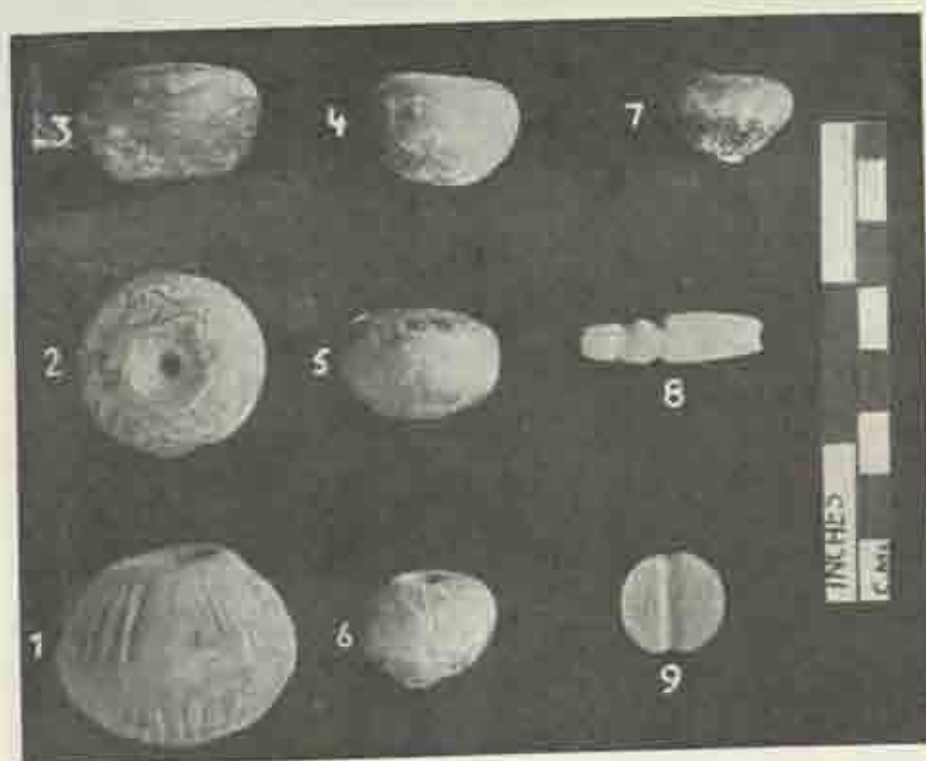
b. Terracotta human figurine, front view



c. Terracotta human figurine, back view



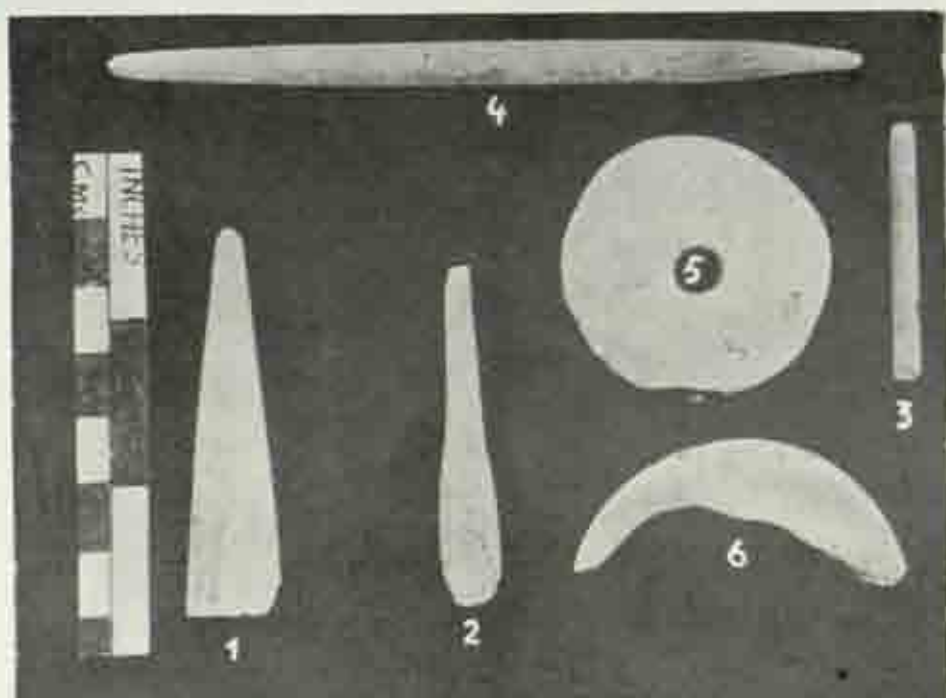
a. Terracotta objects: Nos. 1—3 weights; Nos. 4—7 sling balls



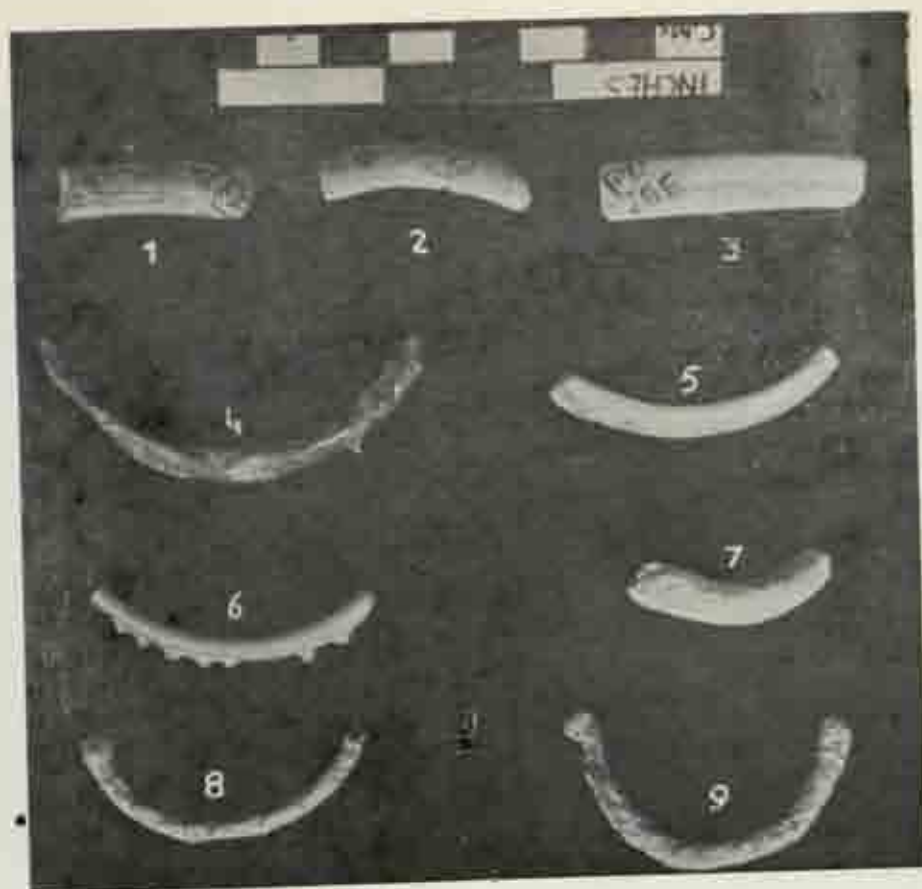
b. Nos. 1—7 terracotta beads; No. 8 stylised human figurine;
No. 9 half portion of composite bead (stone).



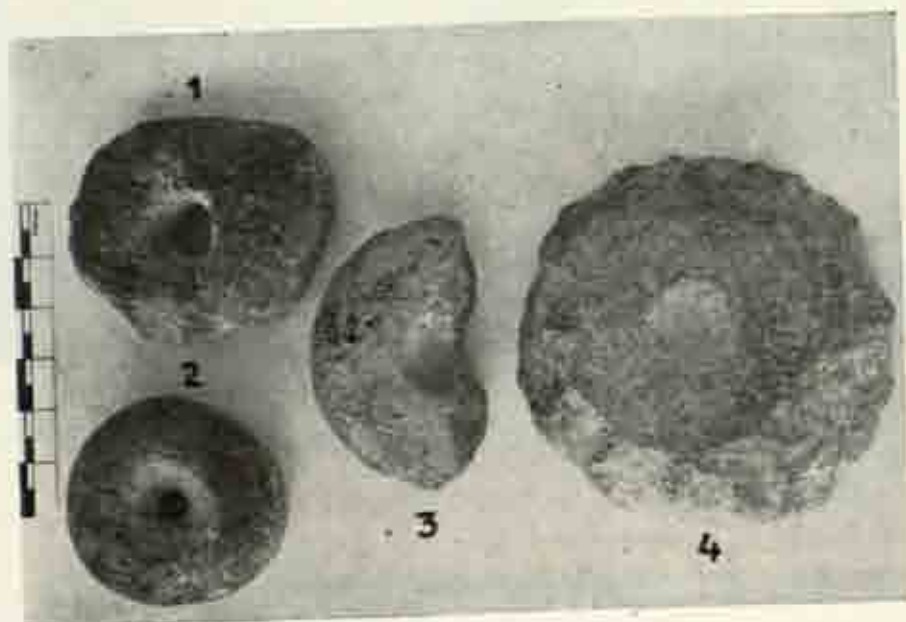
a. 1—4 biconical terracotta beads; Nos. 5—7 terracotta whorls;
No. 4a front legs of terracotta animal figurine



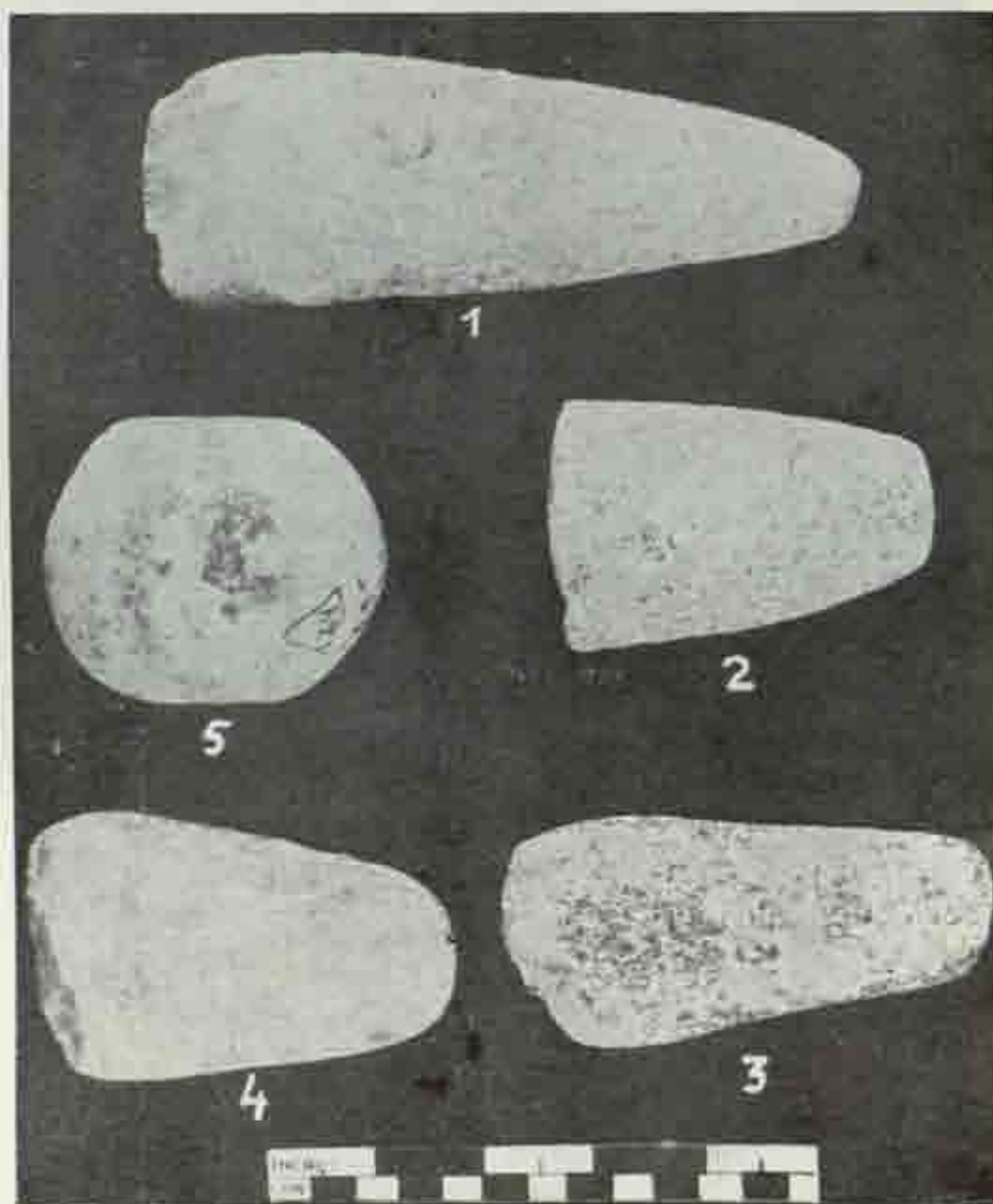
b. Ivory and shell objects; Nos. 1—4 ivory; Nos. 5, 6 shell



a. Bangles: Nos. 1—7 glass; Nos. 8, 9 iron



b. Stone objects: Nos. 1, 2 perforated ring stones; Nos. 3, 4 unfinished mace-heads.



Stone objects: Nos. 1—4 pointed-butt ground axes; No. 5 pounder

was made up of three courses of dry stone masonry, was full of loose earth and was 1' 9" deep. On the floor was a well-preserved skeleton (Pl. VI a), oriented north-west to south-east, lying on his side with the face turned to north. A little baby skull was found below the hip bone. If this baby belonged to the dead, the skeleton may refer to a female, who probably died in an advanced stage of pregnancy. Inside the chamber were two terracotta beads or net sinkers and two funerary vessels—a hand-made cooking pot (Reg. No. 23) and a tall drinking vase (Reg. No. 25) (See Fig. 21).

Grave No. 1, trench CO: In this trench two graves were excavated. No. 1 lay partly under the western baulk and extended in the two neighbouring trenches (See Fig. 2). In this trench the ground surface was sloping towards the north. Here the first two layers, which were of similar make-up as in the earlier trenches (See Fig. 7), were rather thin, and we reached the stone blocks of the upper pit hardly one foot from the mean level of the ground surface. The upper stones do not make a proper circle or oval. Probably owing to later disturbance the actual alignment of stones could not be maintained. The rough circle has an internal measurement of $7\frac{1}{2}$ feet in diameter. Below these stones the rammed earth filled the upper pit to a depth of $5\frac{1}{2}$ feet. Underneath lay the sealing stones which covered the actual grave chamber, which was surprisingly built of only two courses of dry stone masonry. The chamber, rectangular in shape, measured 5' 11" by 3' 5" and was 1' 10" deep. On the floor lay two skeletons, both oriented north-west to south-east. But while one skeleton was completely preserved with the bones disposed of in the usual fashion and the only disturbance noticeable was at the skull (Pl. VI b), which was pushed slightly backward, the bones of the other skeleton were jumbled up in between the thigh-bones and arm-bones of the former individual. The way in which the jumbled-up bones were collected and placed neatly, suggests that this individual died much later in date. When we remember the disturbance caused in the upper stones, it is fair to conclude that the two burials were not contemporary. Quite in keeping with the two separate burials, the number of funerary vessels was larger in this grave. Six of them were found here—A bowl-on-stand (Reg. No. 15) and a hand-made cooking-pot (Reg. No. 16) were placed behind the main skeleton, while three tall drinking vases (Reg. Nos. 11, 13 and 14) and a medium-sized drinking goblet (No. 12) were found beyond the leg bones. (See Fig. 22). A bone awl was also found in the grave. One of the skull is described by Dr. Bernhard (See No. 03 in his report part VII).

Grave no. 2, trench CO: This grave was found in the eastern half of the

trench (Fig. 2). When the upper two layers in the trench were removed, the stone blocks of the upper pit were visible. These stones, which made a rough oval measuring 10 feet by 7½ feet, did not lie on a flat filled surface but were rather placed in a sloping ground (Fig. 8). The difference between the northern and southern ends was nearly one foot. There were also many gaps in the circle stones, obviously caused by later disturbance. Underneath the stones was the rammed earth of the upper pit, mean depth of which was 4 feet 6 inches to the top of the sealing stones. But six inches higher than the sealing stones, and partly covering them, was a mud-platform running the whole length of the northern side. On this platform was a broken skull of a child along with two funerary vessels—an open mouthed drinking cup (Reg. No. 19) and another grey pedestalled challice (Reg. No. 18) (See Fig. 23.) There were also pieces of copper and a silver ring, and beads of semi-precious stones. Obviously this child burial was of a later date. Henceforward this will be called grave No. 2-a.

When the mud-platform was slightly sliced off, the whole of the sealing stones were found to lie in the southern half of the upper pit—an unusual feature, as in the earlier examples they occupied the middle part. The grave chamber was made up of two courses of dry stone masonry and measured 5 feet by 3 feet 9 inches and was 1' 11" deep. On the floor was a disturbed skeleton (Pl. VII, a), the bones being jumbled up obviously by the people of the second burial. Three funerary vessels (Reg. Nos. 37, 38 and 40) were found round the skeleton, as can be seen in the photograph. Do they belong to the original burial? Five more funerary vessels (Reg. Nos. 36, 39, 41, 42 and 43) lay on one side, as if not connected with the original burial. In the grave were also two copper pins and a bone antimony rod. For the description of the skull see No. 06 in Dr. Bernhard's report in part VII.

The two burials, one on the top of the other, clearly afford the stratigraphic evidence for the two periods.

Type B: Fractional Burial

Grave no. 1, trench LO: As said earlier, this trench lay south of the pit (Fig. 2) and this particular grave lay in its northern half. A part of its section was visible in the pit. In all three graves were excavated in this trench. In this particular grave when the ploughed soil of layer (1), mean depth 6 inches, was dug out, we came to layer (2) but no enclosing circle stones were traced in this layer (Fig. 9). In this layer, about 2' 10" below the present ground level, we came directly to the sealing stones, which covered a rectangular grave chamber full of loose soil of the above layer. There was

no trace of the upper pit. This absence of the upper pit accounts for the comparatively higher level of the grave chamber. However, the working floor of the grave proper must be the top of layer (2), and hence the grave belongs to layer (2). The system of reaching directly the sealing stones is very well established in the later graves seen in the south-eastern area, excavated in 1965 (see below). The grave chamber, which was built of five courses of dry stone masonry, measured 5' 6" by 3' 7" and was 1' 5" deep. On the floor lay two skeletons (Pl. VII. b), oriented north-west to south-east, face to face as if in an embracing mood, with their legs flexed, one on the top of the other. By their side were found a skull and some bones of a child, kept in a jumbled fashion. Of the first two individuals one was a female (See skull No. 02 of Dr. Bernhard's report in part VII). The bones in all these examples were not wholly preserved. There were three funerary vessels in the grave—a bowl-on-stand (reg. no. 26), a tall drinking vase (reg. no. 27) and a hand-made cooking pot (reg. no. 28) See Fig. 23.

This strange fashion of double burial or rather multiple burial is unusual and not known in the earlier graves. Other differences are—(i) the enclosing circle stones are missing, (ii) the upper pit is also missing, and (iii) the depth of the grave is comparatively less. On these grounds this grave should not belong to the same period as those of the northern area. In fact they bear close similarity to one type of graves excavated in 1965 season (See below).

Grave no. 2, trench LO: This grave lay near the western baulk of the trench (Fig. 2). It has a great stratigraphic resemblance to the earlier grave of this trench (Fig. 10). Immediately below the ploughed soil of layer (1), we reached layer (2) but no upper circle stones were traced nor was there any indication of the upper pit. In the same layer (2) were the sealing stones, 3 feet below the present ground-level. The grave chamber, rectangular in shape, was rather small in size, measuring 3' 5" by 2' and was 1' 6" deep. Strangely enough there was no stone masonry at the chamber. On the floor lay partly decomposed bones of a child, oriented north-west to south-east, on its right side, facing south and legs flexed (Pl. VIII a). In the grave there was only one funerary vessel—a crude example of a narrow-necked bottle (reg. no. 29).

Grave no. 3, trench LO: This grave lay in the southern half of the trench (Fig. 2). Here again the method of grave excavation was the same as is seen in the earlier two graves of this trench. Below the ploughed soil of layer (1) we removed layer (2) but no upper circle stones were encounter-

ed nor was there any trace of the upper pit (Fig. 11). Two feet six inches below the present ground level in the same layer (2) we reached directly the sealing stones, which covered the grave chamber, full of loose soil. The chamber, rectangular in shape, was built of five courses of dry stone masonry and measured 4' by 2' 5" and was 1' 5" deep. On the floor lay an almost complete skeleton (Pl. VIII b) in a very disintegrated condition, oriented north-west to south-east, lying on his right side, facing north and legs flexed while the hands are pulled up towards the face with the palm of one hand resting on a drinking cup. Inside the grave was a copper piece near the head, and five funerary vessels, four of which are illustrated (Fig. 23.)— a hand-made cooking pot (reg. no. 31), a tall drinking vase (reg. no. 30), and two open-mouthed drinking cups (reg. nos. 32 & 33). For the description of the skull see no. 05 of Dr. Bernhard's report in part VII.

SECTION — 3

GRAVES OF 1965 SEASON*

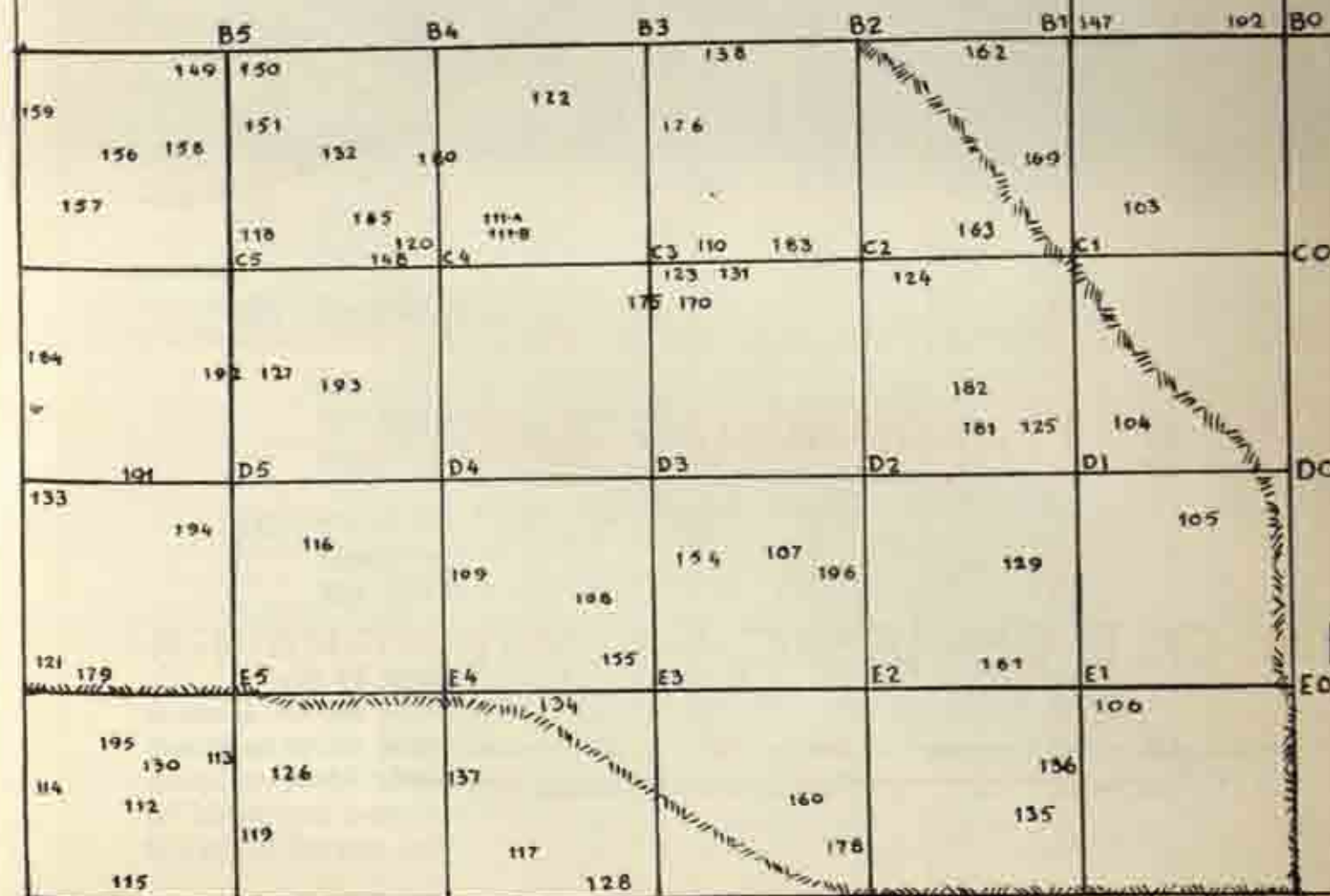
By ABDUR RAHMAN

Large-scale excavation was undertaken in this season. As a result a number of graves were brought out. Three distinct ritual practices were noted in the graves—(1) complete burial, (2) cremation, and (3) fractional burial. All these three types of burials are seen in the same cemetery. In fact the graves are so near one another that it is sometimes difficult to demarcate the limits of the one from those of another. Invariably the later comers dig out older graves in order to find rooms for their own. As a result in many cases we found mixed burials. Such graves have been described under separate sub-class as they afford clear evidence for assessing the chronological difference in the two types of burials. Again we have a large number of children's graves, which, on account of their construction, make a different grouping. Accordingly in the description given below the following classification is observed.

- (1) *Complete burial.*
Grave no. 103.

*In 1965 season graves numbering 101 to 106 were excavated by Mr. F.A. Durrani, whose report on them is incorporated here. The whole text, as submitted by the excavators, has been revised and the graves reclassified by the editor.

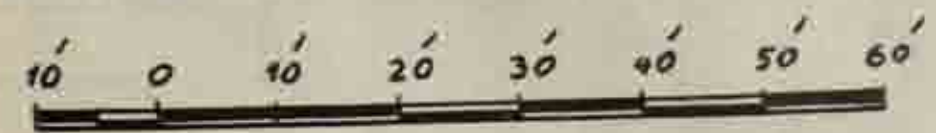
Fig. 12



P I T

TIMARGARHA 1965
SITE NO.1

LAY OUT OF TRENCHES WITH GRAVES



DRAWN BY
M. D. AUD KAMAL
8-11-67

54. 12

(2) *Cremation.*

- (A) *Mixed burials* (earlier burnt and later fractional).
Graves nos. 113, 114, 117, 138, 149, and 194, (see also grave no. 111b below).
- (B) *Cremated bones* (multiple burials in urns).
Graves nos. 122 and 119 (disturbed).
- (C) *Children's graves.*
 - (i) Those containing burnt bones.
Graves nos. 112, 118, 120, 121, 150, 158, 179, 184 & 193.
 - (ii) Those having only ashes.
Graves nos. 116a, 116b, 126, 127, 128, 130, 131, 143, 170, 175, and 195.

(3) *Fractional Burials.*

- (A) *Mixed burials* (earlier complete and later fractional).
Graves nos. 101, 104, 142, 162, and 197.
- (B) *Fractional burials of adults.*
Graves nos. 109, 110, 111a, 111b, 123, 124, 125, 129, 134, 137, 139, 144, 148, 151, 157, 160, 165, 173a, 173b, 176, 177, 180, 182, 183, 185, 186, 190, 191, and 192.
- (C) *Children's graves.*
Graves nos. 102, 105, 107, 108, 132, 133, 140, 146, 153, 154, 155, 156, 159, 167, 188, 189, 196, 198 and 199.

It may be noted that the mixed burials do not include graves of multiple burials having the same rituals. Such multiple burial graves are described under their own ritual class. The mixed burials show either a complete burial along with a later fractional burial or urns having cremated bones and later fractional burials. It is always the people practising fractional burials, who re-open the graves of the earlier people.

(1) COMPLETE BURIAL

Grave no. 103: (Pl. IX, a) Only one undisturbed complete burial was found in this season. It was located in the southern half of trench BO (Fig. 12), where the ground was abruptly sloping. The villagers had built a rough terrace just above this line with stones robbed from the old graves. As a result it was not possible to recover the upper circle stones nor could we trace the upper pit. At a depth of 2' 8" below the present ground level the sealing stones were directly reached, which covered the grave chamber, rectangular in shape and built of three courses of dry stone masonry. The chamber measured 4' 1" by 2' 6" and was 1' 10" deep. Inside the grave was a complete burial of an individual, oriented north-west to south-east, lying on his side and legs flexed. Three funerary vessels were found in the grave — a hand-made cooking pot, a bowl-on-stand (variety ii), sub-variety (d) and a carinated tall drinking vase in grey ware (variety iii), sub-variety (d). (See below section on pottery).

(2) CREMATION

(A) *Mixed Burials. Earlier burnt and later fractional.*

Grave No. 113 (Pl. IX, b). The grave was located along the eastern baulk of trench E5 (Fig. 12). It was sealed by the darkish alluvial soil, layer (1), but the layer dipped down into the grave suggesting some relation of this layer with the grave. The stone-lined circle, which could be traced only half the way, was only 4 inches below the present surface. Underneath these stones was a filling of brownish pebbly earth, seven feet deep right upto the top of the sealing stones, which covered the grave chamber, rectangular in shape and measuring 4' 10" by 3' 10". It was 2' 1" deep and was built of regular courses of dry stone masonry with the crevices filled in with pebbles. The floor was made up of beaten earth mixed up with grits. The chamber, which was filled with loose brownish earth, extended from north-west to south-east. Inside the chamber the bone materials were mixed. There appears to have been two separate burials in the grave. Some unburnt bones of an individual lay on one side, probably belonging to a fractional burial. But the grave belonged properly to a burial of a burnt skeleton, the bones of which lay along the southern wall. No priority could be established in this grave. There were twelve funerary vessels in the grave, all lying in the south-eastern half with the exception of one drinking vase which was found alone in the western corner.

Grave No. 114 (Pl. X-a). This grave was located along the western baulk of trench E5. It was also sealed by the darkish gritty material of layer (1) but again this soil dipped into the grave, making it partly coeval with it. The grave was indicated by a rough rectangle of jumbled stones hardly 14" below the present ground level. Under these stones was a brownish earth filling to a depth of 3 feet 6 inches right up to the top of the sealing stones which were dumped over the burial chamber—a sure indication of later disturbance. These sealing stones did not lie directly on the burial chamber but were placed hubble-bubble over a compact earth filling inside the chamber. Owing to this careless filling the pots within were much damaged. The chamber, which extended from north-west to south-east, measured 4' 2" by 3' 2". It was 2' 9" deep and was built of irregular courses of dry stone masonry. Inside the chamber there were two different burials: on the top lay a fragmentary skeleton with face towards north and legs flexed. Lower down were the remains of a burnt skeleton. Some burnt bones were also in a pot, but strangely enough the visage urn had no bones. Could it be that the burnt bones had fallen from this big urn? Whatever it is, it is certain that here we have a case of the subsequent use of an earlier grave, meant originally for burnt bones but later another skeleton was inserted probably after exposure. Besides the visage urn that stood in the northern corner, there were 16 other pots on the eastern side. Other materials included two hair pins—one of ivory, and another of copper sticking to the skull.

Grave No. 117 (Pl. X b): Disturbed and confused.

The grave was located in trench E3 (Fig. 12) and is sealed by the darkish soil of layer (1). Below this layer was the stone-lined circle, at the head of which, on the western side, was a round stone, 1' 10" in length. Below these stones was the upper pit, 4 feet deep and full of reddish brown earth mixed with small pebbles. The sealing stones consisted of huge slabs while the grave chamber was built with dry stone masonry. It measured 4' 3" by 3' 2" and was 2' deep. Inside the grave were a few scattered bones, obviously belonging to fragmentary burial. But along with them were 6 funerary vessels, one of which was a visage urn, nicely separated from the remaining urns and kept in a corner. The urn was crushed and no burnt bones were recovered. It seems that originally the grave was used for urn burial but later disturbance confused the whole material.

Grave No. 138: Disturbed and confused.

The grave was located along the northern baulk of trench B2 (Fig.

12) hardly 1 foot 4 inches below the present ground level and was sealed by the darkish alluvial soil of layer (1). The upper stone-lined circle along with the upper pit could not be traced here. We reached directly the sealing stones, suggesting some disturbance in the later period. The actual grave chamber which measured 4' 3" by 1' 10", was 1' 5" deep and was oriented north-west to south-east. It was full of brownish loose earth to its total depth and was built up of dry stone masonry. Inside the grave chamber two different burials were found. In the western part of the chamber burnt bones were found in a disturbed condition while in the eastern part lay a partly preserved skeleton with its skull missing. This latter was disposed of in the usual fashion with legs flexed. The disturbance, caused by the later burial, created a confused situation. But there is no doubt that the grave shows the same pattern as described in the earlier examples. Inside the grave four funerary vessels were found, one of them being a handled cup placed in a flattish bowl.

Grave No. 149 (Pl. X c) Confused burial. Iron in the grave.

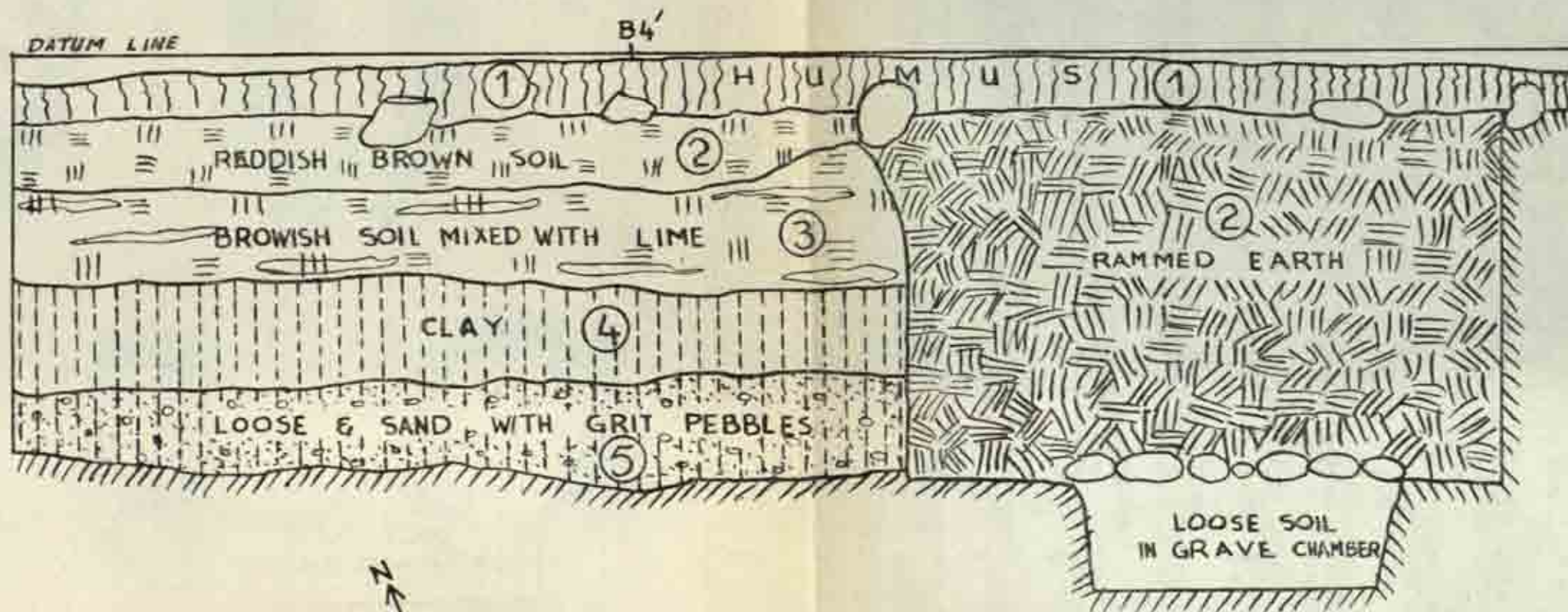
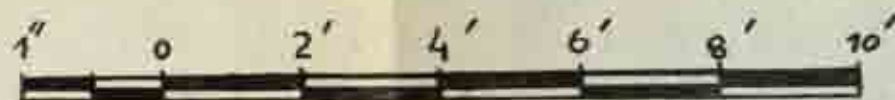
The grave was located in trench B5, hardly 4" below the present ground level. The upper pit, which measured 8' by 1' 8" was filled with stones to a depth of 18 inches. The sealing consisted of stone slabs which entirely covered the grave chamber, rectangular in shape. The chamber, was built of dry stone masonry was properly sealed and hence was free from earth filling. It was hollow. This hollowness of the grave chamber suggests that originally it was left vacant. When we find loose earth in some of the graves, that must have gone in through the crevices subsequently. The grave measured 5' 8" by 3' and was 3' deep. The floor was made of beaten earth mixed with small pebbles. Fragmentary remains of two individuals along with animal bones were scattered in the grave. All the bones were concentrated in the eastern half of the grave. In a pot were found burnt bones of a third individual. It was a rich grave. In all 26 funerary vessels were found. Inside one pot an iron spoon was found. Such a rich grave is unusual. The very fact that an urn burial is mixed up with the fractional burial suggests that this was a case of mixed burial but the evidence is so confused that no correct conclusion can be arrived at. Again iron has not been found in any cremated grave but it is well known from the graves of the fractional burials (See below).

Grave No. 194 (Fig. 15).

This grave was located in the north eastern corner of trench D5 (Fig.

SECTION ACROSS GRAVE No. 122

SCALE: 1" = 2'-0"



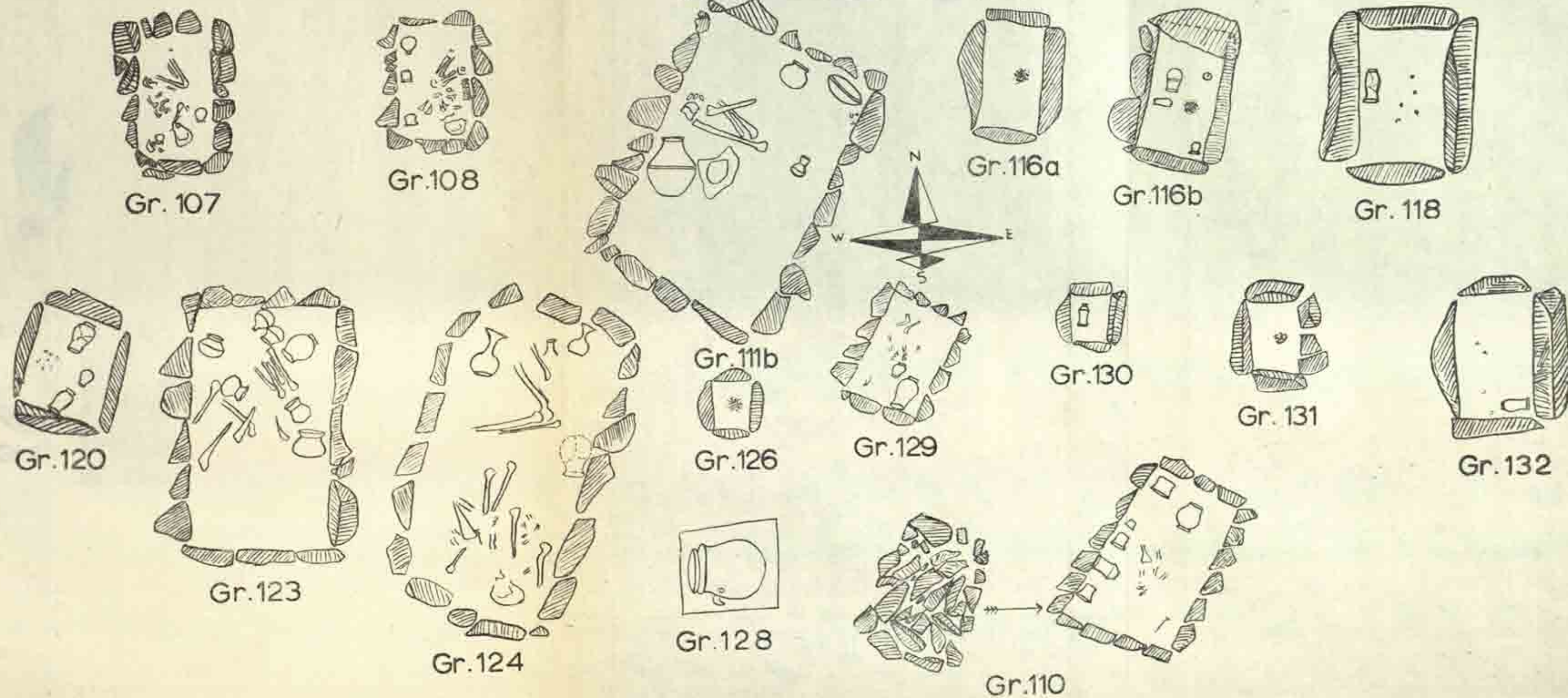
DRAWN BY

M. DAUD KAMAL

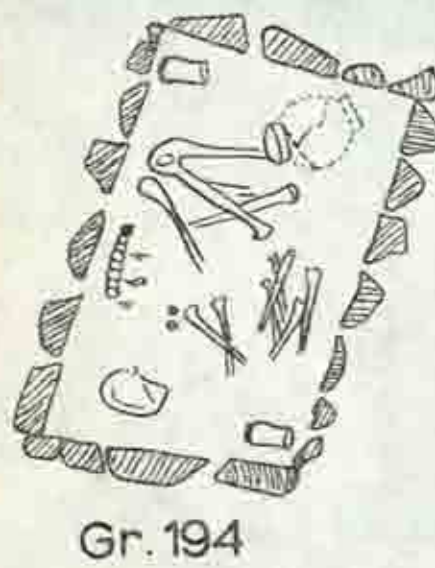
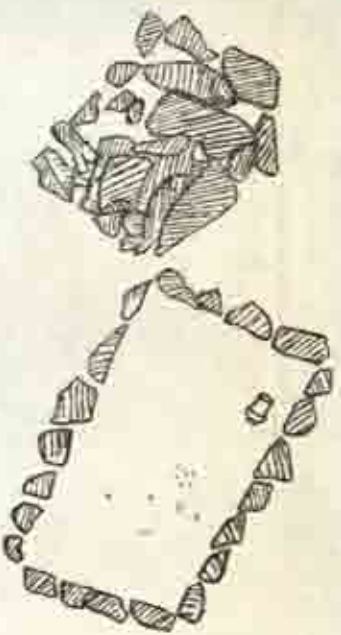
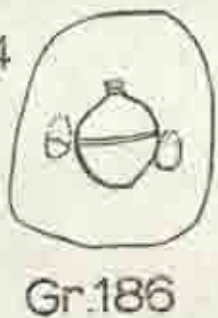
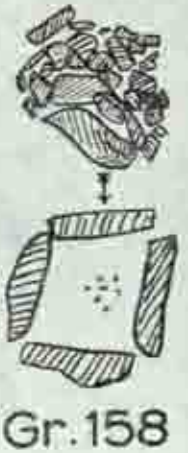
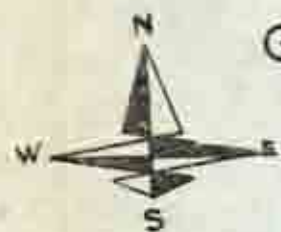
8-11-1967

T M G SITE NO.1 1965
PLANS OF GRAVE CHAMBERS WITH CONTENTS

1' 2' 3' 4' 5' 6'



TMG SITE NO. 1 1965
PLANS OF GRAVE CHAMBERS WITH CONTENTS



12). It was partly coeval with the first stratum and also sealed by it. The grave was indicated by big blocks of stones jumbled in a rough rectangle, which overlay reddish brown earth mixed with gravels. Below the top stones, which consisted of rough blocks and rested directly over the burial chamber, 3' deep and full of loose reddish brown earth. The chamber, which extended from north-west to south-east, measured 4' 7" by 3' 4". Inside the chamber lay the remains of a skeleton (not complete) with the skull facing south and legs flexed. Underneath this fractional burial lay a second burial, bones of which were burnt, thus providing a definite evidence of two separate burials—earlier one of burnt bones and later one of fractional skeleton. Inside the chamber were found three funerary vessels, two terracotta beads and one copper finger ring.

(B) *Burial of Cremated Bones.*

Grave No. 122 (Pl. XI A): Multiple burial in urns.

The grave was located in a slope in trench B3 (Fig. 12). As a result the stones of the upper circle had been exposed and partly displaced. It was sealed by the darkish earth of layer (1) containing potsherds, obviously exposed by rain water. Underneath these circle stones was the reddish brown soil marked layer (2). This layer was 3 feet deep and rested directly on the sealing stones, which covered the burial chamber. (See Section for stratification). The chamber, which extended from north-west to south-east, measured 5' 6" by 4'. It was 2½ feet deep and made up of regular courses of dry stone masonry. This was a very rich grave, yielding 24 funerary pots, one broken copper pin, one copper anti-mony rod, one gold ring, one bead of semi-precious stone, and one copper hooked rod with a blade at one end. Burnt bones were found in two urns—(i) a visage urn, which also produced a carnelian bead, a gold ring and pin; and (ii) a second visage urn containing bones. The bones belonged to several individuals.

Great importance should be attached to this grave as the grave goods were undisturbed after burial.

Grave No. 119 (Pl. XI B.): Multiple burial.

It was located along the western baulk of trench E4 (Fig. 12). In this trench the surface of the ground gently sloped towards the north. Hardly 8 inches below the present surface were traced the lime-stone blocks

which lined a circle. Underneath these blocks of stones was the upper pit measuring 8' 10" by 8'. This pit narrowed down to the top of the sealing stones and was full of reddish gritty earth with a few potsherds here and there. The sealing consisted of a dump of stones thrown haphazardly, which covered the grave chamber, 6 feet 8 inches below the present surface. The rectangular grave chamber measured 4' 10" by 3' and was 2 feet deep. It was made up of dry stone masonry. Inside the chamber was loose darkish soil while the floor was made of beaten earth mixed with small pebbles. The grave was oriented north-west to south-east. Burnt bones of two individuals were found in this grave. Parts of the bones were in a pot while others were on the floor. The skeletal remains of one individual lay near the northern wall while the bones of another were dumped in front of the first. Inside the grave were 16 funerary vessels and two complete pins and a broken head of a similar pin.

(C) *Children's Graves.*

Under this category of cremated bones fall large number of children's graves, which are distinguishable from the others by the smallness of the size of these graves and also by the fact that they are comparatively at a higher level. In these examples the upper pit and the upper stone lined circle are absent. The grave chamber is generally box-like, consisting of four large stones, each making a side of the grave. But there are also exceptions, in which smaller blocks of stones line the sides. These are of two varieties (i) those which have a few burnt bones, and (ii) those which have only ashes.

Variety (i) Those containing burnt bones.

Grave No. 112 (Pl. XII a).

The grave was located right in the middle of trench E5 (Fig. 12). The sealing stones of the grave were hardly 8" below the present ground level. The grave chamber was 1 foot 4 inches deep and was made up of small stones. It measured 1' 8" by 1' 4". The floor of the chamber was made of beaten earth mixed with grits. The chamber was filled with loose darkish soil and was oriented north-west to south-east. Inside the chamber lay a few pieces of burnt bones along with two drinking vessels, one of which was of the hour-glass type.

Grave No. 118 (Fig. 14).

The grave was located in the south-western part of trench B4 (Fig.

12), about 8 inches below the present ground level. It was sealed by the darkish alluvial soil of layer (1). No sealing stones were recovered in this case. The grave chamber, rectangular in shape, measured 3' 3" by 3' and was 7" deep. The chamber was box-like, with four blocks of stones making its sides. It was filled with reddish brown earth, and was oriented west to east. Inside the grave were a few pieces of burnt bones and one funerary vessel.

Grave No. 120 (Fig. 14)

The grave was located in the south eastern part of trench B4 (Fig. 12), hardly 8 inches below the present ground level and was sealed by the darkish alluvial soil of layer (1). No sealing stones were recovered. The grave chamber, rectangular in shape, consisted of four blocks of stones and measured 1' 11" by 1' 9" and was 1' 1" deep. Inside the chamber was darkish loose soil. The floor was made of beaten earth and grits. It was oriented north-west to south-east. Only tiny fragments of burnt bones were found in the grave. Along with them were three funerary vessels.

Grave No. 121 (Pl. XII b).

The grave was located in the south-western part of trench D5 (Fig. 12), hardly three inches below the present ground level. The surface of the ground was sloping to the north and was littered with stones. No sealing stones were found. The grave chamber, rectangular in shape, measured 1' 6" by 1' and was 8" deep. The grave was box-like, with its sides formed by blocks of stones. It was oriented north-west to south-east. Tiny fragments of burnt bones along with three small pots were found in the grave.

Grave No. 150 (Pl. XIIc).

The grave was located in the north western part of trench B4 (Fig. 12), hardly 7 inches below the present ground level and was sealed by the darkish alluvial soil of layer (1). The sealing stones consisted of a big slab of stone fixed with smaller stones. The grave chamber, rectangular in shape, consisted of four long blocks of stones, and measured 1' 7" by 1' 2". It was 13 inches deep and was oriented north-west to south-east. The floor was uneven. Tiny fragments of burnt bones along with two funerary vessels were found inside the grave.

Grave No. 158 (Fig. 154).

The grave was located in trench B5 (Fig. 12) along the eastern baulk, hardly one foot below the present ground level and was sealed by the dark-

ish alluvial soil of layer (1). The sealing stones consisted of small blocks of stones. The grave chamber, rectangular in shape, consisted of four long blocks of stones. Inside the grave were a few pieces of burnt bones but no pots.

Grave No. 179 (Pl. XIIId).

The grave was located in trench D5. This was the smallest grave found at this site. The grave chamber, which was made up of four blocks of stones, measured 10 inches by 6 inches. It was 8 inches deep. Inside were ashes and some tiny pieces of burnt bones along with a tumber.

Grave No. 184 (Pl. XIIIa).

The grave was located in trench C5 (Fig. 12) along the western baulk, hardly 5" below the present ground level, and was sealed by the darkish alluvial soil of layer (1). The sealing stones consisted of three small slabs of stones. The grave chamber, rectangular in shape, measured 1' 6" by 1' 2" and was 1' 2" deep. It was built with small blocks of stones and was full of loose earth. It was oriented north-west to south-east. The grave was of the usual small size but inside the grave were the burnt bones of a female—some bones on floor while others in a pot. The skull was found in a storage vessel. Three funerary vessels were found.

Grave No. 193 (Fig. 15) With a stone slab on the floor.

The grave was located in the middle of trench C4, hardly six inches below the present ground level, and was sealed by the darkish alluvial soil of layer (1). The sealing stones consisted of rough blocks of stones. The grave chamber, which was also made up of small blocks of stones, was rectangular in shape and measured 3' 2" by 1' 11" and was 13 inches deep. On the floor was a slab of stone, on which rested tiny fragments of burnt bones and a small pot.

Variety (ii) Those having only ashes

Grave No. 116 (a) (Fig. 14).

The grave was located in trench D4, hardly 8" below the present ground level and was sealed by darkish alluvial soil of layer (1). The sealing stones consisted of two slabs of unequal size. The grave chamber, which

measured 1' 10" by 1' 3" and was 1' 6" deep, was built with four blocks of stones and the floor was made up of beaten earth and small pebbles. The grave was oriented north-west to south-east. Inside the grave ashes were mixed up with dark earth. No pottery was found.

Grave No. 116 (b) (Fig. 14)

Immediately below grave No. 116a lay the present grave, which was sealed by the reddish pebbly layer (2). The sealing stones of this grave were three inches below the floor of the first grave and consisted of three slabs of stones placed side by side. The grave chamber measured 2' 9" by 1' 8" and was 1' 4" deep. It was built of big blocks of stones and was oriented north-west to south-east. The floor was made of beaten earth and small pebbles. Inside the grave were only ashes and two funerary vessels and one perforated disc.

Grave No. 126 (Fig. 14)

The grave was located in trench E4, hardly 16" below the present ground level. No sealing stones were recovered. The grave chamber was box-like and oriented west to east. It measured 12" by 10" and was 9" deep. Inside the grave no bones nor pottery was found but only ashes which were mixed up with the darkish soil.

Grave No. 127 (Pl. XIII b)

The grave was located in trench C4 along the western baulk, hardly 4 inches below the present ground level. No sealing stones were recovered. The grave chamber was box-like, made up of four blocks of stones. It was rectangular in shape, 12" deep, and measured 1' 5" by 11" and was oriented north-west to south-east. The floor was made of beaten earth. Nothing was found inside the grave. The ashes were probably mixed up with the darkish soil which filled the grave.

Grave No. 128 (Fig. 14)

The grave was located in the southern part of trench E3, hardly 10 inches below the present ground level. No sealing stones nor stone lining of the grave chamber was found. Inside the grave was a visage urn with a lid but no bones nor ashes.

Grave No. 130 (Fig. 14)

The grave was located in the middle of trench E5, hardly 10 inches below the present ground level and was sealed by the darkish soil of layer (1). The grave chamber was box-like and was made up of four blocks of stones, measuring 12" by 9". It was 8" deep and was oriented west to east. The floor was made of beaten earth. Inside the grave was a single tumbler. Probably there were some ashes but now mixed up with darkish soil.

Grave No. 131 (Fig. 14)

The grave was located in trench C2, hardly 10 inches below the present ground level. It was made of big blocks of stones, and measured 1' 6" by 11". It was 13 inches deep. Inside the grave were some ashes.

Grave No. 143 (Pl. XIIIc).

The grave was located in trench A1', and was 1' 6" below the present ground level and was sealed by the thick greyish gritty stratum (1). The sealing stones consisted of small blocks of stones of irregular shape. The grave chamber, which was oriented north-west to south-east, was built of small blocks of stones and measured 1' 5" by 1'. It was 11" deep. The floor was made of beaten earth. Inside the grave was one funerary vessel with some ashes.

Grave No. 170 (Fig. 15).

The grave was located in trench C2, about 1 foot 6 inches below the present ground level. The grave chamber was made up of small blocks of stones and measured 1' 11" by 1' 2". It was 10 inches deep. Only ashes were found inside the grave.

Grave No. 175 (Fig. 15).

The grave was located in trench C2 along the western baulk, hardly 14 inches below the present ground level. The grave chamber, which was made up of small blocks of stones, measured 2' by 1' 2" and was 13 inches deep. No sealing stones were recovered. Inside the grave were some ashes.

Grave No. 195 (Fig. 15)

The grave was located in the northern half of trench E5, hardly 1 foot below the present ground level. The sealing stones consisted of small

blocks of stones, and the grave chamber was also built up with small stones. It measured 1' 10" by 11". Its floor was 2' 4" from the ground level and was made of beaten earth. The grave was oriented from north-west to south-east. Inside the grave no bones were recovered but only ashes, and only one narrow necked bottle shaped vessel was found.

(3) *FRACTIONAL BURIALS*

As has been observed before, the people who practised this type of burial, sometimes re-opened the earlier graves and after moving the earlier bones to a corner placed their own dead according to their own ritual. As no complete skeleton has been found in this type of burial, the term "fractional" is applied to it. However, the term need not imply that only some or particular parts of the bones were picked up and buried. In some cases only a small portion of the bones is missing while in others very little is preserved. In some graves multiple burial is also seen, in which the bones of one skeleton are properly disposed of while the others are collected and jumbled up. This practice suggests the re-use of the grave by the same people for subsequent burials. It is possible that such a practice among these people led to the re-opening of the different types of graves, in which cremation or complete burial was observed. The partial collection of the bones in these graves suggests that the dead body was probably earlier exposed and then the bones were later collected and placed in the graves. Only such a supposition can account for the variation in the proportion of bones. However, within the graves whatever bones were available, they were placed in the same fashion as in the case of the complete burial. Here also we have graves of adults lying deeper in the earth and those of children which are at a higher level. These graves are described separately under two subvarieties: Variety (i) Adult graves; Variety (ii) Children graves. We have also got some mixed burials showing an earlier complete burial with a later fractional burial on its top. These are described separately.

The construction of these graves is also not uniform. Where an older grave has been re-used, we could get the upper stone-lined circle, the upper pit, the sealing stones and the grave chamber built of dry stone masonry. But the graves, made afresh for this type of burial, show great variation. The upper pit is found only in rare examples. The upper stones hardly make a circle. In some cases they do make a rough rectangle. The way in which the bones were scattered in the graves, suggests some hurried neglect in the disposal of the dead. But some of the finest pots are seen in these graves. For the first time iron is found in some of these graves.

(A) *Mixed Burials* (Earlier Complete and later Fractional).*Grave No. 101.* Complete burial superimposed by late double burial

The grave lay in trench AO (Fig. 12), hardly 7" below the present ground level. The stone-lined circle was disturbed. Beneath was the upper pit, 2' 3" deep, which was also disturbed. The sealing stones consisted of rough blocks, which covered the rectangular grave chamber, 4' 5" by 2' 3". It was 1' 8" deep and was built of dry stone masonry. The grave was oriented from west to east. The burial inside the grave was most revealing. Underneath was a complete burial of an individual in flexed position with the skull facing north. Besides this individual, there was a double burial of fractional type—bones of two individuals lying in a disorderly fashion. Obviously this double burial is of a later period. There were 14 funerary vessels and one copper pin.

Though the grave has not produced any stratigraphic evidence to differentiate chronologically the two types of burial rituals, the way in which the dead have been disposed of one on the top of the other, suggests a chronological difference between the two rituals. Radio-carbon dates have been obtained for the bones of this grave.

Grave No. 104. (Pl. XIVc)

The grave lay in the baulk between the trenches CO and DO (Fig. 12). The upper pit was much disturbed. The sealing stones were reached at a depth of 4' 9" from the present surface. The grave chamber, rectangular in shape, was built of dry stone masonry in three courses. It measured 4' 2" by 2' 3" and was 1' 9" deep. There was a complete burial of an individual in a flexed position and fractional burial of another individual in a disturbed fashion. The priority of the burials could not be established definitely because of the disturbance. There were three funerary vessels.

Grave No. 142 (Pl. XIVa and b)

With an upper pit probably of an earlier period. Iron in the grave.

The grave was located in the south-eastern part of trench A1' (Fig. 12). It had an upper pit demarcated by a line of stone blocks. The actual grave chamber was 2' 9" below the present ground level. The sealing stones consisted of roughly shaped blocks of stones. The grave chamber, rectangular in shape, was oriented from north-west to south-east and was built of dry stone masonry. It measured 4' 7" by 2' 3" and was 1' 2" deep. It was

full of brownish earth. Bone materials of two individuals were dumped in the middle while one foot below were the fragmentary remains of a third individual. As the photo shows, the bones of the third person were disturbed by the later people. It seems that originally the grave was meant for the person buried underneath but at some later date it was re-used for the two individuals, whose bones were dumped above. The bones partially mixed up but evidence regarding two period burials was conclusive. Along with the upper burial were five funerary vessels and below these bones one piece of knobbed potsherd and an iron horse bit. No pottery was found in association with the lower burial.

Grave No. 162 (Pl. XIVd).

The grave was located in trench B1 (Fig. 12). It was coeval with the first stratum. The grave was indicated by irregular blocks of stones, forming a rectangle, below which was the upper pit. Underneath were the sealing stones formed of stone slabs that rested on the stone walls of the grave chamber, which was oriented from north-west to south-east and measured 4' 5" by 2' 6" and was 2 feet deep. The floor was made of beaten earth mixed with small pebbles. On the floor were dumped bone materials of two individuals while six inches below lay another individual in flexed position. Thus this grave was similar to No. 142 above. In this case also we may suggest that originally the grave was meant for the third individual lying underneath but later re-used for the two persons whose bones were dumped in the middle at a higher level. Along with the upper burial were six funerary vessels.

Grave No. 197. (Pl. XVa and b) Iron in the grave.

The grave was located in trench A² along its northern and eastern baulks (Fig. 12). Just 1' 6" below the present ground level signs of the upper pit were indicated by unshaped blocks of stones which formed a rough rectangle. Below the pit were the sealing stones of irregular blocks. The grave chamber, rectangular in shape, measured 5' 5" by 2' 6" and was 2' 5" deep. The floor was made of beaten earth mixed with small pebbles. The chamber was built of dry stone masonry. Inside the grave were the skeletal remains of two individuals. On the top were the scattered bones of an individual along with a number of funerary vessels, and further down was a complete skeleton lying on its right side with the skull facing south. The grave was a rich one with 13 funerary vessels, one copper anti-mony rod, one spiral finger ring and a broken iron nail. The evidence is clear and definite. It is obvious that those who practised fractional burial,

evidently of the iron age, opened an earlier grave where a complete skeleton lay buried underneath.

(B) *Fractional Burials of Adults.*

Grave No. 109 (Pl. XVIa) Iron in the grave.

The grave was located along the western baulk of trench D 3 (Fig. 12). The upper pit was shallow and indicated by stone blocks forming a rough rectangle. The pit was full of darkish gritty soil. The sealing, which was 24" below the present ground level, consisted of big blocks and slabs. The chamber, rectangular in shape, was oriented from north-west to south-east and was built of dry stone masonry. It measured 4' 11" by 3' 3" and was 2' 6" deep. On the floor were the fractional remains of an individual with the bones of a young goat. Inside the grave were 8 funerary vessels, heavily encrusted iron spearhead and some more pieces of iron.

Grave No. 110 (Fig. 14).

The grave was located in the south-western part of trench B2 (Fig. 12). No upper pit was traced here. We reached directly the sealing stones 3 feet below the present ground level immediately below layer (1). The grave chamber which was built of dry stone masonry, measured 3' 3" by 2' 1" and was 1' 9" deep. It was full of loose brownish earth and was oriented north-west to south-east. The floor was made of beaten earth mixed with grits. On the floor lay scattered bones of an individual along with a copper pin and six funerary vessels.

Grave No. 111a.

The grave was found a few inches below the present ground level in trench B3 (Fig. 12). The upper pit was not found or probably the upper pit of an earlier grave was used for this burial (see below No. 111b). The actual grave chamber was probably covered by sealing stones of irregular shape while the chamber itself was shallow and oval in shape, with blocks of stones at the margin. Scattered bones were found on the floor along with three funerary vessels and many potsherds.

Grave No. 111b (Pl. XVIc) (Fig. 14).

Below grave No. 111a lay the present grave. The floor of the first grave made for the sealing of the lower one. It was 1' 10" below the present ground level. It seems that its upper pit was used for a later grave. The

sealing stones consisted of irregular blocks of stones. The grave chamber, which was built of dry stone masonry, was oriented north-west to south-east and measured 5' 5" by 3' 5" and was 3' 11" deep. The floor was made of beaten earth and the grave was filled with brown loose earth. On the floor lay the fractional skeletal remains (only lower part) of an individual along with four funerary vessels and a copper hair pin. For an earlier burial of burnt bones underneath see Dr. Bernhard's report in part VII.

Grave No. 123 (Fig. 14) Iron in the grave.

The grave was located in trench C2 (Fig. 12), hardly 15 inches below the present ground level. The sealing stones consisted of big blocks of irregular shape. The grave chamber, which was oriented north-west to south-east and was built of dry stone masonry, measured 4' 10" by 2' 10" and was 2' 9" deep. The floor was made of beaten earth mixed with grit. On the floor were dumped fractional bones of two individuals along with seven funerary vessels and two pieces of iron.

Grave No. 124 (Fig. 14)

The grave was located in trench C1 (Fig. 12) and sealed by layer (1). The upper pit, which formed a rough rectangle, was marked by a row of rough stones on three sides, north, east and south. It was full of white loamy soil. The actual grave chamber was 5' 9" below the present ground level and measured 4' 5" by 3' and was 12" deep. It was built of dry stone masonry and was oriented west to east. The sealing stones consisted of irregular blocks of stones and the floor made of beaten earth. On the floor lay the fractional remains of an individual along with four funerary vessels and one copper pin.

Grave No. 125 (Pl. XVI b)

The grave was located in trench C1 (Fig. 12), about 2' 6" below the present ground level. No sealing stones were recovered. The grave chamber, rectangular in shape, was built of beaten earth mixed with small pebbles. The chamber measured 4' 9" by 2' 4" and was 1' 8" deep. On the floor lay the fractional remains of an individual along with the bones of a stag, a horse, and a goat or sheep. No pottery was found.

Grave No. 129 (Fig. 14)

The grave was located in trench D1 (Fig. 12) with its upper pit indi-

cated by irregular blocks of stones. The sealing stones lay three feet below the present ground level. The grave chamber, rectangular in shape, was oriented north-west to south-east and measured 2' 4" by 1' 4" and 12" deep. The chamber was built of dry stone masonry and the floor was made of beaten earth mixed with small pebbles. Only fractional bone materials were found along with two funerary vessels.

Grave No. 134 (Pl. XVIIa)

The grave was located in trench DI (Fig. 12) with its upper pit indistinct from the present ground level. The sealing stones consisted of long slabs which covered the chamber entirely. The grave chamber, rectangular in shape, was oriented from north-west to south-east and measured 6' 6" by 2' 6" and was 2 feet deep. The floor was made of beaten earth while the chamber itself was built of dry stone masonry. Fractional bone materials of two individuals including their skulls were dumped in the south-eastern half of the grave. Along with them were nine funerary vessels.

Grave No. 137 (Pl. XVIIb)

The grave was located in trench E3 (Fig. 12) and was lying immediately below the first stratum of darkish gritty soil. The sealing stones consisted of unshaped blocks and slabs of irregular stones. The grave chamber, rectangular in shape, was oriented north-west to south-east and was built of dry stone masonry. It measured 5' 5" by 2' 3" and was 1' 2" deep. On the floor lay scattered remains of two individuals along with the bones of a sheep or stag. There were six funerary vessels.

Grave No. 139 (Pl. XVIIc)

The grave was located in the middle of trench A1' (Fig. 12) and was sealed by the first stratum. The grave was indicated by irregular blocks of stones making a rough rectangle. The sealing stones consisted of unshaped blocks of stones. The grave chamber, rectangular in shape, was oriented from north-west to south-east, and was built of dry stone masonry. It measured 4' 6" by 2' 3" and was 1' 9" deep. The floor was made of beaten earth. Bone materials of two individuals were dumped in the middle of the grave. Along with them were two copper pins and four funerary vessels.

Grave No. 144 (Fig. 15).

The grave lay in between the trenches AO and A1' (Fig. 12). The sealing

stones were 1' 6" below the present ground level. No upper pit was traced. The grave chamber, roughly rectangular in shape, was built of dry stone masonry and measured 3' 10" by 2' 8" and was 16 inches deep. On the floor lay the fractional bone materials of two individuals with no other equipment.

Grave No. 148 (Pl. XVIIId)

The grave was located in the south-eastern corner of trench B4 (Fig. 12) and was sealed by 13" deposit of the first layer. The sealing stones, which were 2' 9" below the present ground level, consisted of big slabs that covered the whole length of the grave chamber. The chamber, rectangular in shape, was oriented north-west to south-east and was built of dry stone masonry. It was full of loose earth. It measured 3' 7" by 2' 4" and was 2' 4" deep. The fractional remains of one individual were buried in flexed position. Along with them were four funerary vessels and a copper pin which was lying beside the skull.

Grave No. 151 (Fig. 15)

The grave was located in trench B4 (Fig. 12), 2' 8" below the present ground level. No upper pit was found here. We came directly to the sealing stones consisting of irregular blocks of stones. The grave chamber, rectangular in shape, was very small measuring 2' 4" by 1' 7" and was built of dry stone masonry. The floor was made of beaten earth mixed with small pebbles. The chamber was oriented from north-west to south-east. The skeleton lay in a crouched position, as is also seen in grave No. 191. The only equipment was a grey bowl.

Grave No. 157 (Pl. XVIIIa)

The grave was located in trench B5 (Fig. 12), hardly 1' 11" below the present ground level. The sealing stones consisted of irregular blocks and slabs. The grave chamber, rectangular in shape, was oriented from north-west to south-east and was built of dry stone masonry. It was not filled with earth. The floor was made of beaten earth mixed with small pebbles. The chamber measured 4' 10" by 2' 7" and was 2' 4" deep. The skeletal remains of a female were placed in flexed position. Behind the skull was a copper hair pin and underneath it were two ear rings made of copper wire. There were three funerary vessels.

Grave No. 160 (Fig. 15)

The grave was located in the middle of trench E2 (Fig. 12). The seal-

ing stones consisted of irregular blocks of stones. The grave chamber, rectangular in shape, was built of dry stone masonry and measured 4' 5" by 2' 6" and was 1' 9" deep. The floor was made of beaten earth. The chamber was oriented north-west to south-east. On the floor lay a few bones of a juvenile along with five funerary vessels.

Grave No. 165 (Pl. XVIIIb)

The grave was located in trench A2' (Fig. 12). The upper pit was marked by a line of stones, a few of them were preserved. They were 17" below the surface, while the grave chamber was very irregularly excavated. No sealing stones were traced, nor the chamber was built of stone masonry. The chamber, which was oriented north-west to south-east, measured 5' by 4' and was 4' deep. On the floor lay fractional bones of two individuals along with three broken funerary vessels.

Grave No. 173a (Pl. XVIIIc)

The grave was located in the middle of trench A2' (Fig. 12) and was indicated by a few blocks of stones. It was a pit grave in so far as no attempt was made to construct the grave chamber with stone masonry. The bone materials of an individual were dumped in an oval pit. Along with them were five funerary vessels. It seems that this oval pit actually belonged to grave 173b, which lay below it. If this is so, it could be taken for an upper pit of the lower grave.

Grave No. 173b

The grave was located immediately below grave No. 173a about 5 feet below the present ground level. The actual grave chamber, almost rectangular in shape, was built of dry stone masonry and was oriented north-west to south-east. It measured 4' 6" by 2' 7" and was 1' 11" deep. Inside the grave were scattered bones of two individuals along with four funerary vessels.

Grave No. 176

The grave was located in trench B2 (Fig. 12) and was far down. The sealing stones were about 4 feet below the present ground level. The grave chamber, almost rectangular in shape, was oriented from north-west to south-east and was built of dry stone masonry. It measured 5' 2" by 2' 10" and was 1' 6" deep. The floor was made of beaten earth mixed with small

pebbles. On the floor were bone materials of two individuals; one was in the southern part of the chamber in flexed position while the bones of the other were scattered. Along with them were six funerary vessels and one copper pin.

Grave No. 177 (Pl. XIXa)

The grave was located in trench AI' (Fig. 12), about 2' 9" below the present ground level. The sealing stones consisted of flattish slabs. The grave chamber, almost rectangular in shape, was built of dry stone masonry and measured 3' by 1' 9" and was 1' 7" deep. The bone materials of a single individual were scattered in the grave along with five funerary vessels. In the filling of this grave was found a bangle of copper wire.

Grave No. 180 (Pl. XIXb)

The grave was located in the baulk between the trenches B3 and B4 (Fig. 12) and was sealed by the first stratum. The sealing stones consisted of rough blocks and slabs, some of which had fallen inside the chamber. The grave chamber, roughly rectangular in shape, was oriented north-west to south-east and was built of dry stone masonry. It measured 3' 11" by 2' 8" and was 1' 8" deep. It was full of loose brownish earth. The floor was made of beaten earth, mixed with small pebbles. Bone materials of two individuals and one infant were scattered in the grave along with six funerary vessels.

Grave No. 182 (Pl. XIXc) Iron in the grave.

The grave was located in trench C1 (Fig. 12), about 3 feet below the present ground level. The sealing stones consisted of rough blocks. The grave chamber, rectangular in shape, measured 3' 11" by 1' 10" and was 11" deep. The remains of an individual with legs disposed in a flexed position were found but the skull was missing. Along with them were one funerary vessel, an iron fragment and a bone button.

Grave No. 183 (Pl. XIXd) Human terracotta in the grave.

The grave was located in trench B2 (Fig. 12) and sealed by the first stratum, below which were the sealing stones, formed by irregular blocks of stones. The grave chamber, rectangular in shape, was oriented from north-west to south-east and was built of dry stone masonry. It was full of

loose brownish earth. The floor was made of beaten earth mixed with small pebbles. Bone materials of two individuals were found on the floor. Bones of one individual were lying in the flexed position while those of the other were scattered. On an offering bowl was found the bone of a snake. There were three other funerary vessels, a terracotta bead, copper pin. One human terracotta was found near the pelvis of one individual.

Grave No. 185 (Pl. XXa)

The grave was located in trench A', (Fig. 12) about 18 inches below the darkish gritty layer (1). The sealing stones, which were 3' 3" below the ground level, consisted of irregular blocks. The grave chamber, which was oriented from north-west to south-east, was built of dry stone masonry. It measured 4' 4" by 2' 5" and was 1' 9" deep. Fractional remains of an individual lay on the floor along with a copper pin and four funerary vessels.

Grave No. 186 (Fig. 15)

The grave was located in trench A', (Fig. 12) about 18 inches below the present ground level. It was a small grave having no sealing stones and was actually a pit grave with no stone construction. Inside was a water jar along with two skulls. It may be a very late grave.

Grave No. 190 (Pl. XXb)

The grave was located in the middle of trench A3' (Fig. 12). The upper pit of this grave was marked by stones making a rough triangle. It was full of brownish earth. The sealing stones consisted of rough blocks but the actual grave chamber was just a rectangular pit, measuring 5' by 2' 10", and was not lined by dry stone masonry. The grave was oriented west to east. On the floor lay almost a complete skeleton, lying on its right side, with the skull facing south. Only one drinking vessel was found in the grave.

Grave No. 191 (Pl. XXc)

The grave was located in the baulk of the trenches D5 and C5 (Fig. 12). The sealing stones were hardly four inches below the present ground level. It was a small box-like grave, measuring only 2' 2" by 1' 8" but inside was buried an adult in a crouched position, as is also seen in grave No. 151. The skull, which was lying along the western wall, faced east. Other bones were scattered in the chamber. Five funerary vessels were also found.

Grave No. 192 (Pl. XXd) Iron in the grave.

The grave was located in the middle of the baulk between the trenches C4 and C5 (Fig. 12) with its upper stone blocks marking the upper pit just a few inches below the present surface. The upper pit was 2' 6" deep. The sealing consisted of irregular blocks of stones and the grave chamber, which was oriented north-west to south-east, was built of dry stone masonry. It measured 4' 8" by 2' 10" and was 2' 3" deep. The floor was made of beaten earth mixed with small pebbles. Almost complete skeleton of an individual lay on the floor in the flexed position. Inside the grave were five funerary vessels, one copper cup, eleven beads—one of schist and 10 of semi-precious stones, two iron nails near the elbow and three iron rings under the skull.

(C) CHILDREN'S BURIALS

Grave No. 102.

The grave lay in the baulk between the trenches AO and BO (Fig. 12) on the top of an earlier grave, which was not excavated for lack of time. It was hardly 9" from the present ground level. There was no upper pit nor any sealing stone was found. The grave chamber, rectangular in shape, was built of dry stone masonry of two courses and measured 3' 6" by 1' 11". It was one foot deep. Inside were only decayed bones of a child along with three funerary vessels.

Grave No. 105 (Pl. XXIa)

This grave lay in trench DO (Fig. 12) and was very close to the surface. It was similar to No. 102. Three funerary vessels along with the decayed bones of a child were found in the grave.

Grave No. 107 (Fig. 14)

The grave was located in trench D2 (Fig. 12), hardly one foot below the present ground level. Three flat stone slabs covered the grave chamber, which was built of rough blocks of stones. It was rectangular in shape and measured 2' 5" by 1' 5" and was 12 inches deep. It was oriented north-west to south-east. Inside the grave were the fractional remains of a child along with two funerary vessels and three copper ear rings, one of which was sticking to the skull.

Grave No. 108 (Fig. 14)

The grave was located in trench D3 (Fig. 12), only 10 inches below

the present ground level. The grave chamber, which was covered by two stone slabs, was built of rough blocks of stones. It measured 2' 4" by 1' 6" and was 1' 3" deep. It was oriented north-west to south-east. Inside were the skeletal remains of children along with three funerary vessels.

Grave No. 132 (Fig. 14)

The grave was located in the middle of trench B4 (Fig. 12), only a few inches below the present ground level. The grave chamber, which was box-like, was built of four flattish slabs of stones and measured 2' 6" by 1' 7" and was 16 inches deep. The sealing stone was not found. The chamber, which was oriented from west to east, was full of reddish brown earth. On the floor lay a few pieces of bones along with a grey tumbler.

Grave No. 133 (Fig. 15)

The grave was located in trench D5 (Fig. 12), about 8 inches below the present ground level. The grave chamber, which was sealed by two slabs, measured 2' by 1' 2" and was 12" deep. The chamber was box-like, built of four blocks of stones and was oriented from west to east. Inside were a few bone pieces of a child along with funerary vessels.

Grave No. 140 (Pl. XXIb)

The grave was located in trench A² (Fig. 12). It was indicated by rough stone blocks which over-lay an oval pit hardly 4 inches below the present ground level. It was 3' 8" deep. The sealing stones underneath consisted of irregular blocks while the grave chamber, rectangular in shape, measured 4' 3" by 2' 3" and was 2' deep. It was built of dry stone masonry. Fractional bones of a child were lying on the floor along with four funerary vessels, a silver ring and pieces of copper wire. One unique vessel was a handled jug with a pinched mouth.

Grave No. 146 (Pl. XXIc)

The grave was located in trench AO (Fig. 12) along its southern bank. It was sealed by 18 inches deposit of brownish layer. The sealing stones consisted of irregular blocks. The grave chamber, rectangular in shape, was built of dry stone masonry and was oriented north-west to south-east. It measured 3' 2" by 2' 6" and was 13 inches deep. On the floor lay the fractional remains of a child along with two funerary vessels and one crescent-shaped copper piece.

Grave No. 153 (Pl. XXId)

The grave was located in trench A' (Fig. 12), hardly 18 inches below the present ground level. The sealing stones consisted of rough blocks and pebbles. The grave chamber was box-like and was built of four flat slabs of stones. It measured 1' 11" by 1' 3" and was 11 inches deep. The floor was made of beaten earth. On the floor lay the scattered bones of an infant along with two funerary vessels.

Grave No. 154 (Fig. 15)

The grave lay under the baulk between trenches D2 and D3 (Fig. 12), hardly one foot below the present ground level. The sealing stones consisted of small slabs of stones. The chamber, rectangular in shape, was box-like, built of four blocks of stones. It measured 2' 3" by 1'. On an uneven floor lay a few bones of a child.

Grave No. 155 (Pl. XXIIa)

The grave was located in trench D3, (Fig. 12), about 11 inches below the present ground level. The sealing stones consisted of small blocks of stones. The grave chamber, rectangular in shape, was built of small blocks of stones and measured 2' 1" by 1' 1" and was 9" deep. The chamber was full of loose brown earth and the floor was made of beaten earth mixed with small pebbles. The chamber was oriented from north-west to south-east. On the floor lay a few bones of a child with three funerary vessels.

Grave No. 156 (Pl. XXIIb)

The grave was located in the middle of trench B5 (Fig. 12), about one foot below the present ground level. The sealing consisted of three slabs of stones. The grave chamber, which was box-like, was built of four stone slabs and measured 1' 8" by 1' 3" and was 10 inches deep. It was full of loose earth. The floor was made of beaten earth. The chamber was oriented from west to east. On the floor lay a few bones of a child along with two funerary vessels.

Grave No. 159 (Pl. XXII c-)

The grave was located in trench B5 (Fig. 12), hardly 15 inches below the present ground level. The sealing stones consisted of two slabs that cover entirely the grave chamber, rectangular in shape and box-like, being

built of large slabs of stones. It measured 2' by 1' 3" and was 14 inches deep. It was full of reddish brown soil. Fractional bones of a child were found inside the grave along with three funerary vessels.

Grave No. 167 (Fig. 15)

The grave lay in the baulk of AO and AI' (Fig. 12), hardly 12 inches below the present ground level. The grave chamber, which was oriented from west to east, was built of dry stone masonry in three courses and measured 1' 10" by 1' 3" and was 1' 5" deep. Inside the grave only one tooth, along with three funerary vessels, was found.

Grave No. 188 (Pl. XXIIId)

The grave was located in trench A4' (Fig. 12). It was box-like, rectangular in shape, built of four blocks of stones with stone slabs sealing the grave. It measured 1' 10" by 1' 6" and was one foot deep. A few pieces of bones of a child along with a drinking bowl were found in the grave.

Grave No. 189 (Pl. XXIIe)

The grave was located in trench A3' (Fig. 12) hardly two feet below the present ground level. The sealing stones consisted of rough blocks. The actual grave pit had no masonry wall but formed a rough rectangle, measuring 2' 5" by 2' 4". It was fourteen inches deep. Fractional remains of a child with the skull facing north were found along with one funerary vessel.

Grave No. 196 (Fig. 15)

The grave was located in trench D2 (Fig. 12) hardly 16 inches below the present ground level. The grave chamber, which was built of dry stone masonry measured 2' 2" by 10" and was 13" deep. Inside were the fractional remains of two children along with two funerary vessels.

Grave No. 198 (Fig. 15)

The grave was located in trench A3' (Fig. 12). It was roughly oval in shape, having a diameter of about two feet and was a pit grave with no stone construction. But it was sealed by blocks of stones. The grave was

filled with brownish earth. On the floor lay skull and a few bones of a child along with two funerary vessels.

Grave No. 199 (Fig. 15).

The grave was located in trench A3' (Fig. 12). This grave was similar to No. 198 in so far as it was of the type of pit grave with no stone lining, though the sealing consisted of blocks of stones. On the floor lay a few bones of a child along with a drinking bowl.



TIMARGARHA SITE NO. 2

1965 Season

Section 4

INTRODUCTION

By

PROF. AHMAD HASAN DANI

In this second site the burial was recognised in a naturally eroded bank of a *Khwar* (torrent), which had exposed a stone burial chamber. Not far from it lay another burial complex, the large covering stones of which lay open on the surface on the side of a water channel running out from the fields into the *Khwar*.

The site lies on a flat terrace field slightly sloping from north to south on the southern bank of the *Khwar*, which runs right through the middle of Timargarha village. To the north of the *Khwar* are spread out the main households of the modern village, and to the south are sparse houses on the eastern side and on the western side the main bazar with a thoroughfare. Further eastward is a local school, beyond which stands a solitary farmer's hut. By its side lies our site, which extends right upto the second *Khwar* towards the south.

Eastward the ground rises gradually till it is merged into the heights of the surrounding hills, wherefrom the *Khwar*s shoot down in torrential floods after the rains and make the crossing very difficult. The hills gradu-

ally curve round the southern horizon and present a panoramic view (Pl. III a) with their tree-clad tops and bubbling clusters of homesteads on the slopes glistening in different hues of field crops on a sunny day. The northern curve of the hills is dry and bare. Several spurs run down from the east towards the village and disappear into the sturdy bank of the life-giving river Panchkora. Immediately north of the main *Khwar* stands a ridge, at the foot of which, beyond the village, lies site No. 1. From the site we look down over the Timargarha Bazar on the west towards the beautiful lush green narrow valley of the Panchkora river.

Lay-out of trenches

A long rectangular area, 100 feet from north to south and 45 feet from east to west, was selected on the southern side of the main *Khwar*. This area was marked on the ground and further subdivided into eight squares, measuring 22' x 21' each, by a central long baulk of 3' width and three intervening baulks of 4' width, running east to west. These squares were numbered (see Figs. 16 & 17) alphabetically as A, B, C, D, E, F from north to south and A1, A2, B1, B2, C1, C2, D1, D2, etc. from west to east. With the appearance of large number of stones, indicating graves, two baulks running east to west and dividing the squares A-B and C-D were removed in order to trace out the incomplete line stone circles. With the removal of these two baulks, this area was enlarged into four squares measuring 48 feet long north to south and 21 feet wide east to west. In this site the graves were numbered 201 onward as and when they were discovered.

Stratigraphy

In our excavation mainly two layers were recorded below the ploughed soil of the field. Layer (1), about one foot thick, was composed of clayey and sandy soil of dark brown colour. Layer (2) consisted of reddish brown soil. The main grave pits were dug into layer (2), except a few smaller graves, probably of children, which were encountered on the top of layer (2). Similarly the stone line of circle also lay below layer (1) and on the top of layer (2). Thus the original ground surface, when the graves were dug, was the top of layer (2). Obviously layer (1) accumulated after this period. It is difficult to say whether there was a raised barrow over the graves or not. If there was any, it is now mixed up with layer (1).

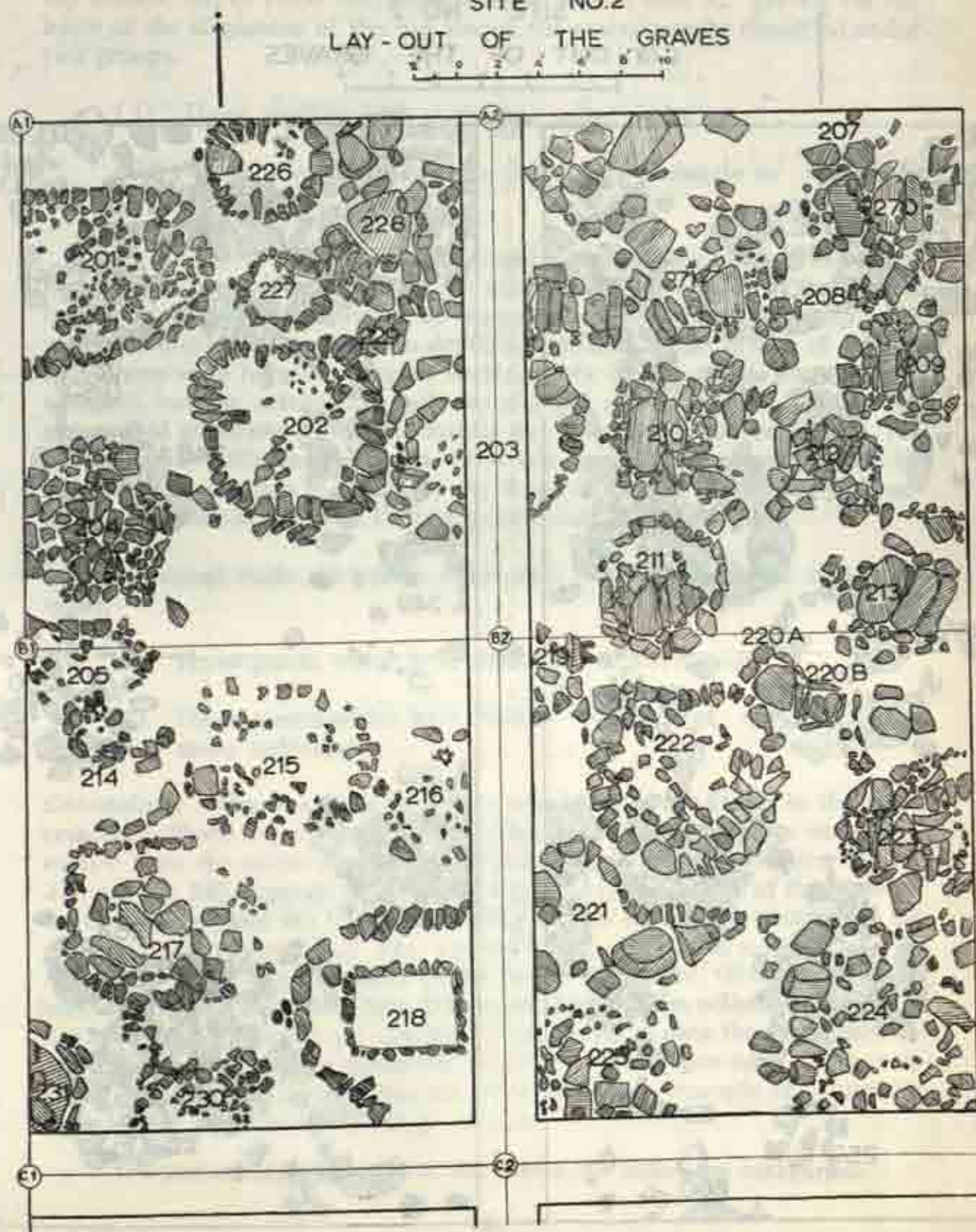
Results

When the top soil was removed, 71 graves were indicated by the

TIMARGARHA 1965

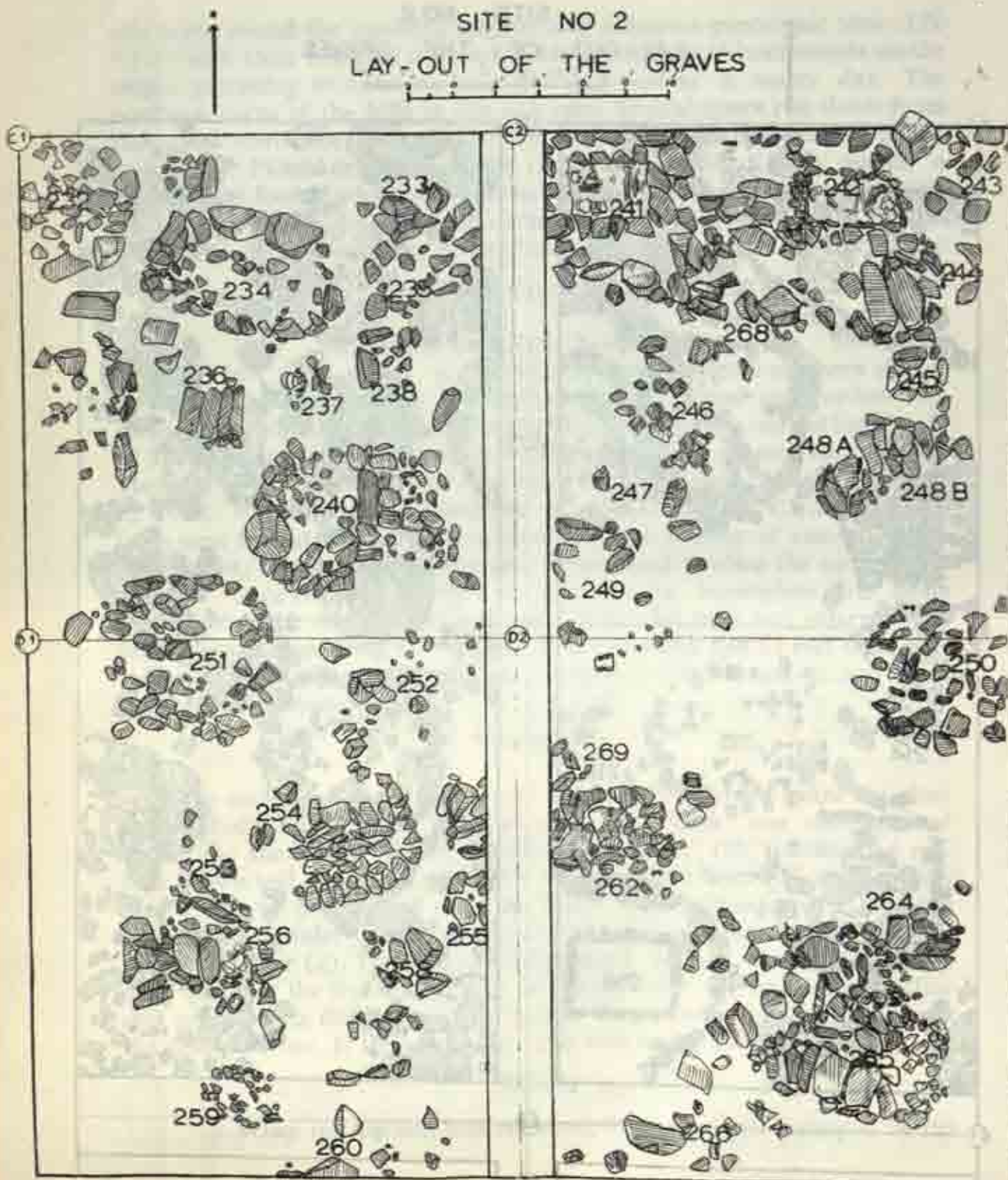
SITE NO. 2

LAY - OUT OF THE GRAVES



TIMARGARHA 1965
SITE NO 2
LAY-OUT OF THE GRAVES

Fig. 17



top stones. Out of these time permitted to expose only 32 graves. On the basis of the alignment of the top stones, the graves may be classified under two groups:

- (i) Those marked with single-line stone circle.
- (ii) Those covered with stone slabs in a rectangle or having no stones at all.

In the graves of group (i) the actual burial pit was much lower down the original ground surface. This pit was covered by sealing stones which lay lower than the circle stones of the surface. The graves of group (ii) were not dug down to the same depth as reached by the graves of group (i). These were lying on a higher level with the sealing stones placed north to south but the actual grave pit was aligned east to west. Group (ii) graves had generally children's burials but there were also exceptions. No chronological difference between these two groups of graves should be supposed. In the case of group (i) the stone circle was (accordingly) headed on the western side with a stone pebble standing erect.

On ritual basis the graves, excavated, can be classified into two types:

- A) Those graves which have either urn or pot burials.
- B) Those graves which have skeletal remains of either one or more individuals.

Chronology: The two types of graves, noted above, are found in the same cemetery. There is no stratigraphic evidence available to place one type earlier than the other. But the actual excavation of at least two graves, No. 217 and No. 240, suggests the priority of type (A). The sealing of these graves were disturbed and the later earth-filling clearly showed re-opening of the graves at some later date. The urn-burial was noticed at a lower level in one corner while the fractional burial lay in the centre. Obviously this second burial was of a later date. If this evidence can be relied, we can conclude that the practice of urn-burial was earlier in date than the fractional burial. It may also be noted that in this cemetery we have only two types of burials. So far we have not recovered any example of complete burial as is noted in site TMG I.

On our analysis the graves fall under the following categories:

MIXED BURIALS

Grave Nos. 217 and 240.

TYPE A. URN OR POT BURIALS

Group (i):

201, 213, 218 and 251.

Group (ii):

229, 237 and 245.

TYPE B. FRACTIONAL BURIALS

Group (i):

202, 204, 209, 210, 211, 212, 223, 228, 241, 242 (?), 247, 254
and 256

Group (ii):

220A and B, 244, 248A and B, 250, 253, 262, 265 and 270.



Section 5

DESCRIPTION OF THE GRAVES*

By MUHAMMAD SHARIF

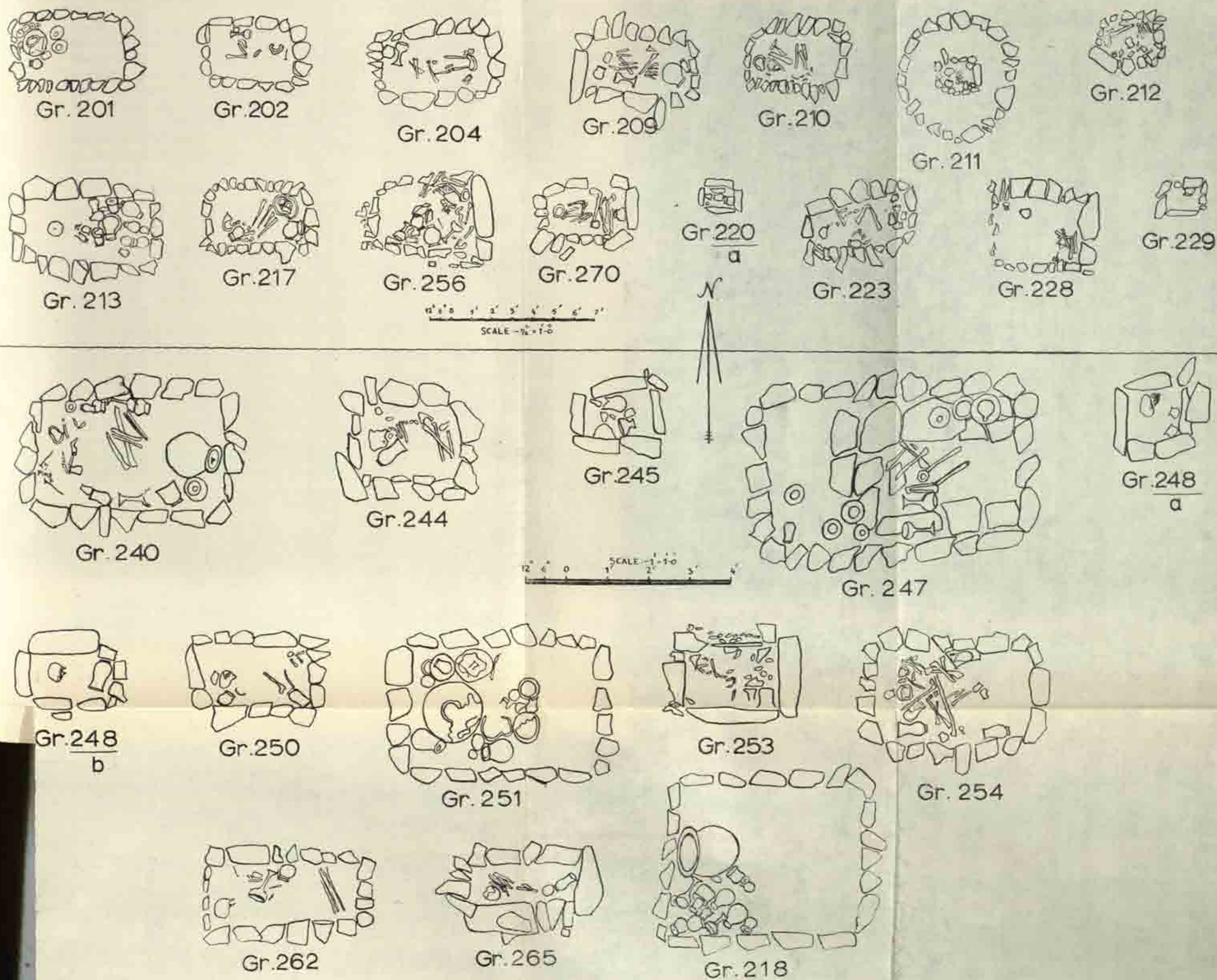
The detailed description of the excavation grave-wise is given below. This description has to be read along with the detail of the anthropological report submitted by Dr. Bernhard (See below part VII).

MIXED BURIALS: CREMATION & FRACTIONAL BURIALS*Grave No. 217 (P1. XXIII a) Disturbed and re-used later*

This grave was found in square B1 (Fig. 16). The stone lined oval was one foot below the surface on the reddish brown soil, layer (2). The oval measured 6 feet 3 inches north to south and 9 feet east to west. When the earth of layer (2) was removed, the sealing stones reached at a depth of 3 feet 2 inches. These stones, which were much disturbed, covered the top

* The description has been thoroughly revised and the graves reclassified by the editor.

TMG 1965 SITE NO.2
GRAVE CHAMBERS WITH THEIR CONTENTS



ASFO

LONGE

LONGE



ASFO

ASFO

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ASFO

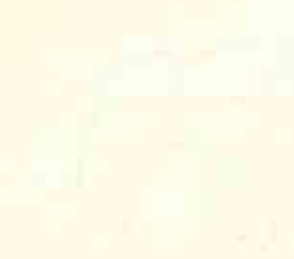
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of a burial chamber, measuring 4' 8" x 2' 8". The chamber was 2 feet 9 inches deep and was built of six courses of dry stone masonry. When the earth from inside the chamber was removed, first came to sight the skeletal remains of an individual, the skull was facing north. Other bones were found to be in a crouched position. (Fig. 18). Away from this burial and at a slightly lower depth a large sized urn, containing burnt bones, was recovered from the north-east corner of the chamber. The excavator has rightly noted that the disturbance suggests a later re-opening and the two types of burial confirm the opinion that the urn burial was earlier in date than the burial of the other type. This second burial appears to be of the fractional type as all the bones of the individual were not found in the grave. Along with the urn was an ornamental copper pin. Other finds included a group of 6 complete funerary vessels.

Grave No. 240 (Pl. XXIII. b) Mixed burial, fractional and cremated.

The stone-lined oval, which was traced 9 inches below the surface, (Fig. 17) measured 5 feet 11 inches north to south and 3 feet 8 inches east to west. Underneath was the reddish brown soil, layer (2). The sealing stones were found at a depth of 4 feet 3 inches. The burial chamber, which measured 5' 1" by 4' 1", was rather very deep, 3 feet 2 inches in measurement, and was made up of ten courses of dry stone masonry. As the anthropologist has noted, there were actually two burials in this grave: fractional burial, well disposed of on the western side of the chamber and a second burial of the burnt bones, which were scattered at a deeper level (Fig. 18). If this depth is again an indication, the burnt materials were earlier than the fractional burial. What was the difference in time is difficult to say? The excavator could not detect any disturbance in the sealing stones but the height of the burial chamber is rather unusual. Similarly rather unusual number of funerary vessels, 14 in all, was found in the chamber, properly arranged in a row, as shown in the drawing.

TYPE (A) URN OR POT BURIALS

Group (i)

Grave No. 201 (Pl. XXIV a)

When the earth of layer (1) was removed, at a depth of 1½ feet from the surface stones were noticed in a line making a rough oval shape

(See Fig. 16). Some of the stones continue into the western side of the trench, which was not excavated. The exposed portion measured 7 feet long from east to west and 6 feet 9 inches wide. These stones lay immediately on the top of reddish brown soil, layer (2). The space within the oval area was dug down. At a depth of $4\frac{1}{2}$ feet large sealing stones were observed. These stones covered a burial chamber of dry stone masonry, made up of six courses and measuring 3 feet and 2 inches in depth. The chamber was rectangular in shape and measured 5' by 3' 2". A large urn containing burnt bones along with eleven funerary vessels around the main urn were recovered from the north-western corner of the chamber (Fig. 18).

Grave No. 213 (Pl. XXIVb.) With a visage urn.

At a depth of 1 foot 6 inches from the surface the stone lined circle (Fig. 16) was found to rest on the reddish brown soil, layer (2). When the earth was removed from inside, the sealing stones were observed at a depth of 2 feet 9 inches. They covered a rectangular chamber extending east to west and measuring 6' 2" x 3' 4". It was built of seven courses of dry stone masonry, 3 feet deep. From the chamber 19 complete funerary pots along with a visage urn and other pot fragments were recovered from the north-eastern side (Fig. 18) but no bones except ash could be found. A copper needle was also obtained. The absence of bone materials is rather puzzling, but as the anthropologist, in the case of grave No. 245, remarks, there might have been the burial of a child, whose bone remains are probably decomposed. It is also possible that only ash was preserved inside the urn.

Grave No. 218 (Pl. XXIVc). With a Visage urn

The encircling stones of this grave also made an oval shape (Fig. 16) and were found at a depth of one foot from the surface in the dark brown soil of layer (1). The oval was headed on the western side by three pebble stones: two upright while the third lying flat. Parts of this oval shape were concealed in the eastern and southern sections, not excavated. The exposed portion measured $7\frac{1}{2}$ feet east to west and 9 feet 4 inches north to south. Within the oval area the reddish brown soil, layer (2), was dug out, leaving a section on the eastern side. At a depth of 5 feet a small sized copper spear was recovered. It appears to have fallen during the filling of the grave pit. Lower down no proper sealing stones were recovered but we immediately reached the top of the burial chamber at a depth of 6 feet 4 inches from the surface stones. The chamber, extending east to west, measured 5' by 3' 9". The chamber was built of twelve stone courses of dry masonry,

measuring 4 feet 2 inches in depth. In the western half of the chamber was a large-sized visage urn along with 15 complete funerary pots of daily use (Fig. 18). Inside the urn remains of burnt bones along with a copper pin and a bone pin were recovered.

Grave No. 251 (Pl. XXIVd) With a Visage Urn

While removing the dark brown soil of layer (1), we came across the stone circle (Fig. 17), which had a radius of 4 feet. The stones were resting on the reddish brown soil, layer (2). This reddish earth inside the circle was dug out and at a depth of 5 feet were seen the stone slabs sealing the top of a burial chamber, extending east to west and measuring 4' 7" x 3' 4". The chamber was built of six courses of dry stone masonry. In the western half of the chamber were placed a large sized visage urn and many funerary vessels around it. (Fig. 18) The urn contained burnt bones. Other materials included an ornamental copper pin, a copper needle and stone discs.

Group (ii)

Grave No. 229 (Fig. 16). No stone circle

This is a grave of unusual type as in this case the stone circle of the grave was not discovered but the sealing stone slabs were found directly at a depth of 1 foot 6 inches from the surface. The slabs covered a stone chamber, extending east to west and measuring 1' 9" by 1' 1". Inside the chamber at a depth of 1 foot 1 inch was a small drinking cup with flaring rim in red ware of fabric (b) on the northern side (Fig. 18). No bones were found, but this may be a grave of a child. The burial was probably not properly done, it is likely that the children's remains were disposed of here.

Grave No. 237: (Pl. XXVa). Unusual type probably Group (ii)

This was a summary burial of unusual type, in which case no circle stones nor the burial chamber appears to have been made (Fig. 17). At a depth of 9 inches from the surface a small urn, buried in layer (2) and sealed by layer (1), was noted. It was covered by two broken pots. Inside the urn were burnt bones and a copper ring.

Grave No. 245 (Pl. XXVb). No Stone circle

This was probably a child's grave and as such there was no stone circle (Fig. 17). The sealing stones were reached directly at a depth of 9"

from the surface. They covered a burial chamber extending east to west and measuring 2' by 1' 7". From inside the chamber (Fig. 18) two complete funerary pots were found but no bones were recovered (See remark of Dr. Bernhard in the anthropological section in part VII).

TYPE (B) FRACTIONAL BURIALS

In the following graves no complete human skeleton was recovered nor were the bones burnt. Some parts of the bone materials were always found to be missing. In some cases the missing parts were found but in other cases only a few bones were buried. Sometimes there were bones of more than one individual. We do not know whether the dead body was first exposed and then the bones were gathered and buried here. This is a likely supposition. As in the case of TMG site No. 1 we have termed the type as fractional burials.

Group (i)

Grave No. 202 (Pl. XXVI a)

When the top soil was removed, the stone-lined circle (Fig. 16) was found at a depth of 1 foot 3 inches. The circle was rather oval measuring 9 feet 10 inches east to west and 8 feet 10 inches north to south. They rested on reddish brown soil, layer (2). Further down 2 feet 8 inches started the burial chamber, which measured 4' 9" by 3'. It was built of four courses of dry stone masonry and was 2 feet 1 inch deep. At the floor was the fractional skeletal remains disposed east to west with the skull facing south (Fig. 18). The leg bones were inflexed. Along with funerary pots an ornamental copper pin was found in the grave.

Grave No. 204 (Pl. XXVI b)

The stone lined oval (Fig. 16) was traced to a depth of 1 foot and 6 inches, the stones resting on the top of reddish brown soil, layer (2). The oval area measured 5 feet 3 inches east to west and 4 feet 6 inches north to south. 9 inches below these stones appeared the sealing stones, which covered the burial chamber, measuring 5' 1" by 2' 7", the longer side being east to west. The chamber was 2 feet 9 inches deep, and was built of nine courses of dry stone masonry. On the floor lay the fractional remains of a skeleton with the skull facing south and the leg bones inflexed (Fig. 18). Other bones lay in between them. Four funerary vessels and a long copper needle were found in the burial chamber.

Grave No. 209

The stone-lined circle (Fig. 16) of this grave was only partly exposed, the other part being hidden in the eastern section. It was 1 foot 6 inches from the surface and rested on reddish brown soil, layer (2). At a depth of 3 feet 9 inches the sealing stones were encountered, which covered the burial chamber. The chamber extended east to west (Fig. 18) and measured 4' 9" by 2' 1". It was 1 foot 10 inches high and was built of three courses of dry stone masonry. At the base were the fractional remains of an individual, with the skull facing south. It lay on the western side while the other bones were concentrated on the eastern side. A group of four complete funerary vessels were recovered from the chamber.

Grave No. 210 (Pl. XXVI c)

The stone-lined oval (Fig. 16) which was only 9 inches below the surface, measured 6 feet 6 inches east to west and 5 feet 6 inches north to south. These stones rested on reddish brown soil, layer (2). After digging 3 to 4 inches within the oval area, a group of three complete pots along with a number of pot-sherds was recovered (See also grave 256). This group of pots lay over the sealing stones. Its relationship with the main grave is not certain. It may be a later deposit. The sealing stones covered the burial chamber, which measured 4 feet 10 inches east to west and 2 feet 7 inches north to south. It was 2 feet 6 inches deep and was made up of six courses of dry stone masonry. On the floor was a heap of bones and a skull on the western side of the chamber (Fig. 18) and a group of five funerary vessels on the eastern side. As the anthropological report shows, bones of several individuals were collected and buried here. This was a case of multiple burial. All these bones were probably collected after exposure.

Grave No. 211 (Figs. 16 and 18)

This grave was indicated by a complete circle of stones, 6 inches below the surface, and the circle having a diameter of 5 feet 2 inches. As usual, underneath these stones was the reddish brown soil, layer (2). Further down 1 foot 6 inches large stone slabs sealed the burial chamber, measuring 2 feet east to west and 1 foot 6 inches north to south. It was 1 foot 2 inches deep and was made up of two courses of dry stone masonry. At the base were the fractional remains of bones, a skull and three funerary vessels. The bone materials were very fragile. Hence no anthropological data could be collected.

Grave No. 212 (Pl. XXVI d)

The stone-lined oval (Fig. 16) was found to a depth of 9 inches resting on layer (2). The oval measured 5 feet east to west and 4 feet 6 inches north to south. Further down, 3 feet 4 inches, the sealing stones appeared, which covered the burial chamber. The chamber, which extended east to west and measured 3' 2" by 2' 1", was 1 foot 6 inches deep and was made up of four courses of dry stone masonry. At the bottom lay the fractional remains of a skeleton with the skull facing north and leg bones inflexed (Fig. 18). An ornamental copper pin was found near the skull and further there was a group of 7 funerary vessels.

Grave No. 223 (Pl. XXVII a)

The stone-lined circle (Fig. 16) was only partly traced, the other part being concealed in the eastern section. Within the circle many other stones had fallen in. Apparently the top was disturbed. When these stones were removed, a grave pit, measuring 6 feet east to west and 5 feet 6 inches north to south, was found. This must be a later burial but nothing was recovered in this pit. By digging down further 1 foot 9 inches large stone slabs sealing the proper burial chamber were met. The chamber, 4' 9" by 2' 6" and extending east to west (Fig. 18), was 2 feet deep and was made up of five courses of dry stone masonry. At the bottom lay the fractional remains of a skeleton with the skull in the western side and leg bones inflexed. On the eastern half of the chamber lay ten complete funerary vessels.

Grave No. 228 (Pl. XXVII b)

The stone-lined circle (Fig. 16), which was traced 1 foot 3 inches below the surface, was partly hidden in the central baulk and the other parts were rather disturbed by the neighbouring graves. Further down 2 feet large stone slabs sealed the burial chamber, which measured 4 feet 7 inches east to west (Fig. 18) and 2 feet 11 inches north to south. It was 2 feet deep and was built of six courses of dry stone masonry. At the base were fractional bones — the skull on the western side, and on the eastern side further concentration of bones.

Grave No. 241 (Fig. 17)

The stone lined circle of this grave is partly imbedded in the northern and western sections and partly disturbed by the stones of grave No.

242. The exposed portion makes an oval, measuring 6 feet 3 inches north to south and 6 feet east to west. No sealing stones were recovered but the burial chamber was reached directly at a depth of 2 feet 3 inches from the bottom of the stone circle. The chamber extended east to west and measured 4' by 3' 2". It was 2 feet deep. At the bottom lay the fractional remains of the skeleton with the skull facing south. Three funerary pots were recovered from the southern side.

Grave No. 242 (Fig. 17) Disturbed

This appears to have been a rather disturbed grave. No stone circle could be properly traced out but at a depth of 9 inches there was a large concentration of stones. While digging further down, the burial chamber was reached directly at a depth of 2 feet 6 inches. It may be that the sealing stones were pulled out later and left scattered higher up. The chamber measured 4 feet 3 inches from east to west and 2 feet 11 inches from north to south. It was 2 feet deep and was built up with four courses of dry stone masonry. Fractional remains of an individual were properly disposed of. A group of 5 funerary vessels was recovered from the north-eastern corner of the chamber.

Grave No. 247 (Pl. XXVIIc)

The stone lined circle (Fig. 17) of this grave lay 1 foot below the surface, below which was the reddish brown soil, layer (2). No sealing stones were recovered but we reached directly the burial chamber (Fig. 18) at a depth of 3 feet 10 inches. It measured 6' 2" by 3' 8". It was 3 feet 9 inches deep and was made up of 7 courses of dry stone masonry. Inside the chamber lay the fractional remains of bones along with 11 complete funerary vessels.

Grave No. 254 (Pl. XXVIIId)

The stone lined circle (Fig. 17) of this grave was found hardly 3 inches below the surface. On the western side were two head stones—one upright and the other flat. These stones rested on reddish brown soil, layer (2). Further down 2 feet the sealing stones were reached. The burial chamber (Fig. 18) measured 4' 3" by 2' 11". It was 2 feet 5 inches deep and was built up of six courses of dry stone masonry. At the base were the fractional remains of more than one individual along with funerary vessels.

Grave No. 256 (Pl. XXVIIIa)

The stone-lined circle (Fig. 17), which was disturbed, lay hardly a

few inches below the surface. Within this stone circle and at a depth of 2 to 3 inches a group of 3 funerary vessels was recovered (See also grave 210). This group lay above the sealing stones which covered the burial chamber (Fig. 18), measuring 4' 3" by 3' 3". The chamber was 2 feet 6 inches deep and was built up with six courses of dry stone masonry. At the base was a large concentration of fractional bones along with two ornamental copper pins and six funerary vessels.

Group (ii)

Grave No. 220 A and 220 B (Pl. XXVIIIb)

These are children graves. Immediately below the dark brown soil, layer (1), a rectangular structure made of stone slabs was met with. Two separate graves (Fig. 16) came to light. Hence they were numbered A and B. The eastern grave (B) did not produce any remains, but the western chamber (A) (Fig. 18), which measured 1 foot 8 inches east to west and 1 foot 4 inches north to south, produced a skull of a child along with four funerary pots. No other bone remains were recorded.

Grave No. 244 (Pl. XXVIII c)

This was also a grave (Fig. 17) of a boy. Immediately below the dark brown soil of layer (1) large stones, placed north to south in length, were observed. These stones sealed a burial chamber extending east to west (Fig. 18) and measuring 2' 9" by 2'. It was 1 foot 3 inches deep and was built of two courses of dry stone masonry. At the floor was the fractional remains of the boy, with the skull facing south. Other bone materials were on the eastern side of the chamber. The actual position of the bones is shown in the drawing. A narrow-waisted drinking vase lay close to the skull.

Grave No. 248 A and 248 B (Figs. 17 and 18)

These are two separate children's graves but connected with each other by a common sealing cover of stones. These stones were 6 inches below the surface. The western grave was called A. Its burial chamber extended east to west and measured 7' 6" by 1' 2". It was 1 foot 3 inches deep and was made up of two courses of dry stone masonry. At the floor lay a skull with other fractional bones and two funerary vessels. The eastern grave, called B, had its chamber extending east to west and measuring 2' 4" by 1' 2". It was 11 inches deep. At the floor lay a skull and a drinking vase.

Grave No. 250 (Pl. XXVIII d)

This was also a grave (Fig. 17) of a young boy. At a depth of 9 inches sealing stones, consisting of rectangular slabs were found. They were placed north to south over the chamber extending east to west (Fig. 18). It measured 2' 9" by 2', was eleven inches deep and was made up of three stone courses. At the floor were the remains of the skeleton. According to the anthropological report the bone materials appertained to two boys. Inside the chamber were two funerary pots—one on the north-western corner and the other on the south-eastern corner, possibly one for each boy. An ornamental copper pin was also found from the northern side of the chamber.

Grave No. 253 (Pl. XXIX a)

This was also a grave (Fig. 17) of a child. Immediately one foot below the surface lay the sealing stones of rectangular slabs, which covered a burial chamber (Fig. 18), measuring 2' by 1'. At a depth of one foot within the chamber lay fractional bone materials, a funerary vase and two stone discs.

Grave No. 262 (Pl. XXIX b)

This is an exceptional grave (Fig. 17) as it does not belong to a child but to an old woman. Nine inches below the surface the sealing stones were encountered. Underneath them was the burial chamber measuring 3 feet 7 inches east to west (Fig. 18) and 2 feet north to south. It was 1 foot 5 inches deep and was made up of four courses of dry stone masonry. At the floor were the fractional remains of an individual along with three funerary vessels.

Grave No. 265 (Figs 17 and 18)

This is also an exceptional grave as it does not belong to a child. Six inches below the surface were the sealing stones which covered a burial chamber, extending east to west and measuring 3' 2" by 1' 4". The chamber was 1 foot 6 inches deep and was made up of five courses of dry stone masonry. At the floor lay the fractional remains of bones — skull on the south western side and other long bones close to it. Inside the chamber were two funerary vessels.

Grave No. 270 (Pl. XXIX c)

This is another exceptional grave (Fig. 16) as it does not belong to a

child. Six inches below the surface were the sealing stones resting on reddish brown soil of layer (2). The burial chamber measured 4 feet 7 inches east to west (Fig. 18) and 2 feet north to south. It was 2 feet 4 inches deep and was made up of six courses of dry stone masonry. At the floor lay the fractional skeletal remains—skull on the western side facing south and the leg bones on the eastern side. Three funerary vessels were also found inside the chamber.

Conclusion:

TMG Site II appears to have been used as a cemetery much later than site I. Here we have not yet found the graves of period I. There were only limited number of graves which had post-cremated bones. Two graves revealed the mixed practice. In No. 217 post-cremated bones in an urn were found together with fractional burial, but as has been shown earlier, the urn burial was earlier in date. In the second grave No. 240 the burnt materials of an individual lay separate from the fractional burial of another individual at a deeper level. Though here disturbance in the upper sealing stones of the grave could not be detected yet it seems that here also there was a case of two different burials at two different times. The fractional burial also indicated two different practices: (i) When the greater portion of the skeleton was available, it was properly disposed of in the flexed position; and (ii) when the bones were scanty, they were just heaped on a side. The third practice was that of a multiple burial. In two graves Nos. 210 and 256, besides the normal burial furniture inside the chamber, there were three extra funerary pots over the sealing stones. The only metal found in these graves was copper but this is probably because iron was rare in this region. The age of the fractional burials has to be determined on the basis of pottery types



Section — 6

TIMARGARHA SITE NO. 3

1965 Season

By

PROF. AHMAD HASAN DANI

INTRODUCTION

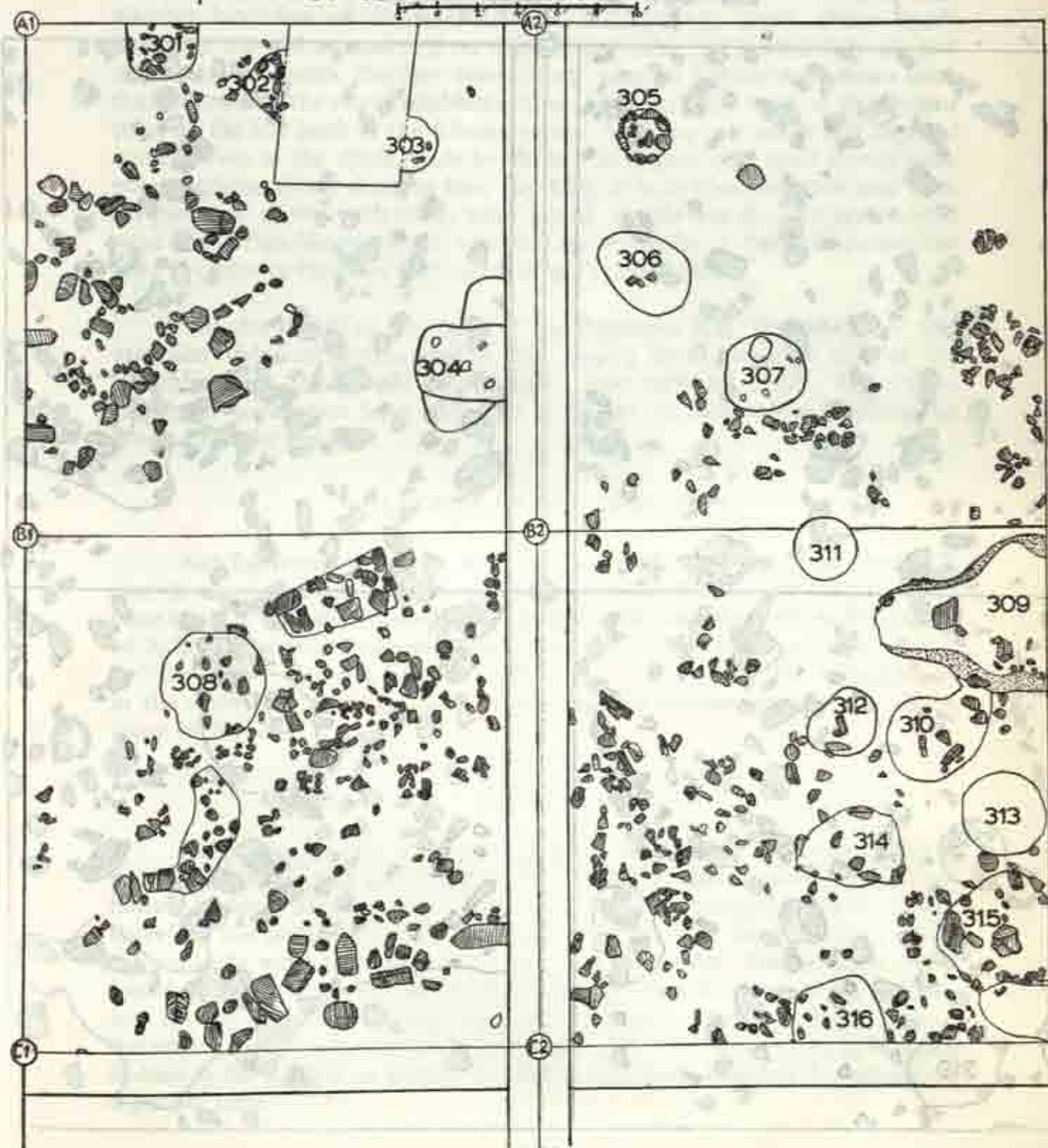
The site was originally discovered in November, 1962 by the author

TIMARGARA 1965

Fig. 19

SITE NO. 3

LAY-OUT OF TRENCHES WITH PITS

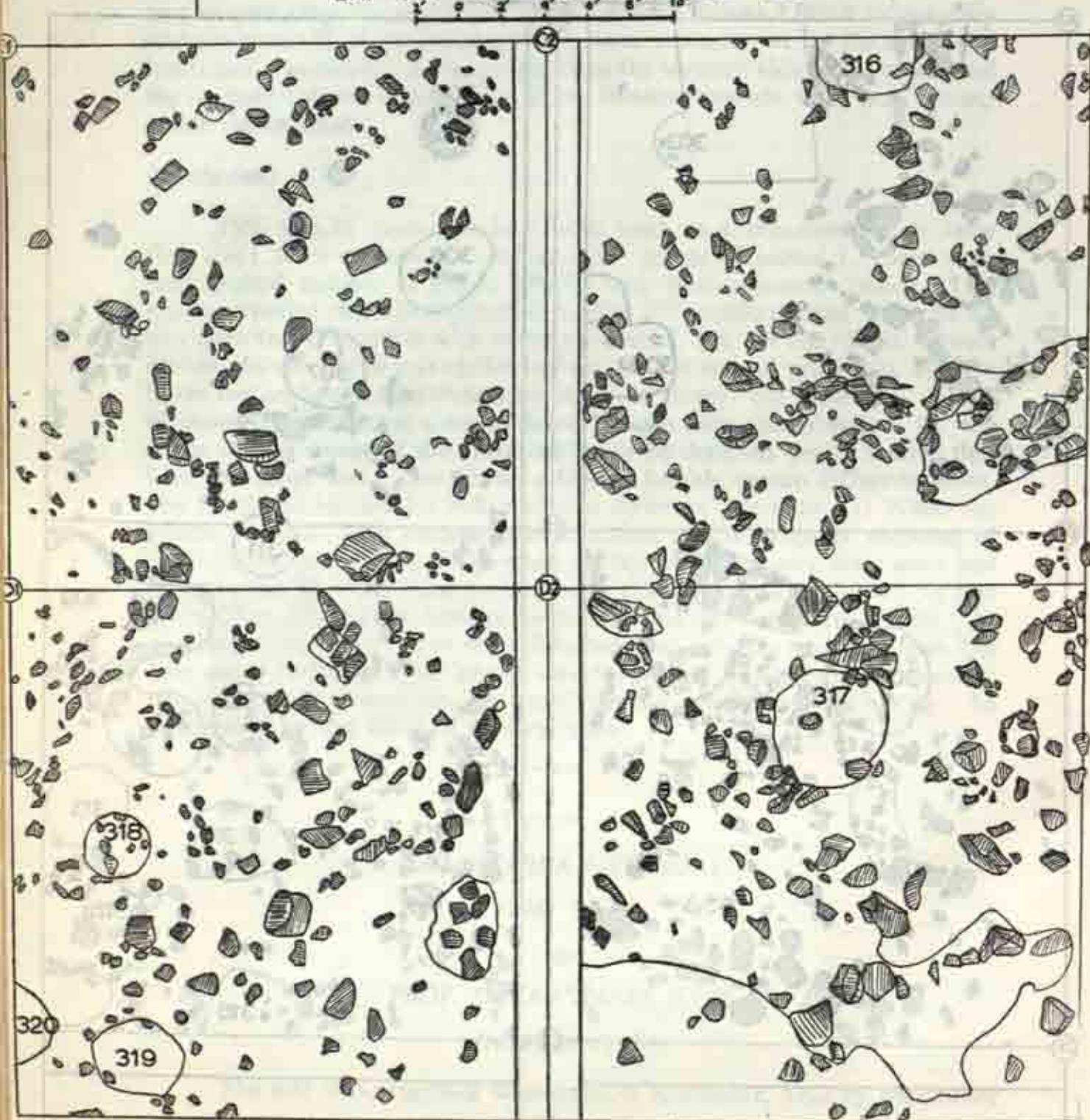


TIMARGARA 1965

SITE NO. 3

LAY-OUT OF TRENCHES WITH PITS

Fig. 20



during his first exploratory trip. After crossing the river Panchkora, the road, that goes round the Balambat fort, leads onward to Bajaur and another branches off to the west towards Hayasire. Both these roads have cut the old mound and on their either side are strewn lots of potsherds in the fields. Further towards the south a *Khwar* runs down from the hill towards the river Panchkora. About two furlongs west of the Bajaur road on the left bank of the *Khwar*, people have dug out earth and exposed some graves in the ditch made by them. The Bajaur road itself shows some good sections about three to four feet high. It is in these sections that several pieces of sherds with bones were noted. As this was the first site located west of the Panchkora river, it was decided to make a limited excavation here in order to find out the nature of the burial here.

The site stands to the south of the Balambat fort. The whole of this area was under cultivation, and as it is sloping down the high cliff of the Balambat fort, the people had turned it into terraced fields. Apparently the upper occupation layer had been destroyed by them while levelling the ground for the fields.

LAY-OUT OF THE TRENCHES

Not far from the Bajaur road an area, 100' north to south and 50' east to west, was selected for excavation. It was divided into four trenches (See Figs. 19 and 20) from north to south, each measuring 25' and numbered A, B, C, and D and two trenches from west to east and numbered 1 and 2. Thus we got the trenches A1, A2, B1, B2, C1, C2 and D1, D2. A long baulk in the centre, measuring 3' wide, separated the trenches numbered 1 from those of No. 2.

RESULTS

No proper burial was found in the excavation of these trenches. On removing the top soil several pits were observed, which were dug in a haphazard fashion. The material contents of the pits were not uniform. It was therefore not possible to take them as sacrificial pits. On the other hand the contents were poor and suggested refuse material. Similar pits were found in 1966 excavation in the Balambat settlement site—a site which was discovered while digging these pits. In 1965 a small trench was laid in the settlement area but it was fully excavated in 1966. The dating of this site is done in the section on pottery as that is the main evidence for giving us a proper clue.

The site was excavated under my direction by Dr. A.H. Mirza of Karachi University with the assistance of Mr. Sadar Din of the Department of Archaeology, Government of Pakistan. Dr. Mirza maintained the diary, and this note is based on his daily report.

DESCRIPTION OF THE PITS

PIT NO. 301

This pit lay in trench A1 along its northern baulk (Fig. 19). Some portion of the pit was concealed in the section. It started in layer (1) at the depth of 1' 3" from the surface. As such the soft grey soil of layer (1) was filled in the pit, though the pit actually went down through layer (2), the soil of which was hard and red. On the top of the pit lay a few scattered stones and some potsherds. The pit made a rough circle with a diameter of 3' 2" and depth 1' 8". Inside the pit were a few pieces of bones, pot-sherds and some ash (Pl. XXXa).

PIT NO. 302

This pit lay in trench A1, a little south of the northern baulk (Fig. 19). This pit is semi-circular in shape. As before, it started in layer (1) and went deep into the second layer. The depth of the pit is 2 feet and its diameter 3' 8". On the top of the pit lay some stones. Inside the pit were found large number of potsherds, a tall drinking vase with its rim broken and grey soil mixed with ash. Charcoal mixed with earth was found sticking to a potsherd (Pl. XXXb).

PIT NO. 303

The pit lay in the north-eastern part of trench A1 (Fig. 19). It is almost circular in shape with its diameter 2' 4". It also belonged to layer (1) as it started from that layer. The depth of the pit was 1' 6". Inside the pit were charcoal, which had been reduced to powder and mixed with grey soil, plain potsherds, two rim fragments, some pieces of bones and an open-mouthed drinking cup with flared rim. (Pl. XXXc).

PIT NO. 304

The pit lay in the south-eastern part of trench A1 along its eastern baulk (Fig. 19). There were two other pits attached to its north and south. The pit, which made a rough rectangle, belonged to layer (1). It was 5' 3"

long. The pit was 1' 2" deep. The contents of the pit were: charcoal mixed with grey soil, a biconical terracotta bead of black colour, a number of potsherds and an oval-shaped weight. The pit belonged to layer (1) and its filling was done from its soil (Pl. XXXIa).

PIT NO. 305

The pit lay in the north western part of trench A2 (Fig. 19). It was noticed at a depth of 9 inches from the ground level when a few stones were observed on its top. The pit made a complete circle with its diameter 2' 4" and depth 1' 9". It belonged to layer (1). The contents of the pit were: burnt pieces of animal bones, charcoal pieces mixed with earth, plain potsherds, a terracotta biconical bead.

PIT NO. 306

The pit lay in the western part of trench A2 (Fig. 19). It made a rough oval shape, with its longitudinal measurement 3' 4". The depth of the pit was 2' 11". It also belonged to layer (1). From the very start potsherds of red and grey ware were obtained in plenty. Tremendous amount of charcoal mixed with earth and sticking to the potsherds was found. In the centre of the pit was a tall drinking vase upside down. It was full of charcoal. Near it were broken parts of a bowl-on-stand. Along with them were a few pieces of bones and a terracotta biconical bead.

PIT NO. 307

The pit lay in the southern half of trench A2 (Fig. 19). It is circular in shape with its diameter 3' 4" and depth 1' 6". It belonged to layer (1). Inside the pit were a few pieces of bones, potsherds including a knob of a lid and charcoal mixed with earth.

PIT NO. 308

The pit lay in the northern half of trench B1 (Fig. 19). It was eight inches below the present ground level and was circular in shape, with its diameter 4' 2" and depth 2 feet. It was indicated by a few stones on its top. It also belonged to layer (1). Inside were only a few potsherds and some stones.

PIT NO. 309

In trench B2 along its eastern baulk was found this pit (Fig. 19), long and irregular hardly nine inches below the present ground level. It was 8 feet long. On its top were a few potsherds and a flat slab. The pit ended at a depth of 3' 9". Inside the pit were large number of potsherds, charcoal pieces mixed with earth, ash and one extremely narrow waisted tall drinking vase but broken.

PIT NO. 310

The pit lay in trench B2 to the south of the above pit (Fig. 19). It was circular in shape with its diameter 4' 4". It also belonged to layer (1). The pit ended at a depth of 1' 9". It produced abundance of potsherds including a drinking cup and a big piece of jar, a broken bowl decorated with incised lines, bones in great quantity, some charcoal pieces and a biconical terracotta bead (P1 XXXIb).

PIT NO. 311

The pit lay in trench B2 along its northern baulk (Fig. 19). Part of it extended into trench A2. It also belonged to layer (1). It was circular in shape with its diameter 3 feet. It was a shallow pit, hardly 8" in depth, and produced only potsherds and some ash mixed with grey soil.

PIT NO. 312

The pit lay in trench B2 slightly to the west of pit No. 310 (Fig. 19). It made a rough circle, with its diameter 3' 4". The depth of the pit was 1' 2". It also belonged to layer (1). The contents were: painted potsherds, perforated potsherds, a terracotta biconical bead, charcoal pieces mixed with earth, some burnt animal bones. This was an exceptional pit producing rich material.

PIT NO. 313

The pit lay in trench B2 close to its eastern baulk hardly a few inches below the ground level (Fig. 19). It also belonged to layer (1). It was circular in shape with its diameter 3' 11". The pit was 1' 1" deep. Inside were a few pieces of potsherds, including an open-mouthed drinking cup in red, some charcoal mixed with earth and a few pieces of bones.

PIT NO. 314

The pit lay in the southern part of trench B2, hardly a few inches from the present surface (Fig. 19). It was irregular in shape with its diameter 3' 6", and was very shallow, only 4" deep. Inside were only a few potsherds and dark earth.

PIT NO. 315

The pit lay in the south-eastern part of trench B2 (Fig. 19). It is irregular in shape with its diameter 2' 5". It was also a shallow pit, only 3" in depth and produced nothing worth recording.

PIT NO. 316

Part of this pit lay in the extreme south of trench B2 (Fig. 19) and the other portion in trench C2 (Fig. 20). It was irregular in shape, almost a semi-circle and was found hardly a few inches below the surface. It was 4' 6" in diameter and 10" in depth. Inside were pieces of bones and potsherds and burnt earth in separate bits, taken to be hearth (P1. XXXI-c). There was also a big piece of jar and other potsherds.

PIT NO. 317

The pit lay in the northern half of trench D2 (Fig. 20). It was an irregular pit with its diameter 4' 4" and depth 1 foot. Only a few potsherds were collected.

PIT NO. 318

The pit lay in the western half of trench D1 (Fig. 29). It was circular in shape with its diameter 2' 8", and was only 5" deep. Nothing important was found in this pit.

PIT NO. 319

The pit lay in the western half of trench D1 (Fig. 20). It was circular in shape with its diameter 3' 9" and depth 1' 4". The contents included large amount of potsherds, a few pieces of bones, and a few powdered charcoal mixed with earth.

PIT NO. 320.

The pit lay along the western baulk of trench D1 (Fig. 20). It made a rough circle with its diameter 3' 6". It was an exceptionally deep pit measuring 4' 5". The contents were pot-sherds, charcoal and bone pieces.

Vol. 10, Part 1

1910, 1911

The first part of the volume contains a list of names of persons who have been elected to the office of President of the Institute for the year 1910-1911. The names are arranged in alphabetical order, and each name is followed by the name of the country to which it belongs.

1910, 1911

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**Pottery
from
The Graves**

Part III

By
PROP. AHMAD HASAN DANI

Pottery
from
The Graves

Part III

ix

THE UNIVERSITY OF CHICAGO PRESS

POTTERY FROM THE GRAVES

By Prof. Ahmad Hasan Dani

Pottery is the most important find in the graves at Thana and Timargarha. In almost every grave pots are buried along with the remains of the dead. The contents of these pots have not yet been analysed. The number of pots varies from grave to grave. In those of the children their number is limited and in those of the adults it is larger. But the largest number comes from the double or multiple burial graves. As the analysis of these burials under the section on excavation has shown, all the double or mixed burials are not contemporary. The people, who practised the ritual of fractional burial, often re-opened the earlier graves and put in their own dead. In the following description attempt is made to distinguish the varieties of pots belonging to the complete burials from those of the cremated and the fractional burials. Mixed burials are then taken up and finally a contrast is made between the pottery types of one ritual from those of the others. This process has enabled us to confirm the evidence reached by the analysis of the excavation.

The pottery from the graves may be broadly divided into two groups:

A) Red Ware Pottery.

B) Grey Ware Pottery.

A) RED WARE POTTERY

This pottery again falls into three sub-groups on the basis of fabric, technical manufacture, firing and surface finish.

a) This sub-group includes pottery made of very coarse clay, in which grits and rough husks are crudely mixed up. The clay is not properly levigated. The pots are made by hand. The kiln is also not well organised. As the firing was not properly controlled, uneven firing is clearly visible on the pots. Their core is al-

ways blackish. As the texture is rough, local cracks are visible after firing. No decoration could be applied on such a rough surface. The most important variety in this sub-group is the cooking pot, sometimes along with its lid. The pot has a disc-base and sharply everted rim, inclined at an angle of 45°. The top of the rim is usually rippled, the ripples obtained by cuts made with a stick. This pot is the hall-mark of the graves and is found in most of them. It must have been made for common consumption.

- b) This sub-group includes pottery made of medium clay, in which grits, if at all present, are reduced to the minimum. No husk is seen in the clay but sometimes mica particles are observable. The clay is properly levigated and the pots are made with care in a slow wheel. Attempt is made to give proper finish to the pots. They are generally red-slipped and some of them bear surface decorations in the form of cordons, incised lines or grooved lines. The most important type in this fabric is the bowl-on-stand, which is found in all the types of graves, though there are exceptional bowls-on-stand, made of coarse fabric. As this ware was known even to the people of the earliest grave, so far excavated by us, we are not in a position to set chronological limitation on it. But it is well worth recording that the varieties of pots increase in the cremated burials as well as in the fractional burials. Even the cooking pots are copied in this ware in the later graves. And when we find that such cooking pots now begin to have stands in this new ware, it is reasonable to conclude that such graves which have them are obviously later in date. They also show greater familiarity with this ware. Such graves are those which have cremated burials. We have never found a complete burial along with the cremated burial in the same grave. But the people of the fractional burials can be charged with the crime of re-opening the earlier graves, disturbing the bones and putting their own dead in them. However, the evidence of pottery is conclusive on the point that the cremated burials are later than the complete burials.

- c) This sub-group includes pottery made of extremely fine clay, in which no grits or husks are seen at all. The clay is very well levigated, and pots with thin section and light in weight are made. They must have been made in a fast foot-wheel, in which both

the hands are free to mould the pot in the shape desired. The surface is very smooth, to which deep red slip is applied. Cordoned or incised lines are seen on the surface. The most important examples in this ware are the extremely fine hour-glass type of drinking vase and the *Surahi* — type of long narrow necked water vessel. This ware is not known at all in the graves of the complete or cremated burials. It is found only with the fractional burials and is also associated with iron. It is definitely a new introduction along with the knowledge of iron in this region by those people who practised the ritual of fractional burial. Such graves are no doubt latest in the series—a conclusion which confirms the evidence from the excavation.

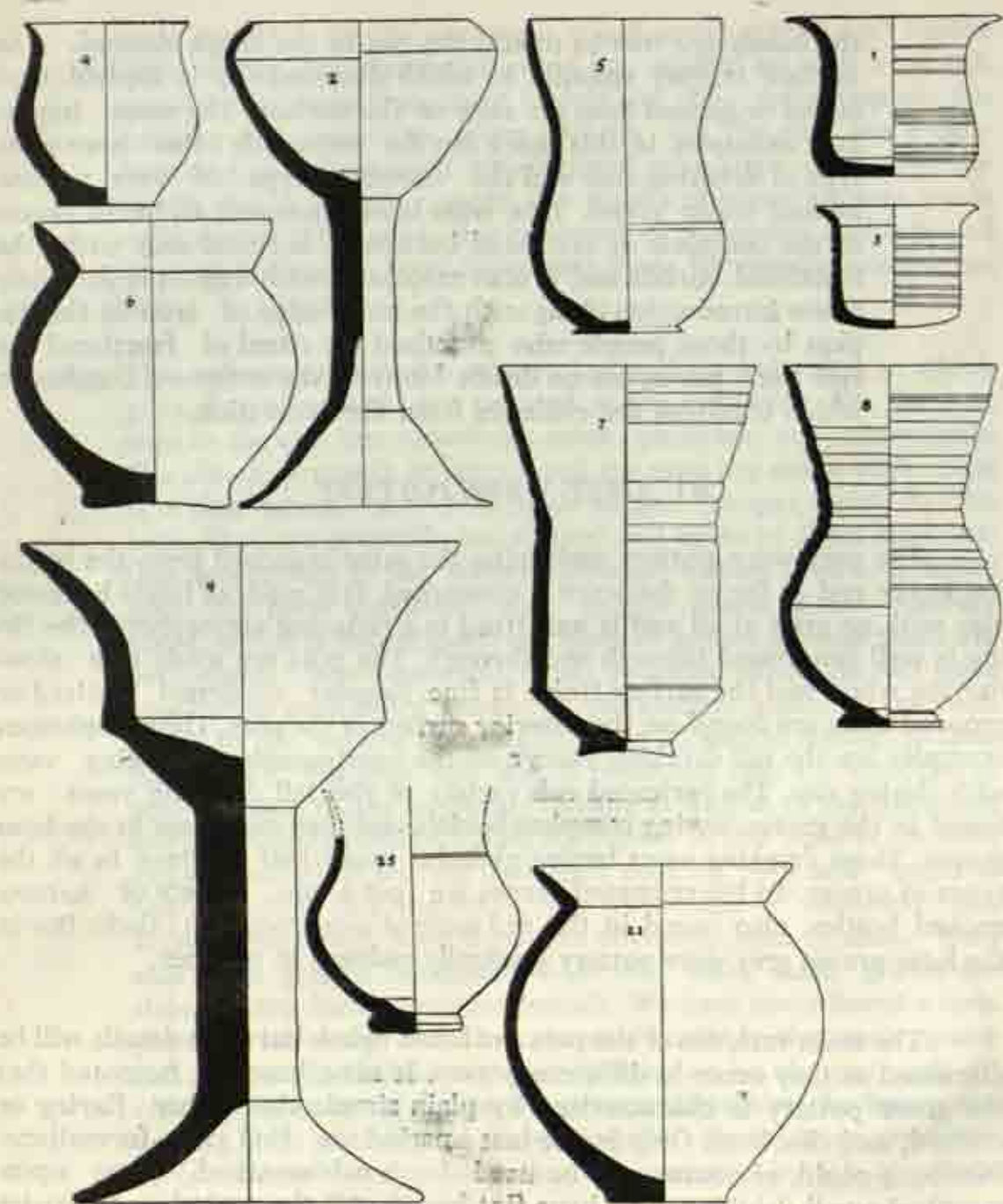
B) GREY WARE POTTERY

The grey ware pottery maintains the same standard from the beginning to the end as far as the ware is concerned. It is made of finely levigated clay with no grits at all and is well fired in a reducing atmosphere. The firing is well penetrated through and through. The pots are made in a slow-moving wheel and the surface finish is fine. Regular cordoned, incised or grooved lines are found on the exterior surface of the pots. The conspicuous examples are the tall drinking vases and the open-mouthed drinking cups with flaring rim. The carinated sub variety of the tall drinking vases are found in the graves having complete burials and they disappear in the later graves. Those drinking vases having globular lower half continue in all the types of graves. In the cremated graves we get a new variety of narrow necked bottles, also found in the red ware of sub-group (b) fabric. But in the later graves grey ware pottery gradually reduces in number.

The main varieties of the pots are listed below but their details will be discussed as they occur in different graves. It may, however, be noted that the grave pottery is characterised by plain simple rim, either flaring or everted, and disc-base. Only in the last period we find rim formations. Disc-base could, of course, not be used in bowls-on-stand. Some open-mouthed small drinking cups have flat base in all the periods, otherwise flat base is seen mainly in the last period.

VARIETY (i)

Sub-Variety (a): *Cooking pot*. It is seen only in red ware, has a disc-base.



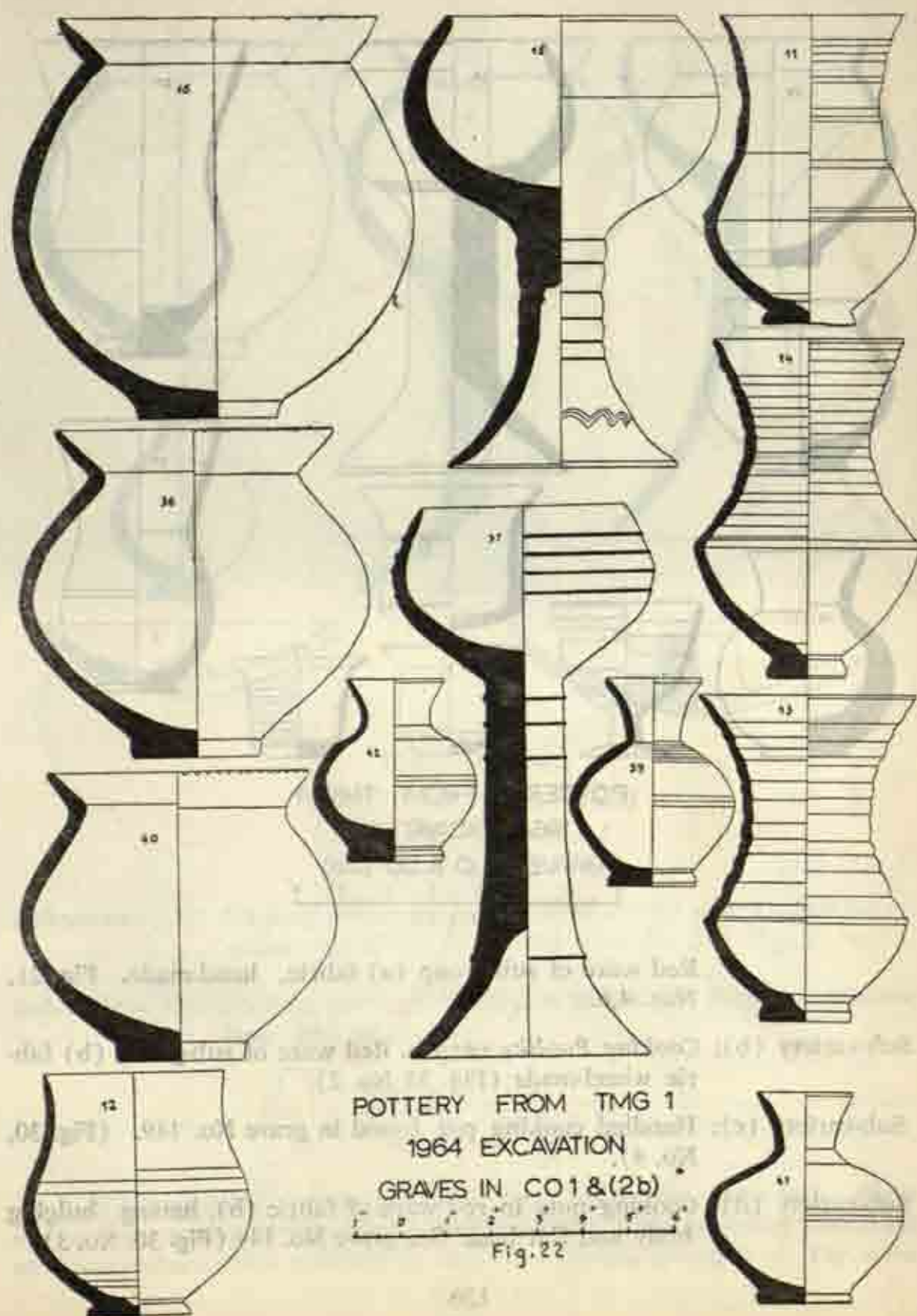
POTTERY FROM TMG 1

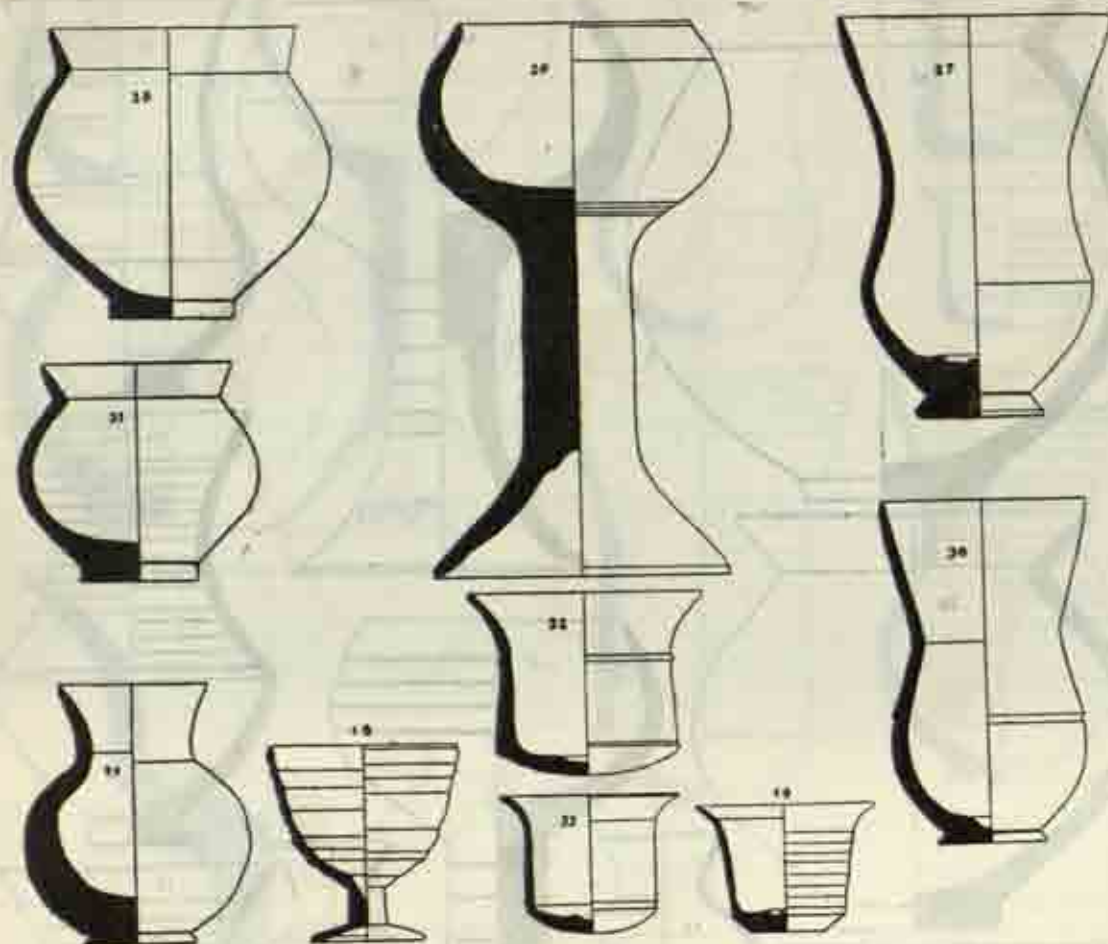
1964 EXCAVATION

GRAVES IN B1 & D1

0 1 2 3 4 5 6

Fig. 21





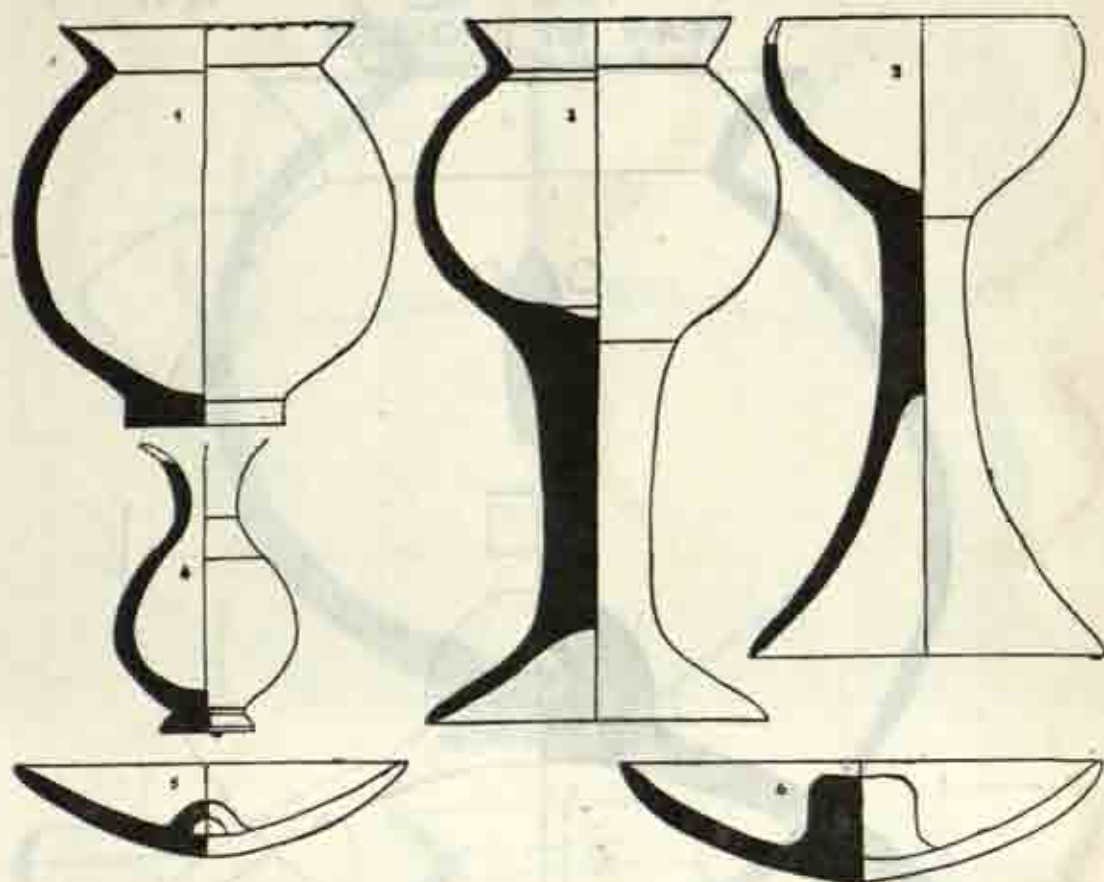
POTTERY FROM TMG 1
1964 EXCAVATION
GRAVES LO & CO (2a)
Fig. 23

Red ware of sub-group (a) fabric, hand-made, Fig. 21, Nos. 4, 6.

Sub-variety (b): *Cooking Pot-like vessels*. Red ware of sub-group (b) fabric wheel-made (Fig. 35 No. 2).

Sub-variety (c): Handled cooking pot, found in grave No. 149. (Fig. 30, No. 4).

Sub-variety (d): Cooking pots in red ware of fabric (b), having bulging body and flat base. See grave No. 149 (Fig. 30, No. 3).



TMG 1 1965
GRAVE 122 (CREMATED)

1" 2" 3" 4" 5"

Fig. 24

Sub-variety (e): Cooking pot in red ware of fabric (b) with a holed lug on either side of the body from grave No. 213 (Fig. 35. No.1).

Sub-variety (f): Cooking pot in red ware of fabric (b) having a concave base (Fig. 39, No. 3).

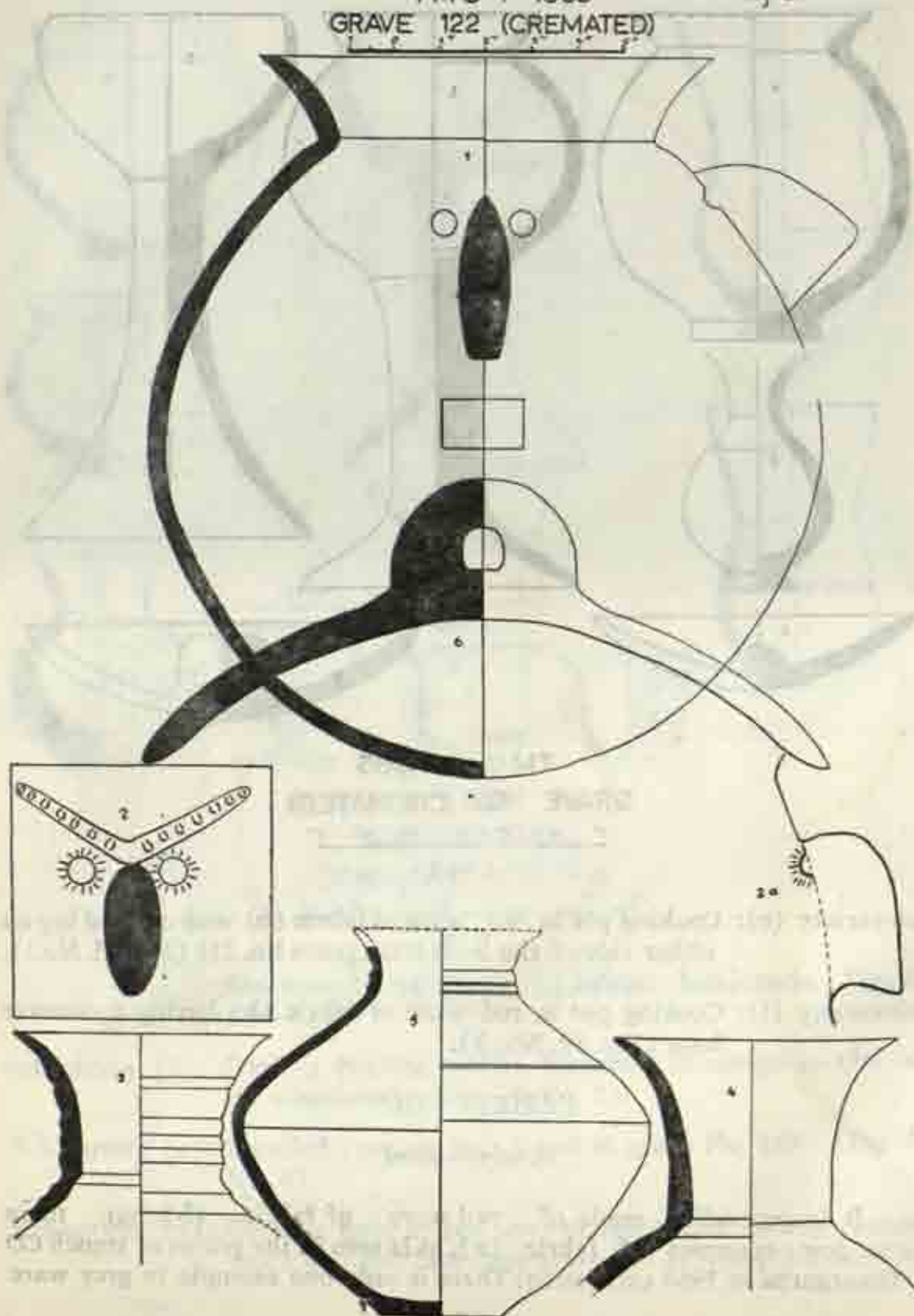
VARIETY (ii)

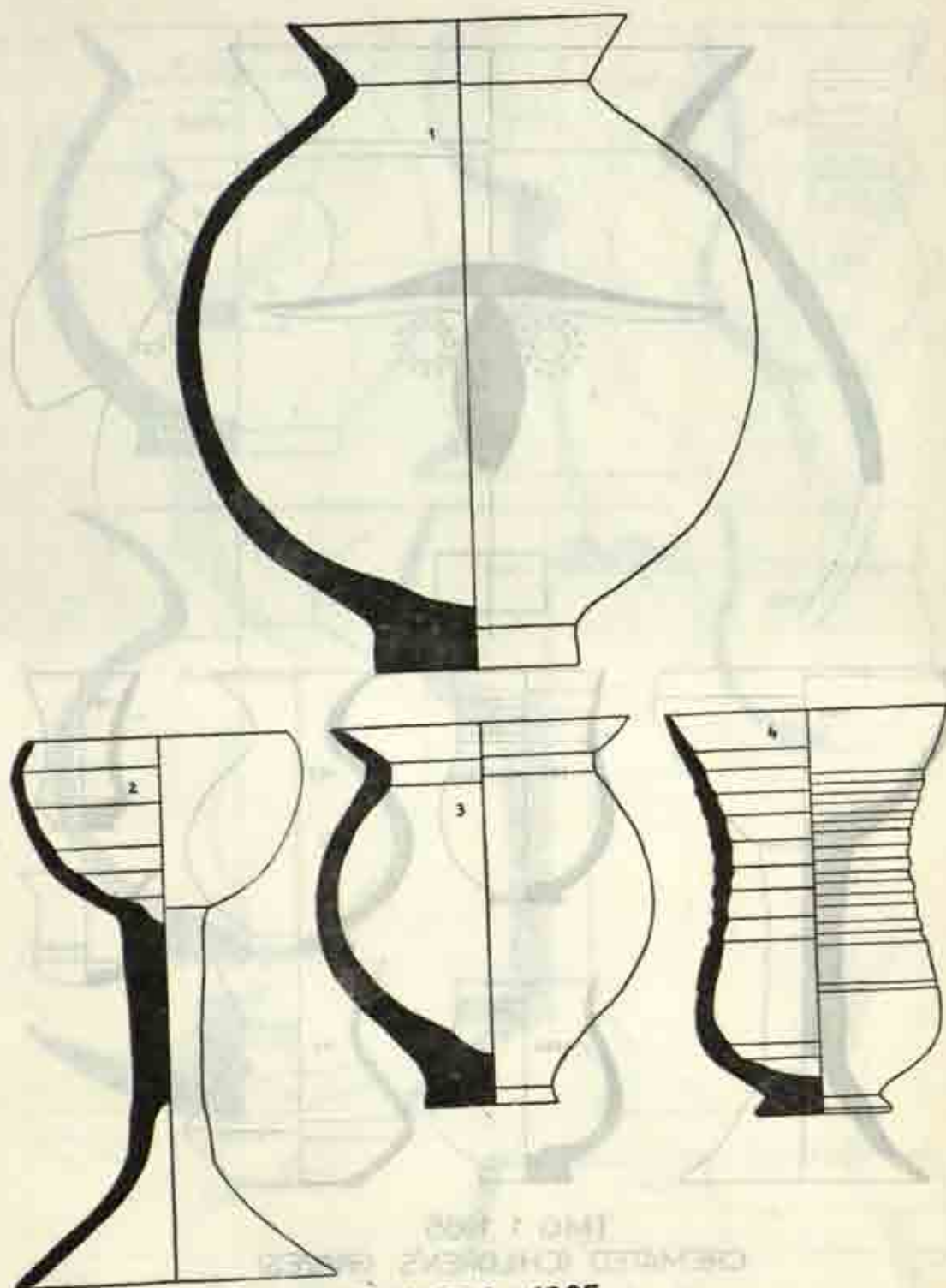
Bowl-on-stand

It is generally made of red ware of fabric (b), but there are a few examples of fabric (a), as is seen in the graves of trench CO at Timargarha in 1964 excavation. There is only one example in grey ware

TMG 1 1965
GRAVE 122 (CREMATED)

Fig. 25





TMG 1 1965

GRAVE N0119 (CREMATED)

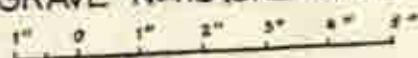
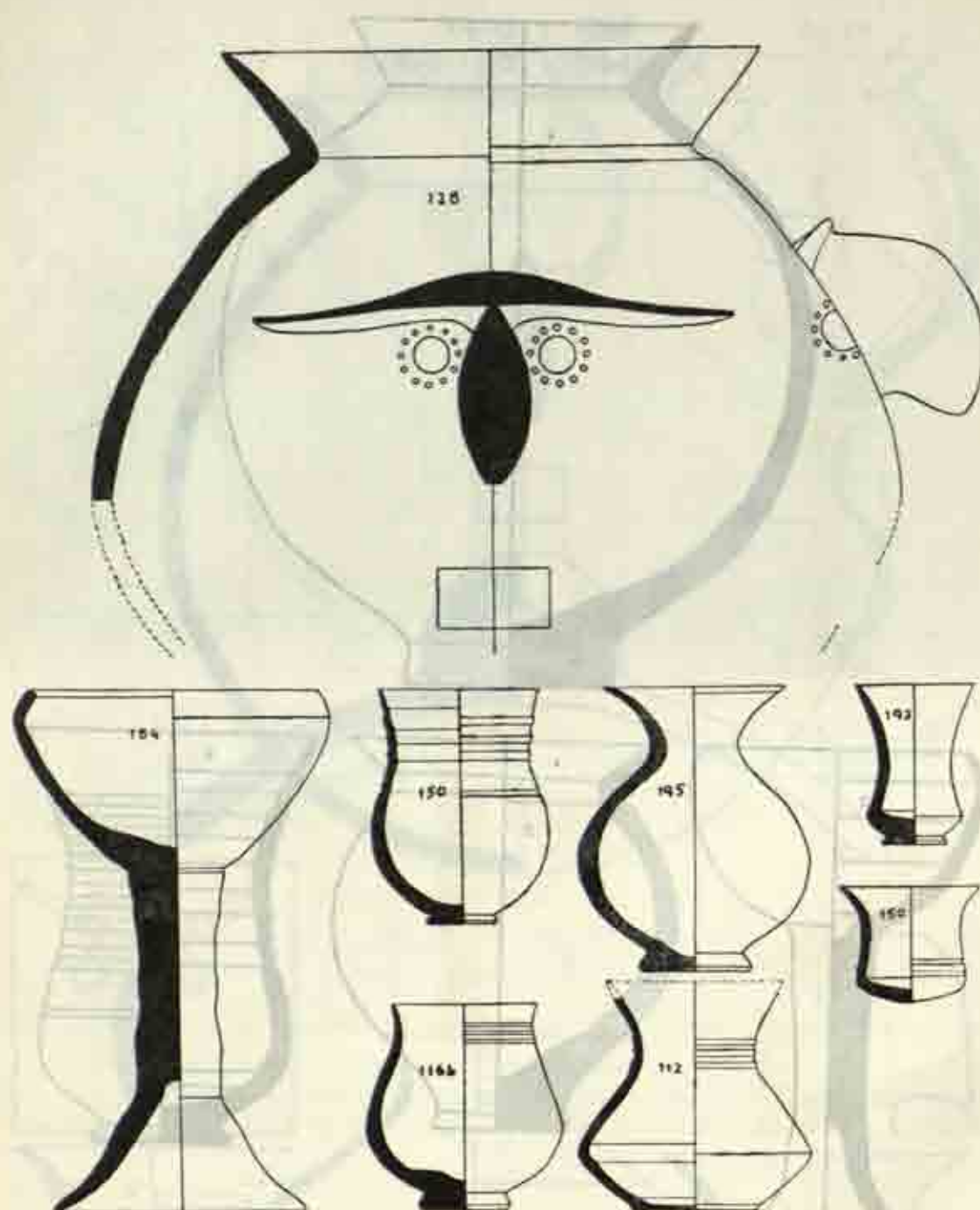


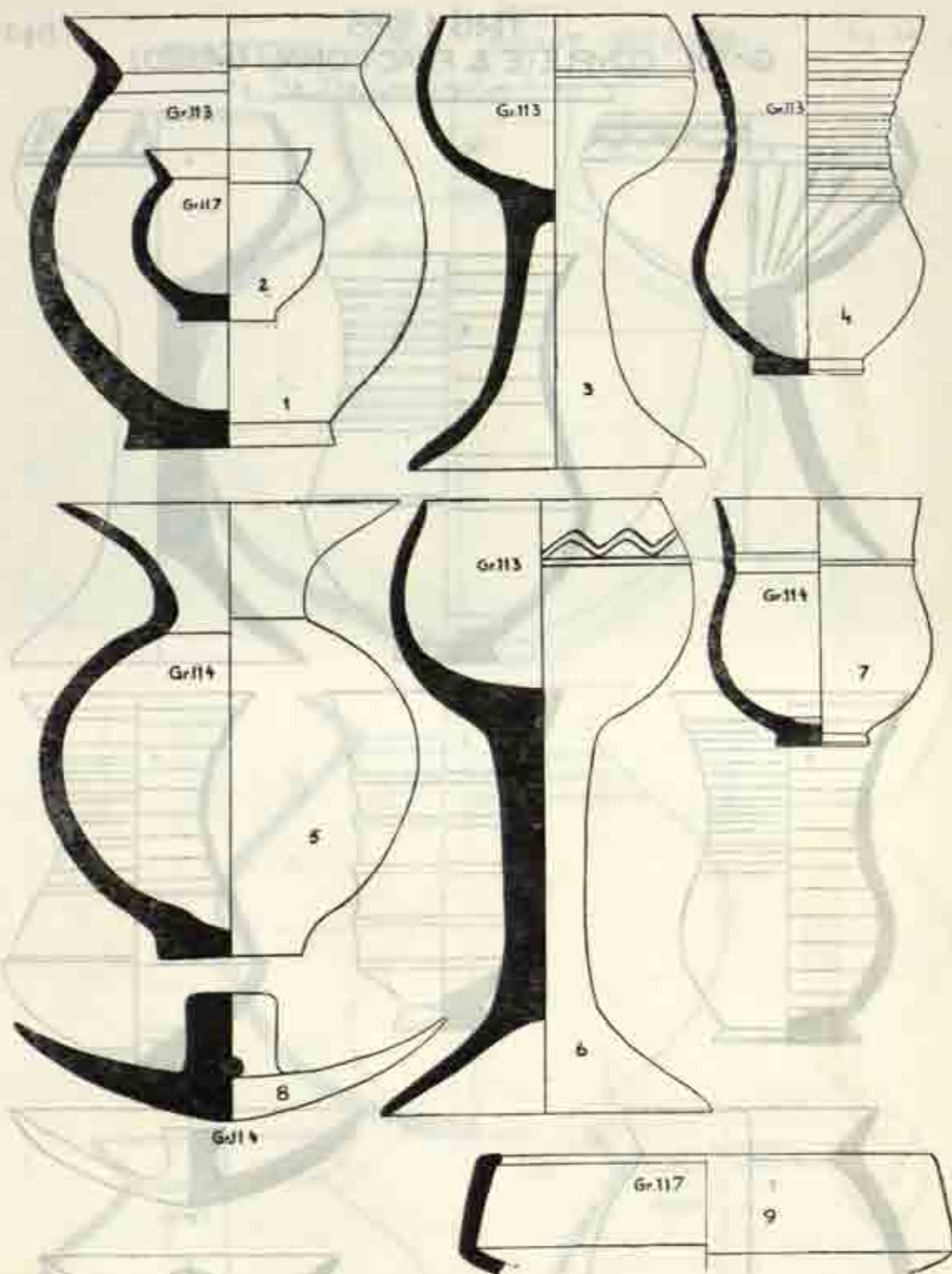
Fig. 26



TMG 1 1965
CREMATED (CHILDREN'S GRAVES)

1" 0 1 1/2 2" 2 1/2 3" 3 1/2 4" 4 1/2 5" 5 1/2 6"

Fig. 27



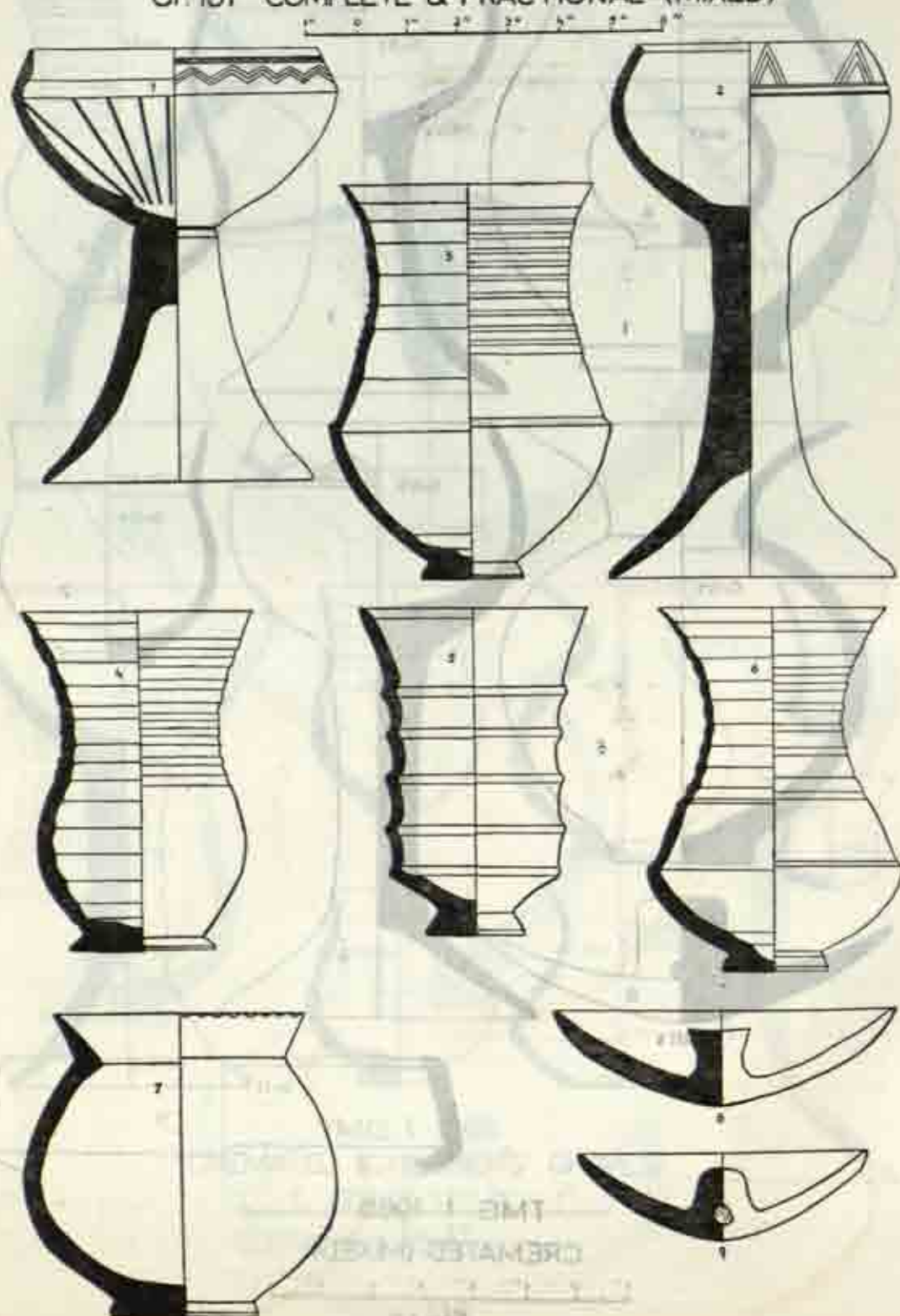
TMG 1 1965
CREMATED (MIXED)

0 1 2 3 4 5 6

Fig. 2R

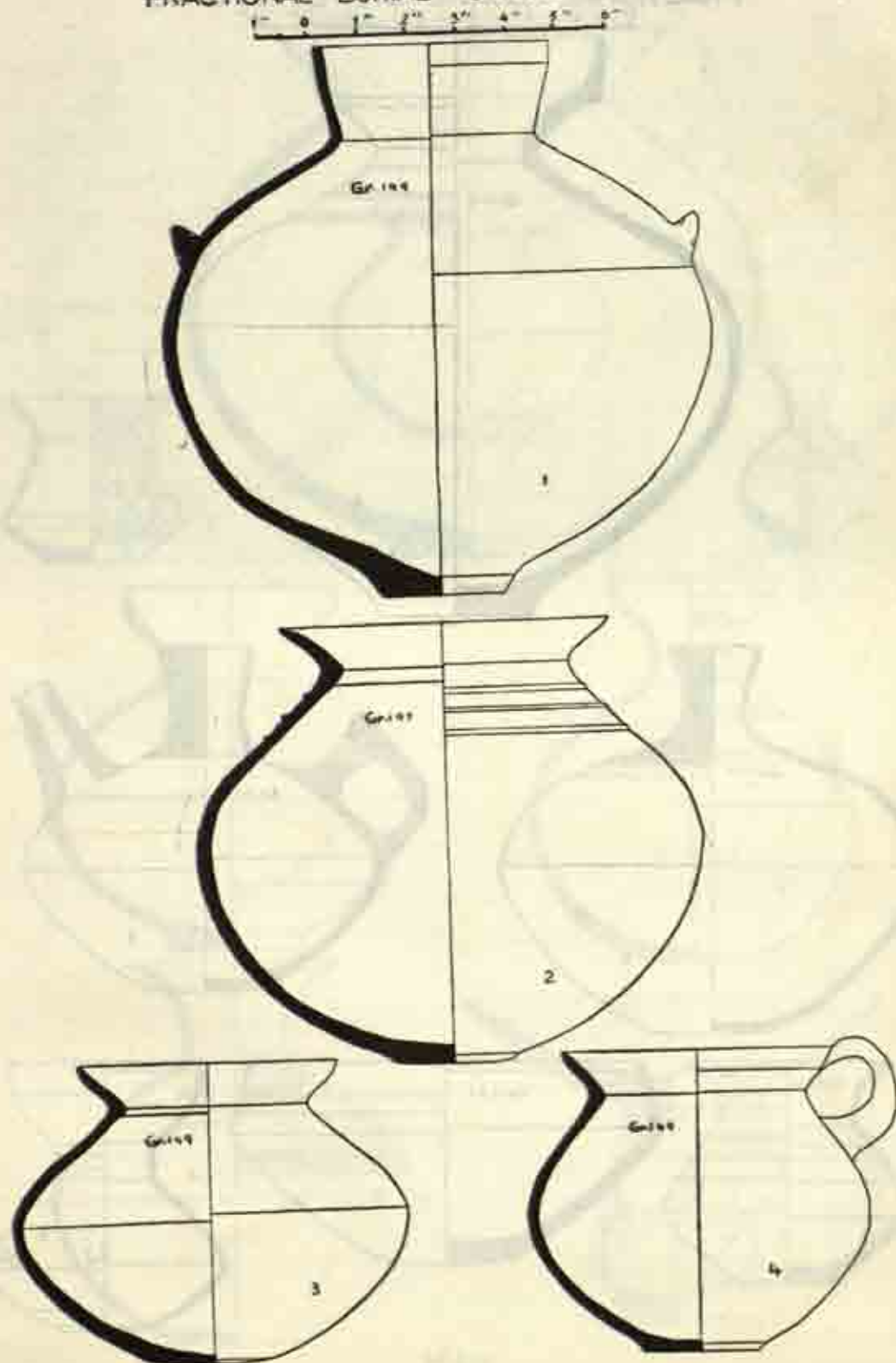
TMG 1 1965
Gr 101 COMPLETE & FRACTIONAL (MIXED)

Fig. 29



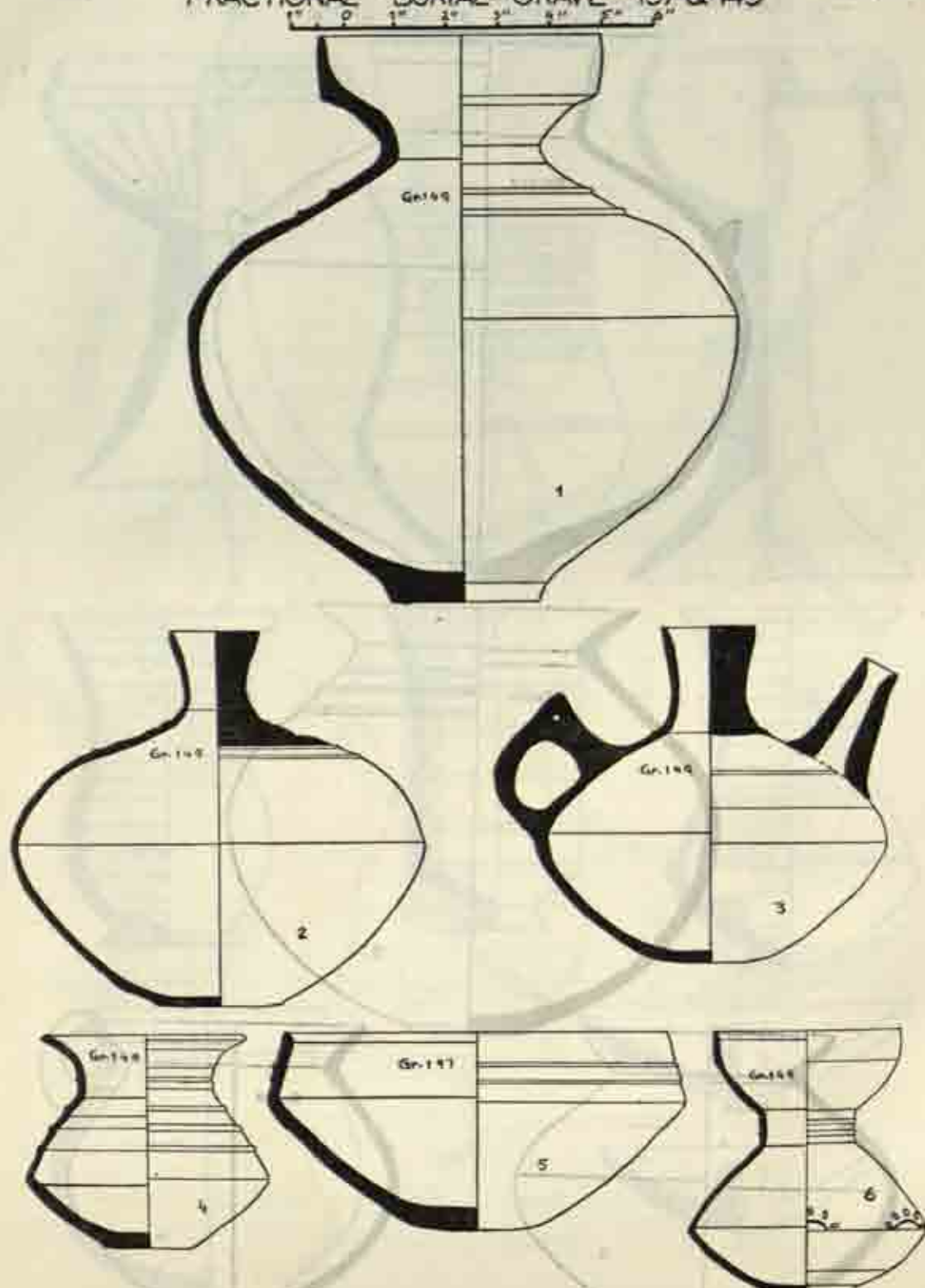
TMG 1 1965
FRACTIONAL BURIAL GRAVE 197 & 149

Fig. 30



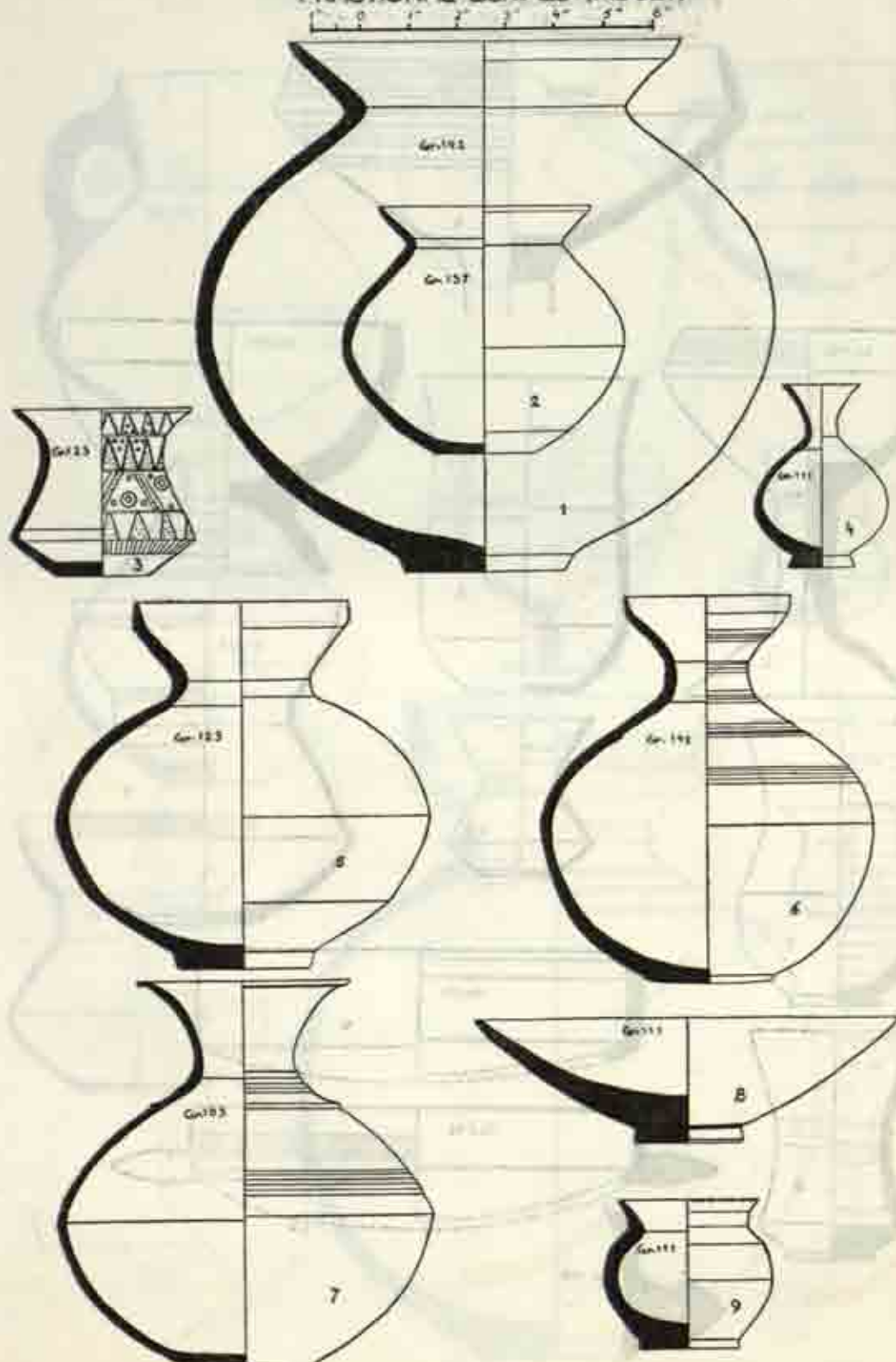
TMG 1 1965
FRACTIONAL BURIAL GRAVE 197 & 149

Fig. 31



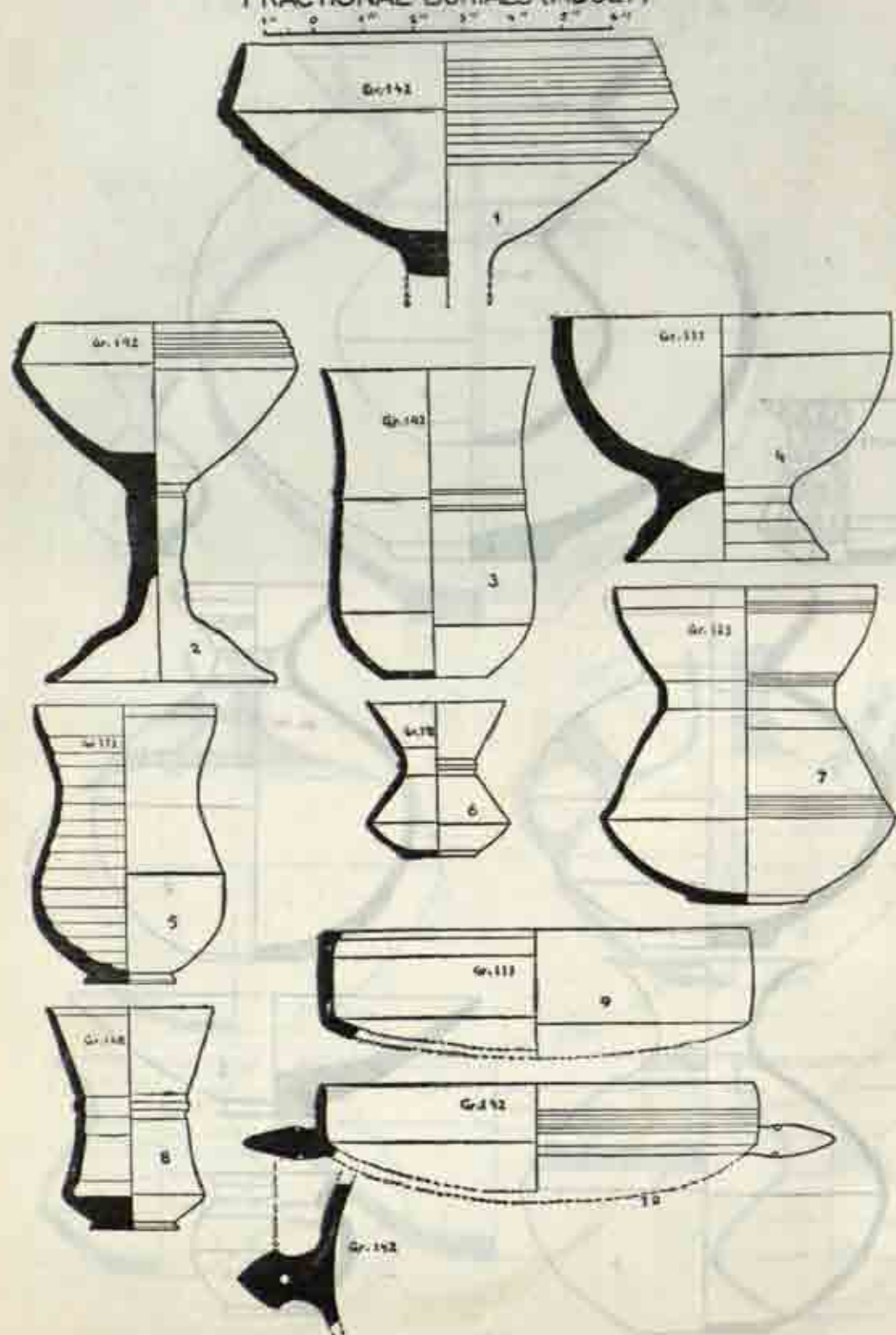
TMG 1 1965
FRACTIONAL BURIALS (ADULT)

Fig. 32



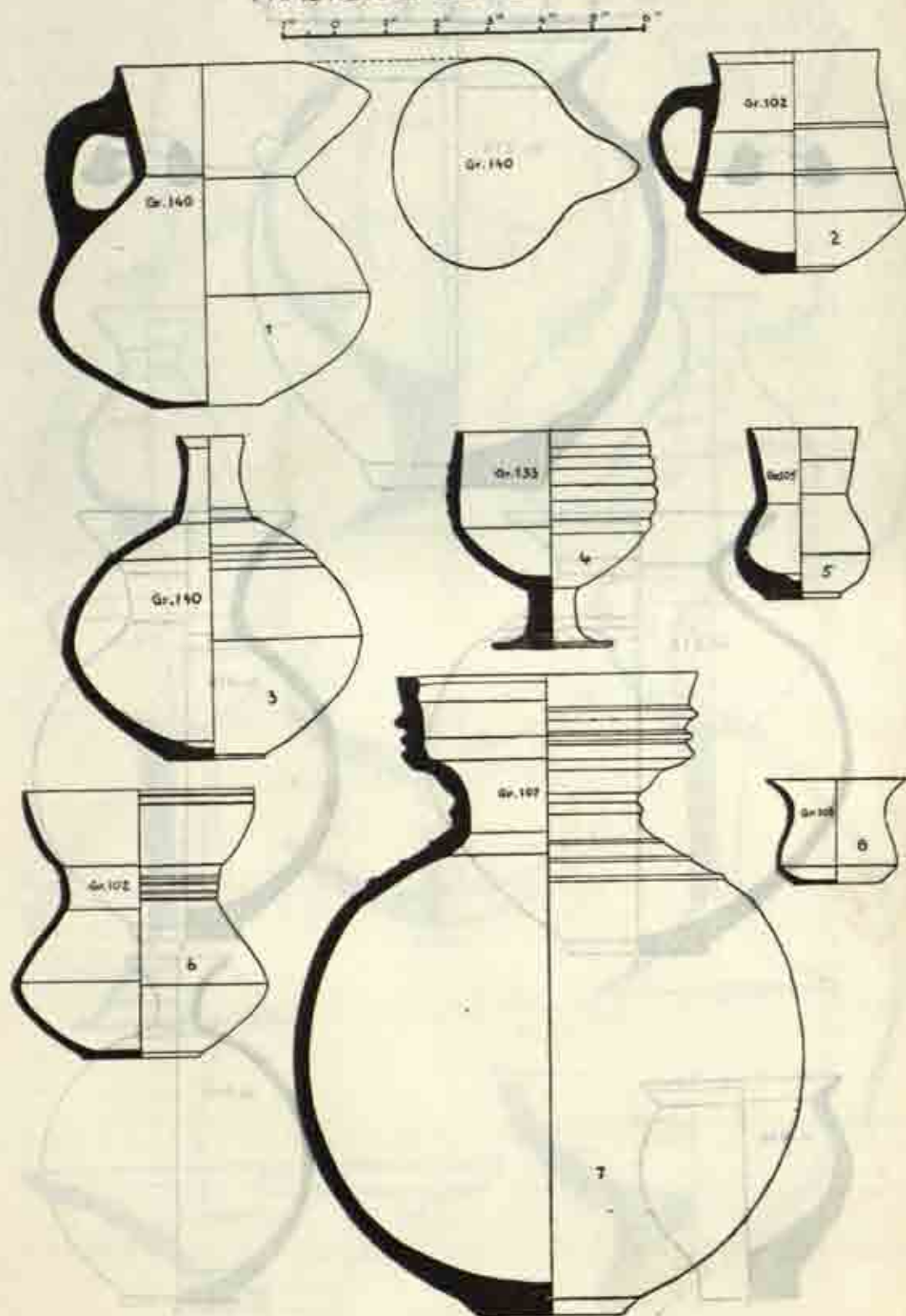
TMG 1 1965
FRACTIONAL BURIALS (ADULT)

Fig. 33



TMG 1 1965
FRACTIONAL BURIALS (CHILDREN)

Fig. 34



TMG 2 1965

CREMATED

Fig. 35

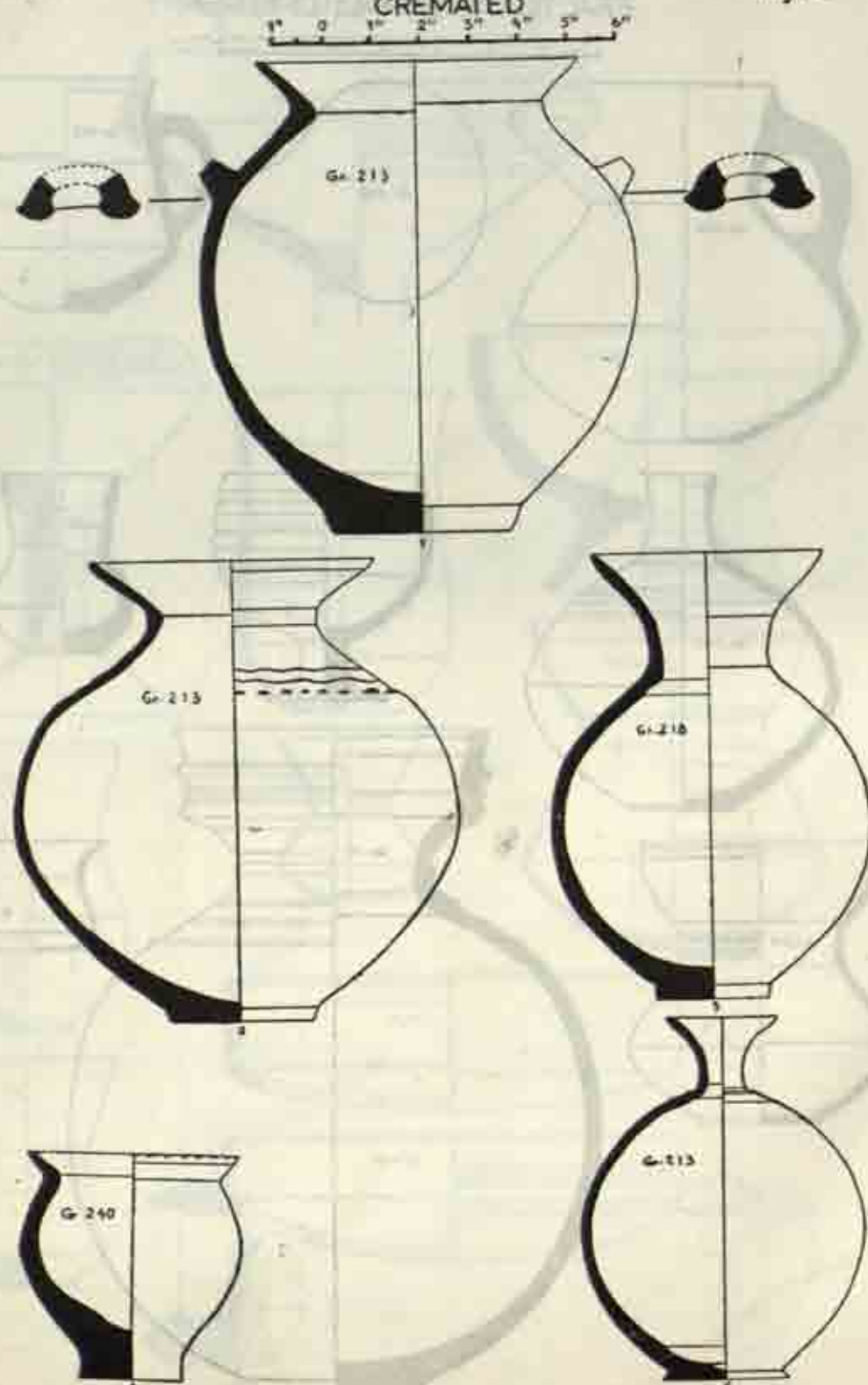
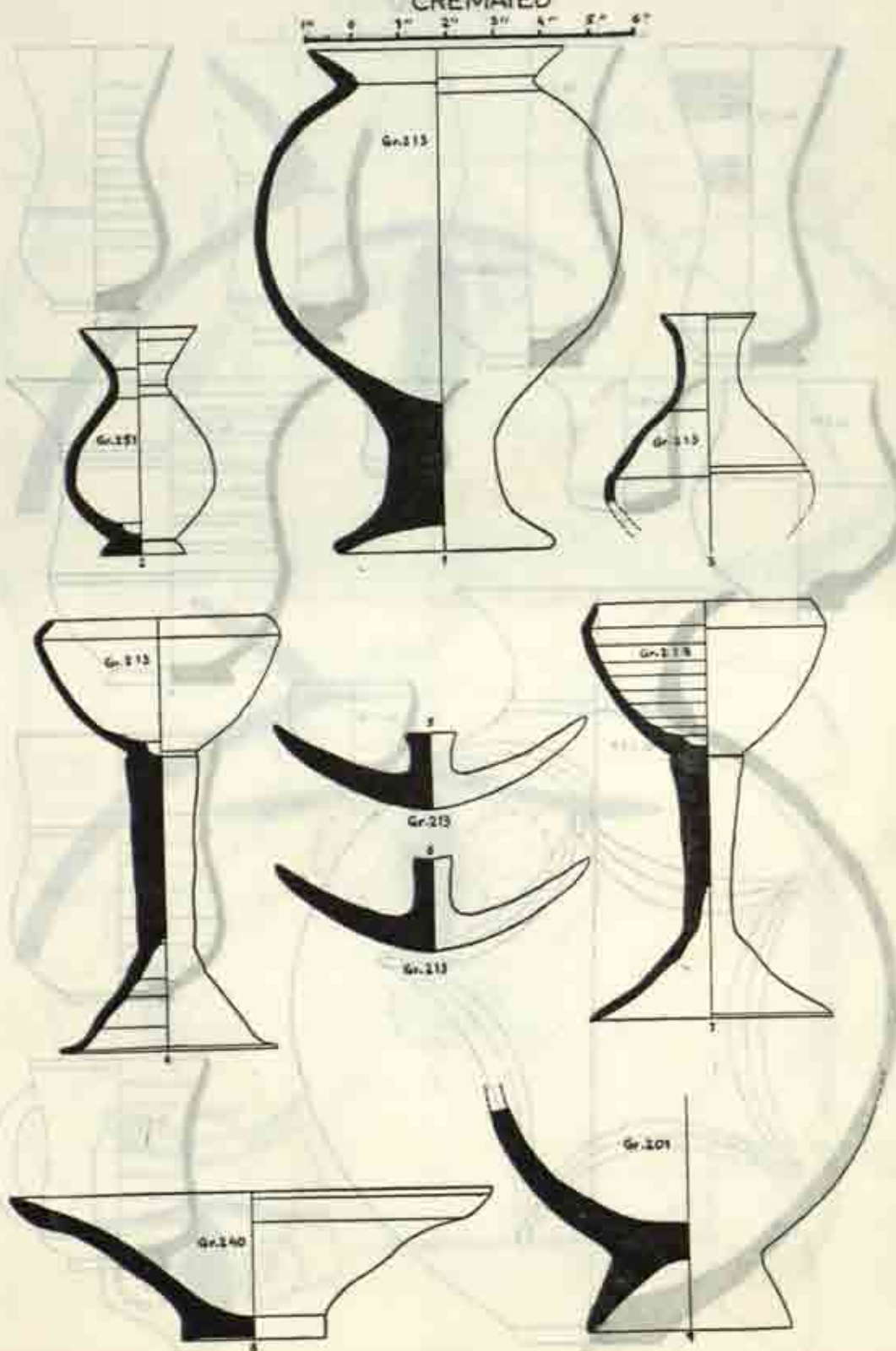


Fig. 35

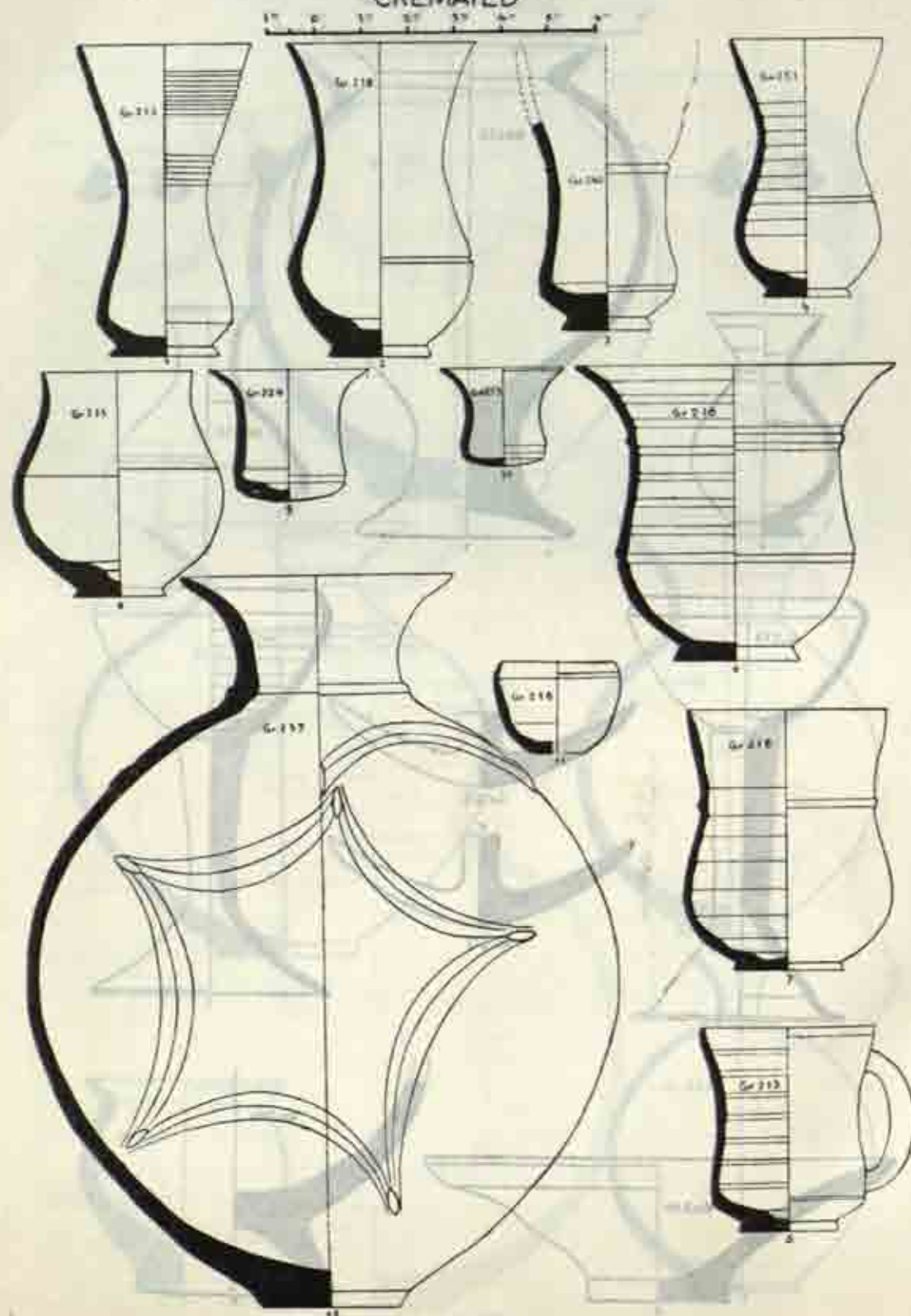
TMG 2 1965
CREMATED

Fig. 36



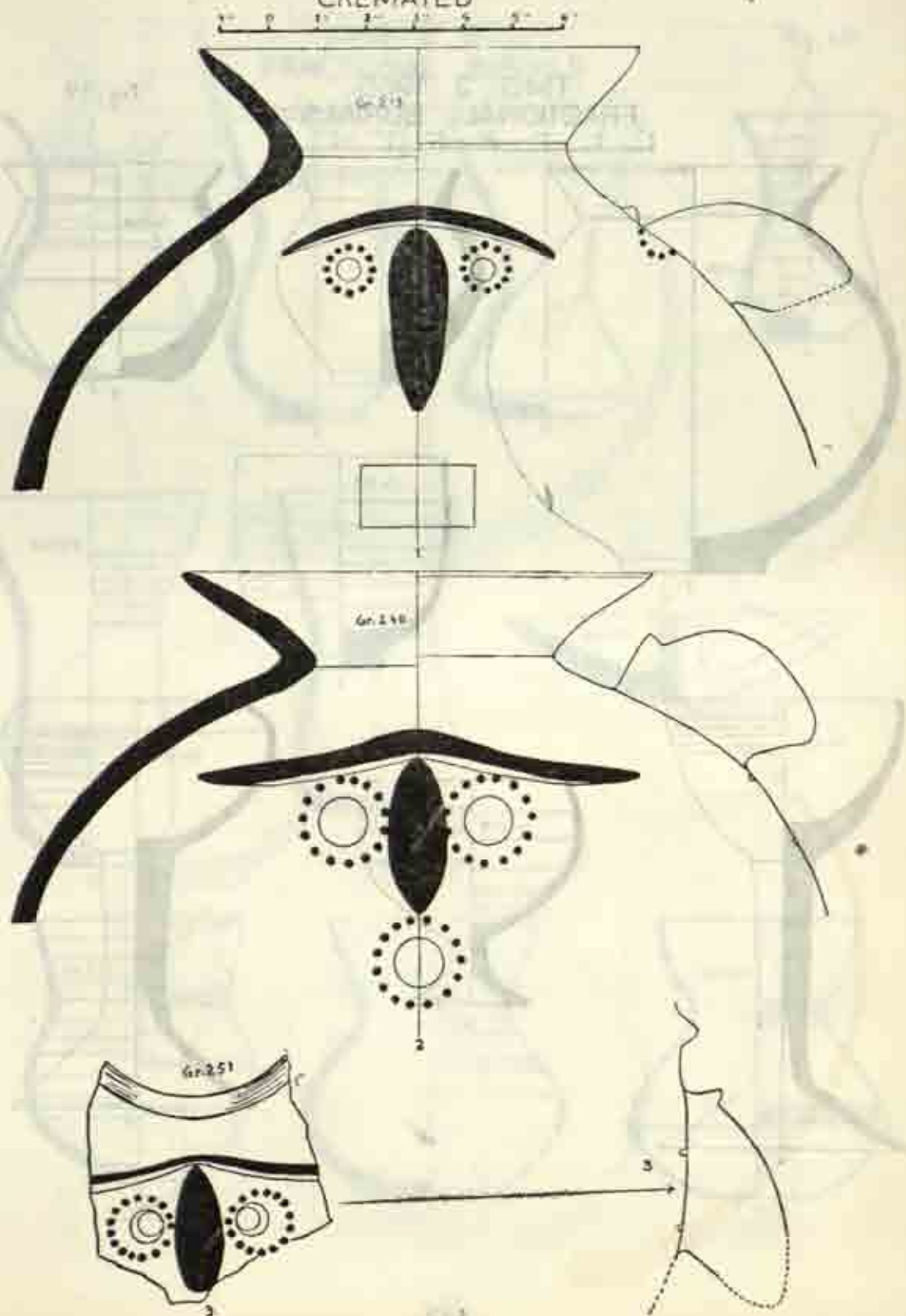
TMG 2 1965
CREMATED

Fig. 37



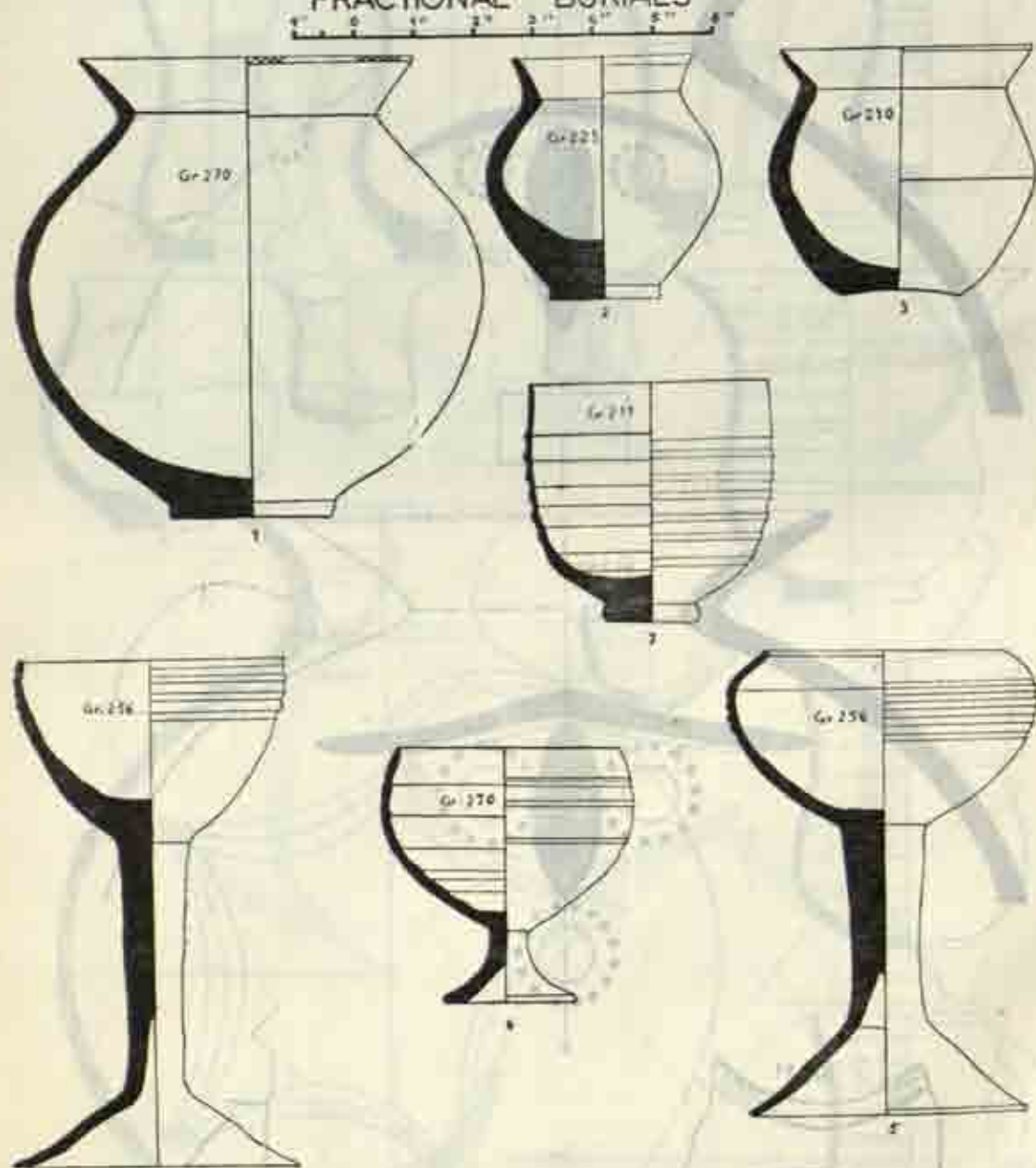
TMG 2 1965
CREMATED

Fig 38



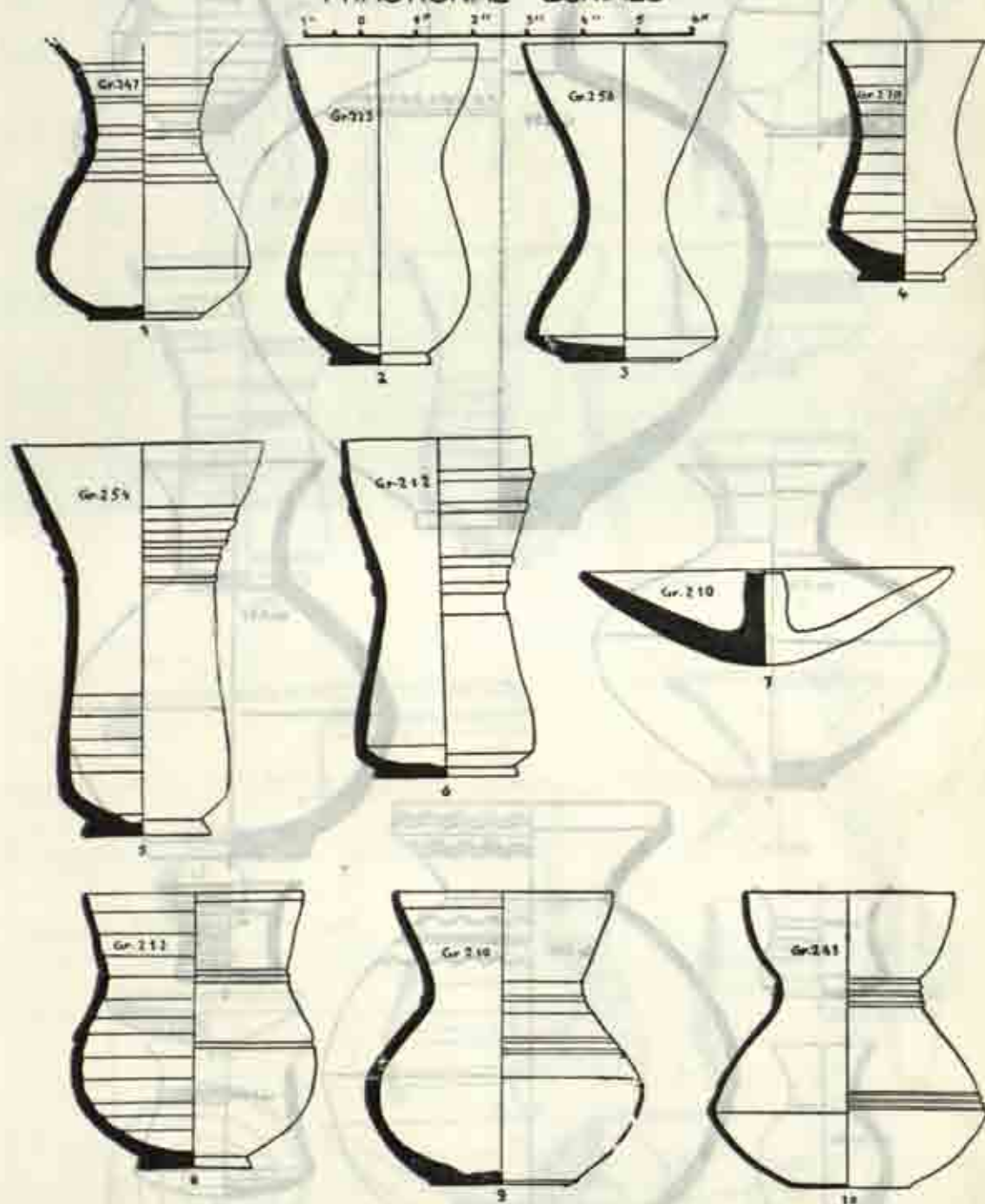
TMG 2 1965
FRACTIONAL BURIALS

Fig. 39



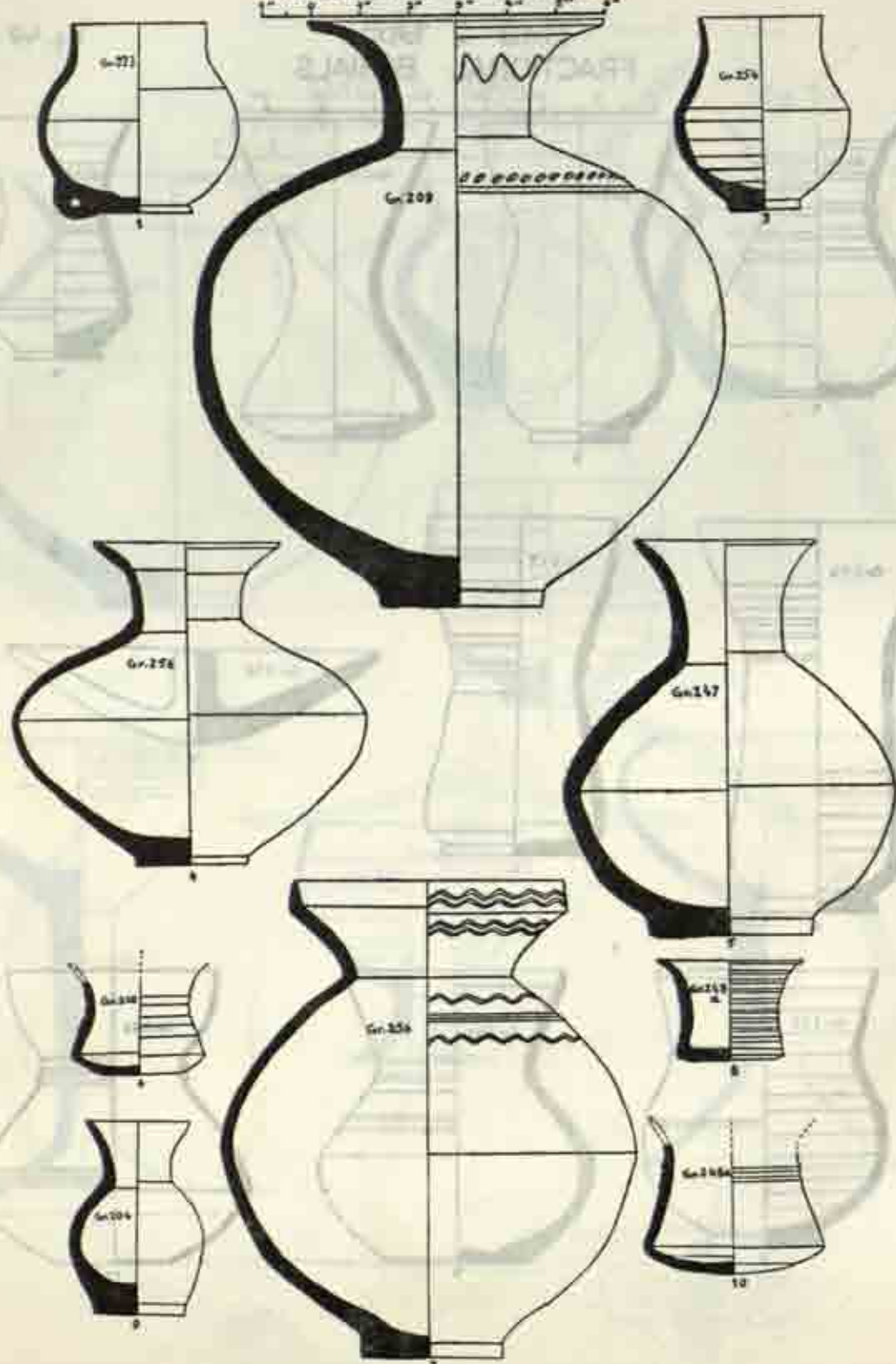
TMG 2 1965
FRACTIONAL BURIALS

Fig. 40



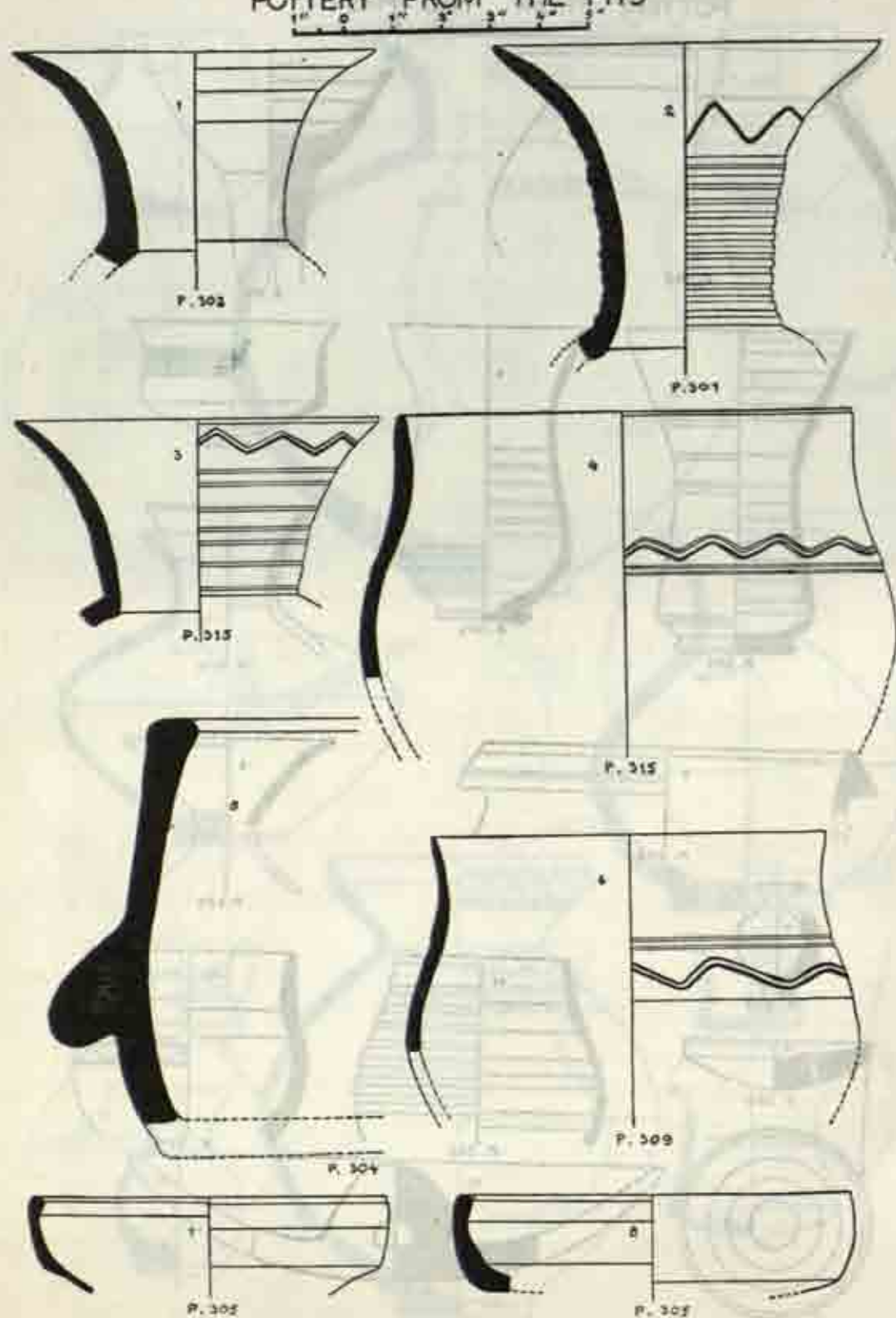
TMG 2 1965
FRACTIONAL BURIALS

Fig. 41



TMG 3 1965
POTTERY FROM THE PITS

Fig. 43



from grave No. 213 in Timargarha site No. 2. The following sub-varieties are known:

- Sub-variety (a): Those having carinated bowl (Fig. 21, No. 9).
- Sub-variety (b): Light in weight with hollow stem and bowl having inverted rim. (Fig. 21, No. 2).
- Sub-variety (c): Solid thick stem with bowl tapering or curving and its rim incurved (Fig. 22, No. 37).
- Sub-variety (d): Heavy in weight with pedestal stand, hollow inside, and incurving bowl (Fig. 22, No. 15).
- Sub-variety (e): Cooking pot on a stand in red ware of fabric (b), found only in the cremated graves (Fig. 24, No. 2).
- Sub-variety (f): It has curved sides with incurved rim on a solid stem standing on an inverted bowl-like base, found in red ware of fabric (b) (Fig. 24, No. 3).
- Sub-variety (g): On a solid stand a dish exactly like variety (xviii) found in the graves having fractional burials, (Fig. 33, No. 1).

VARIETY (iii): *Tall drinking vase.*

It is generally found in grey ware but there are a few examples of red ware of fabric (b). Some miniature specimens are also found. The following sub-varieties are known:

- Sub-variety (a): Drinking glass type with cordoned lines. (Fig. 21, No. 7).
- Sub-variety (b): Narrow-waisted vase with its lower half globular (Fig. 21, No. 8).
- Sub-variety (c): Graceful narrow-waisted vase with its sides doubly curved (Fig. 21, No. 5).
- Sub-variety (d): Narrow waisted vase with its lower half carinated. This sub-variety is generally not found in the cremated graves having fractional burials. (Fig. 22, Nos. 14 and 43).
- Sub-variety (e): Flat based vase with its lower half gracefully curved, sides slightly concave with double cordoned lines at the waist and rim flaring from grave No. 142 (Fig. 33, No. 3).

Sub-variety (f): Short and wide type from Timargarha site No. 2 (Fig. 37, No. 6).

Sub-variety (g): Handled drinking vase (Fig. 37, No. 5).

VARIETY (iv): *Open-mouthed drinking cup with flaring rim.*

It is generally found in grey ware but a few examples in red ware of fabric (b) are also known:

Sub-variety (a): Sagger-based type (Fig. 21, No. 3).

Sub-variety (b): Flat-based type (Fig. 21, No. 1).

VARIETY (v): *Medium-sized drinking goblets*

Sub-variety (a): Globular body with plain straight rim found in grey ware and also in red ware of fabric (b). (Fig. 22 reg. No. 12).

Sub-variety (b): This goblet in grey ware has a holed lug near the base. It comes from grave No. 223 (Fig. 41, No. 1).

VARIETY (vi): *Narrow-necked bottles*

They have globular body, narrow neck, flaring rim and disc base. Generally they are found in grey (Fig. 24, No. 4), but examples in red ware are also available (See grave No. 2 in trench LO, Topies in coarse red ware are also available of fabric (b) are also known. Later Timargarha 1964 excavation).

VARIETY (vii): *Pedestalled Cup*

Open-mouthed cup standing on a flat-based pedestal, found only in grey ware. It is found only in the graves having fractional burial. (Fig. 34, No. 4).

VARIETY (viii): *Visage Urn*

Globular urn with sharply everted rim above constricted neck. Below

the neck, nose, eyes, eye-brow and mouth shown, found in red ware of coarse fabric (a) only in the cremated graves. Here the nose and the eye-brow are applied separately. (Fig. 25, No. 1).

VARIETY (ix): Globular Urn with flaring rim.

Type same as no. (viii) but in red ware of fabric (b). (Fig. 26, No. 1). In shape they are like the cooking pots of variety (i) but they have narrow neck.

VARIETY (x): Long-necked water pitcher

Found in red ware of fabric (b).

Sub-variety (a): Those having plain neck. (Fig. 25, No. 4).

Sub-variety (b): Those having grooves on the neck. (Fig. 25, No. 3).

VARIETY (xi): Lids. Found in red ware of fabric (a) or fabric (b).

Sub-variety (a): Saucer-like with a raised rider-shaped knob on the inner side (Fig. 24, No. 6).

Sub-variety (b): Saucer-like with a holed handle at the out side. (Fig. 25, No. 6).

Sub-variety (c): Saucer-like with a holed handle at the inner side. (Fig. 24, No. 5).

Sub-variety (d): Saucer-like with a solid round knob at the inner side. Fig. 29, No. 8).

Sub-variety (e): Disc-based saucer-like lid having no knob at all. (Fig. 32, No. 8).

VARIETY (xii): Narrow-necked water pitcher.

It differs from variety No. (x) in so far as the neck is small and has a flat base, found in red ware of fabric (b).

Sub-variety (a): Has globular body (Fig. 37, No. 12).

Sub-variety (b): Has bulging body. (Fig. 25, No. 5).

VARIETY (xiii): Hour-glass type of drinking vase

Generally found in red ware of extremely fine texture, fabric (c) in

the graves having fractional burials. (Fig. 31, No. 6). But two examples are known from grave No. 112 in red ware of fabric (b).

VARIETY (xiv): Thali with flat-topped rim

Found only in red ware of fabric (b). These have flat-topped rim. Rare pieces found only in mixed cremated graves but more common in the graves having fractional burials. (Fig. 28, No. 9).

VARIETY (xv): Lugged Vase

Found in red ware of fabric (b) only in later graves.

Sub-Variety (a) Those having holed lugs. (Fig. 30, No. 1).

Sub-Variety (b) Those having lugs without a hole. (Fig. 45, No. 2).

VARIETY (xvi): Water pitcher having a collared rim

Found only in red ware of fabric (b) in the graves having fractional burial.

Sub-Variety (a) has plain collared rim (Fig. 31, No. 1).

Sub-Variety (b) has grooved lines on the rim (Fig. 34, No. 7).

VARIETY (xvii): Water pitcher having a triangular rim

Found only in red ware of fabric (b) in the graves having fractional burial.

VARIETY (xviii): Flat-based dishes having tapering sides and straight rim,

Found in fabric (b) red ware only in the graves having fractional burials.

Sub-Variety (a): has deeper dish (Fig. 31, No. 5).

Sub-Variety (b): has flattish dish with a handle at either end from grave No. 142, (Fig. 33, No. 10).

VARIETY (xix): Surahi-type of long necked water pitcher

Found only in red ware of fabric (c), light in weight. Some of them have black paint from the shoulder to the mouth. Obtained in the graves having fractional burial, (Fig. 31, No. 2).

VARIETY (xx): BADNA TYPE OF HANDLED AND SPOUTED VASE

Found only in red ware of fine fabric (c) from the graves having fractional burials. (Fig. 31, No. 3).

VARIETY (xxi): Carinated medium-sized drinking vase with narrow neck and outwardly curving rim.

Found in red ware of fine fabric (c) in the graves having fractional burials. (Fig. 31, No. 4).

VARIETY (xxii): Narrow-necked water pitcher with incurved rim

Found in red ware (fabric-b) only in the graves having fractional burial. (Fig. 32, No. 6).

VARIETY (xxiii): Handled Jug with pinched mouth

Found in red ware of fabric (c) in the grave having fractional burial (Fig. 34, No. 1).

VARIETY (xxiv): Carinated drinking cup with flaring rim

Found only in grey ware from the graves having fractional burials (Fig. 32, No. 3).

VARIETY (xxv): A handled cup

This is found in fine red ware of fabric (c). The cup is rather longish, with carination at the lower side, flat base and tapering sides gradually narrowing towards the mouth, which has a simple rim. One round handle is attached to the tapering side (Fig. 34, No. 2).

VARIETY (xxvi): Deep bowl

They are found in red ware of fabric (b) from Timargarha site No. 2. They fall into two sub-varieties:

Sub-Variety (a): Disc-based deep bowl, (Fig. 36, No. 8).

Sub-Variety (b): Pedestal-based deep bowl, (Fig. 36, No. 9).

VARIETY (xxvii): *Flat-based cup with incurved rim.*

It is found in grey ware from Timargarha site No. 2. It has a hole at the base, (Fig. 37, No. 11).

VARIETY (xxviii): *Disc-based cup*

Only one example in grey ware has been found from grave No. 211 (Timargarha site No. 2). It has disc-base and almost straight sides (Fig. 39, No. 7).

VARIETY (xxix): *Open-mouthed globular jar*

These jars are in red ware of fabric (b) and are found in TMG 3 pits as well as from one grave in Thana (No. 27). They are probably flat-based, globular body gradually narrowing at the neck and plain straight rim. Sometimes the shoulder is decorated with zigzag lines (Fig. 43, No. 4).

VARIETY (xxx): *Straight-sided troughs with lugs*

These are very thick sectioned hand-made troughs in coarse red ware having flat-topped rim with big lugs near the flat base. They have been found only in the pits of Timargarha site No. 3 and Balambat Settlement site (Fig. 43, No. 5).

VARIETY (xxxi): *Bowl with a holed lug*

Only one example in grey ware from Thana, No. 23 (Fig. 45).

POTTERY FROM 1964 GRAVES OF TIMARGARHA

The pottery is described under two separate heads: those belonging to type A graves and those belonging to type B graves. Of type A grave two in trench B1 and one in trench D1 were undisturbed. The pot forms of these graves were the arch-types associated with complete burials of the earliest period. Trench CO was disturbed. Both the graves found in this trench show mixing of the materials. Attempt is made here to separate them and study them as belonging to the earlier or later burial. Above grave No. II b in trench CO, we have a later burial of a child associated with two pots. These pots are described in type B graves.

TYPE A GRAVES

In all these graves one example of hand-made cooking pot is invariably found. When we find two such cooking pots in grave No. II b from trench CO, obviously the one, which is better made, was placed later on. Another accompaniment is a bowl-on-stand, but it is absent from grave No. 1 in trench D1. The third accompaniment is a tall drinking vase. In the disturbed graves of trench CO, more than one example of this vase is found, probably because later burials needed more of them. Other small pots are exceptionally found.

VARIETY (i): HAND MADE COOKING POT

This pot is made of very coarse material. The clay is not well mixed. It is full of grits and other degreassants, made in hand and not fired well. On the exterior surface coarseness is apparent, with occasional streaks of cracks here and there. In form it is globular with a small disc-base, constricted neck and sharply everted plain rim (inclined at an angle of 45°). The top of the rim is further rippled or sometimes scratched, obviously by means of a slender stick. This is the arch-type in the graves and found in all the periods, though later examples are better made. Further finer forms evolve from this type. They will be discussed later. Fig. 21, No. 4 is from grave No. 1, trench B 1, Fig. 21, No. 6 is from grave No. 2, trench B1. Fig. 22 No. 16 comes from grave No. 1, trench CO. Fig. 21 No. 23 comes from grave No. 1, trench D1.

VARIETY (ii): BOWL-ON-STAND

These pots can be placed into two categories on the basis of texture. Two of them (Reg. No. 9 and 2) from the graves of trench B1 are made of finely levigated clay, well fired and red slipped. The other two from the graves of trench CO are rather coarse in texture mixed with grits. One of them (Reg. No. 15) is not well fired. As they make different sub-varieties, they are all described here.

Sub-variety (a): Reg. No. 9 (Fig. 21) from grave No. 2 trench B1. It is divisible into three parts: bowl, stem and base. It is very tall and has a solid thick stem on an inverted saucer-like base with a carinated bowl having a wide flaring rim. The bowl has almost straight sides above the carination.

Sub-variety (b): Reg. No. 2 (Fig. 21) from grave No. 1, trench B1. Parts same as above. It is very light and has a stem hollow half the way on a base resembling an inverted bowl having tapering sides, hollow at the bottom, with a bowl having tapering sides and incurved rim.

Sub-variety (c): Reg. No. 37 (Fig. 22) from grave No. 2b trench CO. Parts same as above, in heavy, and has a solid thick stem on an inverted saucer-like base, the joint between the stem and the base being marked by a raised band. The bowl is tapering upto the shoulder and curved inwards above it. Series of grooved lines above the shoulder. Red-slipped.

Sub-variety (d): Reg. No. 15 (Fig. 22) from grave No. 1 trench CO. It is divisible into two parts. The upper bowl and the lower stand with base. As the base forms a part with the stand, we will term it 'Pedestal stand'. The pedestal stand is hollow from inside, has grooved lines and is decorated with incised zigzag lines at the base. The bowl has curved sides, inturned towards the rim. It is very heavy, red slipped.

VARIETY (iii): TALL DRINKING VASE

In these graves tall drinking vases are always found in grey ware. All such grey ware pottery is made of finely levigated clay and is well fired. It is a graceful vase with its waist generally narrow, and is made in slow-moving wheel in parts and then joined together. They fall in four different sub-varieties:

Sub-variety (a): Reg. No. 7, (Fig. 21), grave No. 2, trench B1. It is a drinking glass type, with a small disc-base, straight sides upto the waist (the waist is not narrow in this case), and tapering outward above this point. It has cordoned lines at the waist and below the plain rim. This is an exceptional sub-variety but survived till the end.

Sub-variety (b): Reg. No. 8, (Fig. 21) grave No. 2, trench B1. It is a narrow-waisted vase with its lower half globular and upper tapering outward, having grooved lines at the exterior surface and small

disc-base. Reg. No. 11 (Fig. 22), from grave No. 1 trench CO is similar but has a raised cordon at the lower body.

Sub-variety (c): Reg. No. 5 (Fig. 21), grave No. 1, trench B1. It is a graceful narrow-waisted vase with its sides doubly curved—once below the waist and second time above the waist. It has a small disc-base and a grooved line at the lower curve.

Sub-variety (d): Four examples—Reg. No. 13 from grave No. 1, trench CO and No. 14 (Fig. 22), from grave 1, trench CO. Nos. 38 and 43 (Fig. 22) from grave No. 2b, trench CO. All of them are carinated vases with narrow waist and the sides above the waist tapering outward in the case of No. 38 and curving outward in others. They have small disc-base, grooved lines below the rim and raised cordon on the exterior surface.

VARIETY (iv): OPEN-MOUTHED DRINKING CUPS WITH FLARING RIM

Only two examples have been found, both from grave No. 1, trench B1. No. 1 (Fig. 21) is in grey ware and No. 3 (Fig. 21) is in red ware. The latter also bears traces of red slip. Both of them are made of finely levigated clay in a slow moving wheel. They have straight sides with flaring rim. They fall into two sub-varieties:

Sub-variety (a): No. 3 has a sagger base and cordoned lines on the body.

Sub-variety (b): No. 1 has a flat base and groups of cordoned lines on the body.

VARIETY (v): MEDIUM-SIZED DRINKING GOBLET

Sub-variety (a): Reg. No. 12 (Fig. 22) grave No. 1, trench CO. The only example found here and it seems that it belongs to a later burial. It is in grey ware, made of finely levigated clay, in slow moving wheel, has a disc-base, globular below the neck and above it plain straight rim. No decoration.

VARIETY (vi): NARROW-NECKED BOTTLES

Only three examples, Nos. 39, 41 and 42 (Fig. 22)—all from grave 2b,

trench CO. They are in grey ware, made of finely levigated clay and well-fired. They have a disc-base, pot belly, narrow neck and flaring rim. This variety is not found in such graves but they are very common in later graves.

TYPE B GRAVES

As no new varieties in these graves have been found, the pots are described grave-wise.

Grave No. 1, Trench LO: No. 28 (Fig. 23) is a hand-made cooking pot of the No. 27 (Fig. 23) is a tall drinking vase, sub-variety (c); and No. 26 (Fig. 23) is a bowl-on-stand, sub-variety (c); but its bowl is curving through-out.

Grave No. 2, Trench LO: Only one example, No. 29 (Fig. 23) narrow-necked bottle in red ware, coarse material.

Grave No. 3, Trench LO: No. 31 (Fig. 23), is a small hand-made cooking pot; No. 30 (Fig. 23) is a tall drinking vase, sub-variety (c) and Nos. 32 and 33 (Fig. 23) are open-mouthed drinking cups with flaring rim. They are in grey ware and belong to sub-variety (a).

Grave No. 2 a, Trench CO: No. 19 (Fig. 23) is an open-mouthed drinking cup with flaring rim. It falls in variety (b) as it has flat base with chamfered corners.

VARIETY (vii): PEDESTALLED CUP. (Fig. 23, No. 18).

It is an open-mouthed cup with grooves on the outer surface, standing on a flat-based pedestal. The base has a dimple in the middle. It is in grey ware. In Swat excavations by the Italians the number of pedestalled cups is quite large. See Stacul 1966, article No. 1, Fig. No. 71.

TIMARGARHA SITE NO. 1: 1965

POTTERY FROM CREMATED GRAVES.

The pottery from these graves will be studied under three categories:

- A) Those having double burial—earlier cremated and later fractional. As the pots in these graves are mixed up, they will be taken up later after a clear idea of the pots from the cremated graves have been familiarised.

- B) Those having cremated bones—Nos. 122 and 119. Their pots will be taken up first and studied in detail.
- C) Those from children graves. The pots in these graves are limited. They will be taken up in the second stage to add new varieties to the pot forms of these graves.

GENERAL FEATURES

There is no complete break in the pottery tradition of these graves from that of the graves having complete burial, as excavated in 1964. The pot-forms of those graves as well as the coarse red ware and grey ware of finely levigated clay continue in this period. Apart from these many new forms are now seen and for the first time we get here a different red ware with a better texture and comparatively finer clay and better firing. It is in this new red ware that new forms now appear. The hand-made cooking pot of coarse ware, as seen earlier, continues in that ware but is also found in the new red ware. This very pot form in the new red ware from grave No. 122 has a solid stand and takes the shape of bowl-on-stand. But the dominant feature of these graves is the presence of urn of varying sizes. Such urns are generally not found in the children's graves but it is exceptionally present in No. 128. Such urns have a globular body, disc-base, long narrow neck and flaring rim, different varieties of lids, narrow-necked bottles and two examples of a new variety of drinking vase, which has an extremely narrow waist (grave no. 112). This is termed as "hour-glass" type of drinking vase. Actually this type becomes very dominant in the next period. In grey ware the carinated tall drinking vase completely disappears. We get here only two varieties—the globular based ones and the drinking glass type. We also get miniature examples. Medium-sized drinking goblets and open-mouthed drinking cups with flaring rim are also found here. Narrow necked bottles are also found in grey ware.

GROUP — B

POTTERY FROM GRAVE NO. 122.

This is a rich grave yielding 24 funerary vessels of different varie-

ties. The clay is well levigated with very few grits in them. Firing of the pots is much better than that seen in some of the hand-made pots of 1964 graves. No cracks are seen in the pots. In the description of the pot forms same categorization, as given before, is kept. New forms are added as separate varieties.

Variety (i). HAND-MADE COOKING POTS

Two examples have been found. One is complete (Fig. 24, no. 1) and the other is broken. The latter is of better clay. Type and form same as given before.

Variety (ii). BOWL-ON-STAND

Three examples have been found — all in red ware of medium clay with grits in them, red slipped, sub-varieties (a), (b) and (c) are not found here.

Sub-variety (d). Only grooved stand with parts of the bowl. The remaining portion is broken.

Sub-variety (e). The bowl is exactly like a hand-made cooking pot, The stand is solid on an inverted shallow saucer-like base. This is a unique development from the ordinary cooking pot (Fig. 24, No. 2)

Sub-variety (f). The bowl has curved sides and incurved rim (but rim is broken). The stand is solid on an inverted deep tapering bowl-like base. (Fig. 24, No. 3).

Variety (iii). TALL DRINKING VASE

Three examples have been found, all in grey, are made of well levigated clay and well fired.

Sub-variety (a). It is the drinking glass type, with the sides slightly concave having a cordoned line in the middle. The upper part is broken (Not illustrated).

Sub-variety (b). Two examples of this type but both are crushed.

Varieties IV & V are not found here.

Variety (vi). NARROW-NECKED BOTTLE

Only one example in grey with globular body upto the shoulder and then sloping to the neck, which is extremely narrow right upto the mouth. It has a disc-base. (Fig. 24, No. 4).

Variety vii is also not found here.

Variety (viii). VISAGE URN.

This is a new variety found only in the graves having cremated burials. Two examples have been found. Both contained ashes and bones. Both of them are of one main type with very minor difference. They are hand-made, of levigated clay, with grits in them. Not well fired. In form they are globular, having a round base and sharply everted rim. Just below the narrow neck is a prominent applied projection for the nose, which is of the curved type. On either side of the nose is a hole for the eyes and a rectangular hole below it for the mouth. One example shows eye-lashes by incised lines and applied eye-brows which are set at an angle (Fig. 25, Nos. 1 and 2, 2a).

Variety (ix). GLOBULAR URN WITH FLARING RIM

Three examples have been found. They are all broken into pieces. These are of the same form as no. (viii) above but they have no nose or eye indication. They are also in red ware with red slip applied at the outside.

Variety (x). LONG-NECKED WATER PITCHER

Four examples have been found, all in red ware. They have globular body, disc-base, long narrow neck and flaring rim. They fall in two sub-varieties:

Sub-variety (a). Two examples. They have plain neck (Fig. 25, No. 4).

Sub-variety (b). Two examples. They have grooves on the neck (Fig. 25, No. 3).

Variety (xi). LIDS

They are covers of the big urns described before. They are all in red ware. Five examples have been found. Their form is like a shallow saucer. They fall in three sub-varieties.

GROUP — A

MIXED MATERIALS

In this group we include the pottery from graves numbering 113, 114, 117, 138 and 194. The last two have produced very few pots — only 4 from grave no. 38 and 3 from grave no. 194. Out of the three pots of the last grave one is a hand-made cooking pot (variety i), and two are tall drinking vases in grey ware (variety iii), sub-variety (b). From grave no. 138 one is a tall drinking vase in grey ware of the same type as above. But the other three pots are entirely new. These three are in fine red ware and are generally found in the fractional burials. Two of them are bowls (see below) and one is a handled drinking cup. Grave no. 149, which also falls in this group, has produced only late materials along with iron. Hence its pottery is described in the next section below.

In grave no. 113 there were 12 pots, in no. 114 there were 17 pots and in no. 117 there were 10 pots. Their detailed analysis is given below.

GRAVE NO. 113.

- 1 Cooking pot of coarse red fabric (variety i). (Fig. 28 no. 1).
- 2 Bowls-on-stand of fine red ware (variety ii). one belongs to sub-variety (c) but no grooved lines on the stem (Fig. 28 no. 6). the other belongs to sub-variety (d) (Fig. 28 no. 3).
- 6 Tall drinking vases of fine grey ware — all belong to sub-variety (b) (Fig. 28 no. 4).
- 1 Visage urn of Variety viii, sub-variety (c), as is found in grave no. 128. Here the eye-brow is shown by a thick dark line drawn horizontally with a brush but the colour is fugitive.
- 1 long necked water pitcher with flaring rim in red ware (variety x), sub-variety (a).
- 1 lid in red ware with a raised rider knob on the inner side. (variety xi, sub-variety (a). The raised knob has a thumb impression at the base on either side.

GRAVE No. 114

- 2 hand-made cooking pots of slightly better red ware (variety (i).
- 1 bowl-on-stand of fine red ware (variety (ii), sub-variety (b).
- 3 tall drinking vases in grey ware (variety (iii), sub-variety (b).
- 1 medium-sized drinking goblet of fine red ware (variety (v) (Fig. 28, no. 7).
- 1 visage urn (variety viii) of the same type as above.
- 4 open-mouthed drinking cups with flaring rim (variety iv) — one is in red ware and three in grey ware — all belonging to sub-variety (a).
- 2 lids of red ware (variety xi, sub-variety a). (Fig. 28 no. 8).
- 1 long necked water pitcher of red ware (variety x, sub-variety a), (Fig. 28, no. 5).
- 1 narrow necked grey bottle (variety vi).
- 1 Flat based thali with straight flat-topped rim in medium red ware (see below)

GRAVE NO. 117.

- 2 hand-made cooking pots in coarse red ware. (variety i) (Fig. 28 no. 2).
- 2 bowls-on-stand (variety ii). one is of sub-variety (b) and the other of sub-variety (c).
- 2 tall drinking vases of fine grey ware (variety iii, sub-variety (b).
- 1 visage urn of the same type as above.
- 1 lid of the above urn of red ware variety xi, sub-variety (b).
- 1 open-mouthed drinking cup with flaring rim in grey ware (variety iv), belonging to sub-variety a).

Variety xiv. FLAT-BASED THALI (Fig. 28, No. 9).

This is of medium red ware (fabric b) with tapering sides and flat-topped rim. Only 1 example is found in this grave. This is a common variety in the graves of the next period.

TIMARGARHA SITE NO. 1

POTTERY FROM FRACTIONAL BURIAL GRAVES

Here again we have three different groups of graves.

- A) Those graves which show mixed burials. Graves numbering 101, 104 and 197 have complete burial along with fractional burial of a later period. The pottery from these graves will be contrasted with the pottery from grave no. 149 which has revealed cremated bones in pots along with fractional burial. Iron was also found in graves numbering 197 and 149. This group will be taken up first, as graves no. 149 is the richest grave of this period. Almost all the varieties are seen here. Pottery from graves 142 and 162 is described in group B as it is associated only with the upper level burial.
- B) Those graves which show adult burials. From these graves some more varieties are added.
- C) Children graves have very few pots in them. New varieties are hardly seen.

GENERAL FEATURES

In these graves hand-made cooking pots are few and far between. The pottery of coarse texture is also much reduced. Instead we have the new red ware of finely levigated clay, well-fired and red-slipped. Some of the cooking pots are made in this new red ware. Again the variety of similar vessels is greatly increased. The plain simple rim of the earlier periods continues but new rim developments are for the first time seen. They speak of an entirely new tradition. Bowls-on-stand continue and so are found tall drinking vases in grey ware. But the carinated sub-variety of the tall drinking vase is completely absent. It is found only in the mixed graves numbering 101 and 104. In these cases they obviously belong to an earlier burial. Among the new varieties two are most characteristic: (1) An hour glass type of drinking vase made of extremely fine clay, fired red and very light in weight, and (2) long narrow-necked *Surahi*—type of jar of extremely fine clay, fired red and light in weight. Some of them have black paint at the neck and shoulder. From this last example is a new development of a handled *badna*-type vase. Other handled jugs of fine red ware, light in weight are also seen here. Another development is a new variety of dish-on-

stand in fine red ware. Such dishes are also found separately without the stand. And finally we have new sub-varieties of lids in fine red ware. The contrast in the pottery forms and ware from those of the earlier periods is so great that these people should obviously belong to new culture and tradition. It is these people who introduced iron in this part. Again it is these people who re-opened the graves of the earlier people, disturbed the bones and put in their own dead. Such a practice was not known earlier. It therefore appears that these people were probably invaders who came in along with their new tradition.

GROUP — A

Grave No. 101. There are 14 pots in all.

- 3 hand-made cooking pots of coarse fabric, as is seen in the earlier graves (variety (i)). (Fig. 29, no. 7).
- 2 Bowls-on-stand of red ware (variety (ii)). One belongs to sub-variety (c) but has incised lines at the shoulder of the bowl (Fig. 29, no. 2). Another belongs to sub-variety (d) (Fig. 29, no. 1).
- 7 tall drinking vases (variety (iii)) in fine grey ware:- one belongs to sub-variety (a) of drinking glass type and has cordoned lines at the sides, (Fig. 29, no. 1), three belong to sub-variety (b) having globular body at the lower half (Fig. 29, no. 4) and the remaining three belong to sub-variety (d) of carinated drinking vase (Fig. 29, no. 3 and 6)

Variety (i). HAND-MADE COOKING POTS

These pots of sub-variety (a) are found in most of the graves. The fabric is still very coarse and they are made in a rough fashion. Smaller varieties are more common than bigger vessels. Only one small specimen from grave no. 111a (Fig. 32, no. 9) is illustrated. A few examples of sub-variety (d) are also found. One specimen from grave no. 137 (Fig. 32, no. 2) is of a medium size having dark blackish stains on the outer surface and on the rim. There is a large cooking pot of sub-variety (b) from grave no. 192 (Fig. 32, no. 1).

Variety (ii). BOWL-ON-STAND

There is no example of coarse fabric. All the specimens are of fabric

(b). Sub-variety (a) is not found here at all. Sub-variety (e) is also absent. All other varieties are present. Only two examples are illustrated.

Sub-variety (b) from grave no. 192. Its inverted rim has incised lines at the outer surface. (Fig. 33, no. 2).

Sub-variety (g) is from grave no. 142 (Fig. 33, no. 1).

Variety (iii). TALL DRINKING VASE.

These vases are found both in grey ware and red ware (fabric b). In grey ware all the sub-varieties, except (d) — the carinated vase — are found. We illustrate only three specimens:

Sub-variety (a) drinking glass type from grave no. 148 (Fig. 33, no. 8), and sub-variety (c) from grave no. 173. (Fig. 33, no. 5). One red ware specimen is of sub-variety (b) type but the other one from grave no. 142 belongs to sub-variety (e) (Fig. 33, no. 3). It is a graceful specimen, rather fattish in appearance.

Variety (iv). OPEN-MOUTHED DRINKING CUPS.

Both the sub-varieties of these small cups are found in the graves in grey as well as in red ware (fabric b). Not illustrated.

Variety (v). MEDIUM-SIZED DRINKING GOBLETS

Their number is small but they are found in a few graves in grey ware as well as in red ware of fabric (b). Not illustrated.

Variety (vi). NARROW-NECKED BOTTLES.

They are found in grey ware. A small specimen from grave no. 111a.

- 2 red ware lids with central knob (variety xi). One of the lid belongs to sub-variety (a) of exactly the same type as is seen in grave no. 113 above (Fig. 29, no. 9). The other is a new sub-variety (d). The saucer-like lid has a solid rounded knob at the centre of the inner side. (Fig. 29, no. 8).

GRAVE No. 149

There are 26 pots all of red ware but they are of three different fab-

rics: (A) Coarse texture (B) Medium texture with some mica in the clay and (C) Extremely fine clay.

A) *Coarse texture (fabric a).*

This fabric is the same as is seen in the earlier period graves.

1 hand-made cooking pot, variety (i).

1 handled cooking pot, the handle being rounded. It is absolutely a new sub-variety (c) (Fig. 30, no. 4).

B) *Medium texture (fabric b).*

This fabric is also found in the earlier graves in the case of bowl-on-stand and particularly in the pots of the cremated graves.

1 bowl-on-stand, variety (ii), sub-variety (c). Tall drinking vase is not found here.

3 cooking pots in this fabric falling in two sub-varieties: one is of the normal shape as found earlier and the other two have a bulging body, flat base instead of disc-base and sharply everted rim. In these cases the rims are not rippled (sub-variety d) (Fig. 30 no. 2 and 3).

2 lugged vase, which makes a new variety (*Variety xv*). **LUGGED VASE**

The body is slightly bulging, has a disc-base, constricted neck and tapering rim. They fall into two sub-varieties:

Sub-variety (a) has holed lugs (Fig. 30 no. 1).

Sub-variety (b) has simple lug without a hole.

3 Water pitchers of a new sub-variety. All of them have a slightly bulging body, disc-base, constricted neck having a collared straight rim. The decoration consists of three cordoned lines on the shoulder. (Fig. 31, no. 1). We will include them under variety xvi.

1 Water pitcher having a triangular rim, slightly bulging body and flat base. The decoration consists of cordoned lines on the shoulder. We will include them under variety xvii.

- 2 Dishes having tapering sides, carination at the shoulder, flat base, straight rim with grooved lines at the outside. We will include them under variety xviii (same as in grave No. 197, See Fig. 31, 5).

C) *Extremely fine texture.*

- 7 *Surahi*-type vases having bulging body, flat base, long narrow neck slightly widening towards the mouth. They are either plain or have cordoned lines on the shoulder. One of them has a black paint from the shoulder to the mouth. We will include them under variety xix (Fig. 31, no. 2).

- 1 example of a *badna*-type vase (Fig. 31, no. 3). Shape is similar to no. xix but this pot has a handle and a spout. Its neck is also painted black. We will include this under variety xx.

- 3 hour-glass type of drinking vase (variety xiii) but these specimens are extremely fine. The upper portion above the narrow waist is like a cup. One of them (Fig. 31, no. 6) has extra dotted semi-circular designs above the carination.

- 1 A new variety (no. xxi) of a carinated medium-sized drinking vase, the sides sloping above the carination, narrow neck and outwardly curving rim (Fig. 31, No. 4). It has flat base and cordoned lines on the sloping body.

Grave nos. 104 and 197. In these graves no new varieties of pots have been found and therefore they are not listed here. It may, however, be noted that in both these graves we found carinated variety of tall drinking vase in grey ware but in grave no. 197 as many as 13 pots were found, two of them were of the *Surahi*-type of long narrow-necked water vessel and two were flat-based dishes of variety No. xviii. (Fig. 31, No. 5).

GROUP — B

There is a large number of graves falling in this group. The pots of all these graves are taken up together and classified under different varieties and described below.

(Fig. 32. no. 4) is illustrated here. The texture has some grits in it.

Varieties vii, viii, ix and x are not found here.

Variety (xi). LIDS

They are found in red ware of fabric (b). Only two varieties are found. One belongs to sub-variety (d). The other one belongs to sub-variety (e) from grave no. 111b (Fig. 32. no. 8).

Variety (xii). NARROW-NECKED WATER PITCHER

Both the sub-varieties are found in red ware of fabric (b). One example from grave no. 183 belonging to sub-variety (b) is illustrated here (Fig. 32. no. 7). This pot has cordoned lines on the shoulder.

Variety (xiii). HOUR GLASS TYPE OF DRINKING VASE

These fine pieces are found in most of the graves in red ware of fabric (c). Only two examples are illustrated—a large one from grave no. 123 (Fig. 33 no. 7) and a miniature one from grave no. 192 (Fig. 33 no. 6). The bigger one has incised lines above the carination and the smaller one has a shoulder cordon.

Variety (xiv). FLAT-BASED THALI comes from grave no. 111 (Fig. 33 No. 9) in red ware of fabric (b).

Varieties (xv) and (xvii) are not found here.

Variety (xvi). WATER PITCHER HAVING COLLARED RIM

These are found in various sizes in different graves. Only one plain specimen from grave no. 123 is illustrated here (Fig. 32. no. 5).

Variety (xviii). FLAT-BASED DISHES

Both the sub-varieties are found here. Sub-variety (a) from grave no. 134 and sub-variety (b) from grave no. 142, (Fig. 33, no. 10).

Variety (xix). SURABI-TYPE OF LONG NECKED WATER PITCHER.

They are found in most of the graves. They are plain without any decoration or paint, except for a shoulder cordon. (Not illustrated).

Varieties (xx) and (xxi) are not found here.

Variety (xxii). A beautiful specimen of narrow-necked water pitcher with incurved rim comes from grave no. 192. It is decorated with incised lines from the shoulder to the neck. The pitcher has a bulging body and a disc-base (Fig. 32, no. 6). *Variety (xxiii)* is not found here.

Variety (xxiv). A beautiful specimen of carinated drinking cup with flaring rim comes from grave no. 123. It has flat base with chamfered corners, tapering sides and narrow neck. From the carination to the rim the pot has decoration in four rows with incised dots, triangles, circles and lines (Fig. 32, no. 3).

Variety (xxvi). Only one example of a deep bowl on a hollow pedestal is found from grave no. 111 (a). It is in red ware of fabric (b) but the clay has some grits (Fig. 33, no. 4).

GROUP — C.

From the children's graves having fractional burials the same types of pottery are available. Only select specimens are illustrated below.

From grave no. 195 comes a miniature specimen of the tall drinking vase (variety iii). It belongs to sub-variety (b), and is in grey ware (Fig. 34, no. 5).

From grave no. 108 comes a small drinking cup (variety iv) in grey ware. It belongs to sub-variety (b), (Fig. 34, no. 8).

From grave no. 102 comes an hour-glass type of drinking vase (variety xiii) in fine red ware (fabric c), (Fig. 34, no. 6).

From grave no. 140 comes a surahi-type of long narrow necked water vessel (variety xix) in fine red ware (Fig. 34, no. 3).

From grave no. 140 comes a handled jug (variety xxiii) with a pinched mouth. It has a flat base and narrow neck (Fig. 34, no. 1).

From grave 102 comes a handled cup (variety xxv) in red ware of fine fabric (Fig. 34, no. 2).

From grave no. 107 comes a water pitcher with grooved collared rim (Fig. 34, no. 7), of variety (xvi), sub-variety (b). It is red slipped.

From grave No. 133 comes a pedestalled cup, variety, No. (vii) in grey ware. The cup has grooved lines at the exterior (Fig. 34, no. 4).

POTTERY FROM TIMARGARHA

SITE NO. 2

As this site has so far not produced graves of period I, the typical

pot-forms of that period are not found here. The other two periods are very well represented. In fact we get many new varieties to add to the forms known earlier. As far as the ware is concerned, it is the same as observed before. However, it may be remarked that from the graves having fractional burials one typical type has not yet been found at all: the *Surahi*—type of long-necked water vessel (variety xix) in fine red ware is absent here in the same way as we have not found here a single piece of iron. This does not mean that these fractional burial graves should be dated earlier. The difference lies only in the cultural equipment. This is clear from the fact that we have an hour-glass vase from grave No. 241 and a poor imitation of the same type of drinking vase in grey ware from grave No. 210. As the following description of the pot-forms will show the dating of these graves is co-eval with that of the graves in Timargarha site No. 1.

The pottery is described under two main groups: (A) the pottery from the cremated graves and (B) the pottery from the fractional burial graves. The pots are taken up together and they are not described grave-wise in order to be free from repetition and to save space. The graves of the adults and of the children are taken up together as there is no difference in their pot forms. From the cremated graves the pottery from the disturbed burial No. 217 has been omitted. The remainder grave materials are described below, though there appears to be some mixture in the graves numbering 213 and 240.

A— THE POTTERY FROM THE CREMATED GRAVES

The pot forms from these graves have a great similarity with those found in the similar graves from Timargarha site No. 1. But there are some additional varieties which do not occur there. Here for the first time we get a cooking pot form in fabric (b) with a holed lug, one on either side. Four examples of a cooking pot on a stand in red ware fabric (b) are found. Four examples of bowl-on-stand in grey ware are also obtained. Tall drink-ing glass have new sub-varieties. One example of drinking glass type is in red ware of fabric (b). It has a narrow waist. The sub-variety (e) of this vase is also found here. There is a new short and wide sub-variety in grey ware. Still different is a medium sized drinking vase with a handle in grey ware. We have a new sub-variety of the narrow-necked bottle in red ware of fabric (b). It is slightly bigger in size with a globular body on a small disc-base. There is a new variety of cup with incurved rim in grey ware. Its flat base has a hole. Other pitchers and urns are of the usual type. But we have a new variety of a deep bowl with tapering sides and disc-base in red

ware of fabric (b). There is another deep bowl with a pedestal base. As many of the varieties come from the mixed graves numbering 213 and 240, it is difficult to say whether they all belong to period II.

Variety (i): HAND-MADE COOKING POTS

Sub-variety (a) in coarse fabric is found in different sizes from the grave. The ripples at the rim are not very prominent. But scratches are seen. A miniature specimen from grave No. 240 is illustrated here. (Fig. 35, No. 4).

Sub-variety (b) in medium fabric (b) is also found here. One example illustrated from grave No. 213 has a smooth surface of the globular body on a disc-base, constricted neck and sharply everted rim. At the shoulder there are grooved lines very crudely drawn. (Fig. 35, No. 2).

Sub-variety (c) is unique of its kind from grave No. 213. It is in red ware of fabric (b). The shape is that of a cooking pot but it has an extra holed lug on either shoulder of the globular body (Fig. 35, No. 1).

Variety (ii): BOWL-ON-STAND

Only two sub-varieties are found here

Sub-variety (b) is found both in red ware of fabric (b) as well as in grey ware. Two examples are illustrated here: the red ware one from grave No. 218 (Fig. 36, No. 7) and the grey ware one from grave No. 213 (Fig. 36 No. 4).

Sub-variety (c) is rather stumpy with a comparatively big cooking pot on a small thick stand. One specimen from grave No. 213 is illustrated here (Fig. 36, No. 1). It is made of coarse red ware fabric (a).

Variety (iii): TALL DRINKING VASES

They are found in grey as well as red ware.

Sub-variety (a) is found both in grey as well as red wares. The grey specimen from grave No. 240 has a cordoned line at the waist (Fig. 37, No. 3). The red ware example from grave No.

213 makes a new sub-variety as it has a narrow waist and above the waist we have grooved lines (Fig. 37, No. 1).

Sub-variety (b) is found here in grey ware. One example is illustrated from grave No. 218 (Fig. 37, No. 2).

Sub-variety (c) is found here in grey ware from grave No. 251. (Fig. 37 No. 4).

Sub-variety (e) is found in red ware of fabric (b) from grave No. 218. It has a disc-base. (Fig. 37, No. 7).

Sub-variety (f) is absolutely new from this site. Two examples have been found both in grey ware, one from grave No. 218 (Fig. 37, No. 6) and another from grave No. 240. It is a wide sub-variety of drinking vase with a wide flaring mouth and broad body on a disc-base.

Sub-variety (g) is also a new sub-variety of drinking vase in grey ware from grave No. 213. It is a small one having a handle. (Fig. 37, No. 5).

Variety (iv): OPEN MOUTHED DRINKING CUP WITH FLARING RIM

Two examples are illustrated. Both have sagger base and hence belong to sub-variety (a). The red ware specimen comes from grave No. 229 (Fig. 37, No. 9) and the grey ware one from grave No. 213 (Fig. 37, No. 10).

Variety (v): MEDIUM-SIZED DRINKING GOBLETS

The one example illustrated from grave No. 213 is in grey ware. It belongs to sub-variety (a) (Fig. 37, No. 8).

Variety (vi): NARROW-NECKED BOTTLES

They are found both in grey ware and in red ware of fabric (b). The grey ware specimens from grave Nos. 213 (Fig. 36, No. 3) and 251 (Fig. 36, No. 2) are of the usual type. But the red ware example from grave No. 213 makes a new sub-variety as it has a bigger globular body and small mouth (Fig. 35, No. 5).

Variety (viii): VISAGE URN. (Fig. 38).

Four examples of this type of urn have been found. All are of big size

similar in type. The one from grave No. 213 has curved projecting nose with an impressed eye on its either side, the ball of the eye being surrounded by a circle of dots and above them is the long curving sweep of the eye-brow. The second example from grave No. 240 has a holed eye on either side of the curved nose, the eye-hole being surrounded by a circle of dots, a circular mouth again surrounded by a circle of dots and the eye-brow above, drawn horizontally. The third example from grave No. 251 is similar but the eye-balls are set at an angle. The fourth specimen from grave No. 218 (See frontis piece), has a beaked nose with a holed eye on either side, above which is the straight eye-brow. Below the nose is the holed rectangular mouth. It was covered by a lid with a holed handle at the outside of the lid. The lid was placed upside down.

Variety (xi): LIDS.

Three different sub-varieties of lids are found here— all in red ware of fabric (b).

Sub-variety (a) comes from grave No 213 (Fig. 36, No. 5).

Sub-variety (d) comes from grave No. 213, (Fig. 36, No. 6).

Sub-variety (e) also comes from grave No. 213.

Variety (xii): NARROW-NECKED WATER PITCHER.

Quite a good number of these pitchers are found here in red ware of fabric (b). Here they have a disc-base, globular body, narrow neck and flaring rim. They are found in two sizes. Medium sized one from grave No. 218 (Fig. 35, No. 3) is undecorated. Large-size example from grave No. 237 has incised star-pattern below the neck (Fig. 37, No. 12). There are also traces of lugs. These pitchers were most probably used as burial urns. In the big example actual bones were found.

Variety (xxvi): DEEP BOWLS

They are thick deep bowls in red ware, not well fired.

Sub-variety (a). It has a disc-base with the sides widely tapering and simple rim. It is from grave No. 240 (Fig. 36, No. 8).

Sub-variety (b). It has a hollow pedestal base with curving sides. It comes from grave No. 201 (Fig. 36, No. 9).

Variety (xxvii): FLAT-BASED CUP WITH AN INCURVED RIM.

The example comes from grave No. 218 (Fig. 37. No. 11). The cup is a miniature specimen of the bowl without the stand (variety (ii), sub-variety (b)). The purpose of the hole at the base is not very clear unless, of course, it is meant for pouring liquid.

B.— POTTERY FROM THE GRAVES HAVING FRACTIONAL BURIALS

As remarked earlier, the pottery from these graves does not show some important varieties found in the similar graves from Timargarha site No. 1. The extremely fine red ware (fabric c) is rare here. Only one example of an hour-glass type of drinking vase has been found. Another is only a poor imitation of the hour-glass type of drinking vase in grey ware from grave No. 210. But other tall drinking vase in grey ware show extremely narrow waist. The one from grave No. 256 is most remarkable from this point of view. The drinking glass sub-variety of the tall drinking vase is found in red ware of fabric (b). The *Surahi*-type of long-necked water vessel is absent. But narrow necked examples are seen in other vases. The most important is a poor imitation of narrow necked bottle in coarse red ware (fabric a) from grave No. 204. Pedestalled cup (variety vii) is found in grey ware from grave No. 270. There is a similar example of an almost straight-sided cup from grave No. 211 but instead of the pedestal, it has disc-base. Long and small narrow-necked pitchers are found in red ware of fabric (b). From the point of view of dating the most important is the water pitcher having a collared rim (variety xvi) from grave No. 256. This type of pitcher is found only in the last period of the graves in Timargarha site No. 1. Open-mouthed small drinking cups have either sagger or flat base. Bowl-on-stand is found only in red ware of fabric (b) and belongs to one sub-variety (b). The cooking pots are found either in coarse (fabric a) or medium (fabric b) red ware in different sizes. They show traces of ripples on the rim. There is an important variation of this pot form from grave No. 210. This pot does not have disc-base, as is seen in similar examples, but it has a concave base. On the whole the pottery forms suggest dating of these graves to period III. The detail of the pottery is given below.

Variety (i) COOKING POTS

Examples in coarse red ware are few and far between. Those in medium red ware (fabric b) now increase in number. Two examples in this last ware are illustrated. The bigger one is from grave No. 270 (Fig. 39. No. 1) and the smaller from grave No. 223 (Fig. 39. No. 2). It is remark-

able to note that ripples are not seen throughout the rim but they are present only at interval. Both of them belong to sub-variety (b). Some of these pots, as usual, have black soot marks at the outside surface. A new sub-variety (f) of the cooking pot (Fig. 39. No. 3) has a concave base. It comes from grave No. 210.

Variety (ii). BOWL-ON-STAND

They are found only in red ware of fabric (b) and all of them belong to sub-variety (b). Two examples are illustrated. The one from grave No. 256 has incised lines (Fig. 39. No. 5) at the shoulder of the bowl and another from the same grave has grooved lines at the shoulder of the bowl (Fig. 39. No. 4).

Variety (iii). TALL DRINKING VASE

Examples are found both in grey ware and in red ware of fabric (b). Miniature specimens in grey ware were also found.

Sub-variety (a) The drinking glass type has variations. The one from grave No. 254 (Fig. 40. No. 5) is in red ware and has a disc-base, straight sides upto the waist and then it flares towards the rim. Cordoned lines are seen at the waist.

The second example from grave No. 212 (Fig. 40. No. 6) is in grey ware and has a disc-base but the sides taper upto the middle part and then gradually curve in towards the rim.

The third example from grave No. 256 (Fig. 40. No. 3) is in grey ware and has also a small disc-base, steeply tapering sides and extremely narrow waist and then above this point it flares. There are no decorations at the surface.

Sub-variety (b) A number of examples in grey ware is found from the graves. A miniature specimen from grave No. 270 is illustrated (Fig. 40. No. 4). It has a grooved line at the bulge of the lower half.

Sub-variety (c) The one example illustrated (Fig. 40 no. 2) in grey ware comes from grave No. 223. It has no decoration at all. There is another variation from grave No. 247, which has an extremely narrow waist (Fig. 40 no. 1).

Variety (iv) OPEN MOUTHED DRINKING CUP WITH FLARING RIM

Examples are found only in grey ware. Both the sub-varieties are known. But the flat-based one does not have its corners chamfered.

Sub-variety (a). Sagger-based type. Two examples are illustrated Fig. 41, no. 10) from grave No. 210. Both of them have grooved lines on the body. The smaller one shows more of them. (Fig. 41, no. 6).

Sub-variety (b). The flat-based specimen comes from grave No. 248 A. (Fig. 41 no. 8). It is also decorated with grooved lines.

Variety (v) MEDIUM SIZED DRINKING GOBLET

Number of examples in grey and red wares have been found. Almost all belong to—

Sub-variety (a). Two are illustrated: the bigger in red ware from grave No. 212 (Fig. 40, no. 8) and smaller one in grey ware from grave No. 254 (Fig. 41 no. 3)

Sub-variety (b). In grey ware from grave No. 223 has a holed lug near the base (Fig 41 no. 1).

Variety (vi) NARROW-NECKED BOTTLE

Only one example in coarse red ware from grave No. 204. It is coated with white slip. It is a poor imitation (Fig. 41, No. 9).

Variety (vii) PEDESTALLED CUP

Only one example in grey ware from grave No. 270. The cup, which has incurved rim, is standing on a solid pedestal having a circular base with a dimple at the lower side (Fig. 39, no. 6).

Variety (xi) LID.

Only one sub-variety (d) of lid is found in red ware of fabric (b). One example illustrated comes from grave No. 210 (Fig. 40 no. 7).

Variety (xii) NARROW-NECKED WATER PITCHER

Both the sub-varieties are found in red ware of fabric (b). Three examples are illustrated.

Sub-variety (a), having globular body on a disc-base. The bigger example comes from grave No. 209 (Fig. 41 no 2) and has a row of dots at the shoulder. It has a small narrow neck and flaring rim. The smaller specimen from grave No. 247 (Fig. 41 no. 5), has a rather longer narrow neck and is plain.

Sub-variety (b), having bulging body comes from grave No. 256 (Fig. 41 no. 4). It is also plain.

Variety (xiii). HOUR-GLASS TYPE OF DRINKING VASE

One example from grave No. 241 is in fine red ware (fabric c). It is light in weight (Fig. 40 no. 10). Another example from grave No. 210 (Fig. 40 no. 9) in grey ware has been doubtfully placed in this category. It is in between this variety and those termed as tall drinking vases. It is rather a poor imitation, if at all it is one.

Variety (xvi). WATER PITCHER HAVING A COLLARED RIM

The one example illustrated (Fig. 41. no. 7.) comes from grave No. 256. As usual it has incised decoration at the shoulder and at the rim.

Variety (xxviii). DISC-BASED CUP

This is a new variety in grey ware from grave No. 211 (Fig. 39 no. 7). It has a small disc-base and wide cup-like body with straight sides. There are grooved lines at the exterior.

POTTERY FROM TIMARGARHA

SITE NO. 3

The purpose of the pits excavated in site No. 3 is not very clear from the excavation. The pits are irregular and the contents are poor. Not a single complete pot was recovered from them. It seems that the complete pots were not put inside these pits. The sherds available in them could not be fitted to make a single complete vessel. The irregular manner of excavating the pits and the find of ash, charcoal, bones, broken potsherds and broken beads suggest that they were most probably refuse pits, meant for the settlement site in the neighbourhood. Such a settlement was actually discovered later not far from this site. That site, which was excavated fully in 1966, was named Balambat Settlement Site (see below Part vi for the report).

The dating of site No. 3 is possible on the basis of the sherds available from these pits. But first of all the pottery is described. As the contents of the pits are more or less the same, it is no use describing the sherds pit-wise. A selection of the sherds has been made and their description is given below.

Here again pottery may be divided into two broad groups: (A) Red Ware Pottery, and (B) Grey Ware Pottery.

A) RED WARE POTTERY

This pottery can again be classified into three different wares, as we did before in the case of the grave pottery.

Fabric (a): This category includes hand-made pots prepared out of coarse clay mixed with grits and dry husk. They are not well-fired. The ware is the same as we saw in the case of the grave pottery. Even the pot forms are the same. We have the cooking pots, the large storage jar and a new variety of flat-based trough having lugs on either side.

Fabric (b): This category includes pots made with well levigated clay on a slow wheel, well fired, red-slipped and burnished at the outside. The ware falls into two sub-divisions: (i) those pots which are red right through outside as well as inside. They include long narrow-necked globular jars with flaring rim (variety x) of the grave pottery. (ii) the other potsherds have red face outside and black inside. Sometimes the inner shade varies into chocolate colour.

Fabric (c): This category includes extremely fine pots prepared with fine clay with no degreassants at all. The sherds available make very thin section. They are all red slipped and burnished. Though the ware is the same as the fabric (c) of the grave pottery, the forms are different. Here we have not found pieces of either hour-glass type of drinking vase or the *Surahi*-type of water vessel.

B) GREY WARE POTTERY

This pottery is made of well levigated clay as in the case of grave

305. Both have tapering sides and sagger base. They are in red ware of fabric (b) (Fig. 43, No. 7 and 8).

Variety (xviii): WATER PITCHER TRIANGULAR RIM

Only rim fragments in red ware of fabric (b) have been found. They fall into two sub-varieties: (a) having very small rim of a thin sectioned pot from pit No. 309. (Fig. 42 no 8), (b) having a bigger rim of a big pot from the same pit (Fig. 42 No. 7).

Variety (xviii): WATER PITCHERS HAVING TRIANGULAR RIM

Many fragments of this jar in red ware of fabric (b) have been found in the pits. Two fragments are illustrated. One from pit No. 315 is rather thick in section (Fig. 43 No. 4) and has an incised zigzag line above crudely drawn horizontal lines at the shoulder. Two fragments from pit No. 309 are thin in section and have only crudely drawn horizontal lines at the shoulder. The outer surface is red-slipped and burnished. (Fig. 43 no. 6).

Variety (xxx): STRAIGHT-SIDE TROUGHS WITH LUGS

Fragments of the trough as well as its lug are found in almost all the 3. no. 5.) comes from pit No. 304. It is pits. One example illustrated (Fig. 4 in coarse red ware and is hand made.

Most of the pot-forms that could be re-constructed from the sherds found in these pits have a great resemblance with those of T.M.G. period II but there are quite a few which are definitely later. The straight-sided troughs are found only in the Balambar settlement site (see below). The appearance of sherds in fabric 'c' of red ware further suggests that these pits belong to T.M.G. period III.

1. Report on the Small Finds from the Graves
2. Note on an Iron Cheek-piece found at Timargarha

Part IV

By

- 1) ABDUR RAHMAN
- 2) PROF. KARL JETTMAR

It is not the first time that we have seen a similar case.

THE FOLLOWING CASES ARE OF THE SAME KIND.

1. Report on the Small
Findings from the Cases.

2. Note on the Case.
piece found at

Thompson's
The following cases are of the same kind.

THE FOLLOWING CASES ARE OF THE SAME KIND.
The following cases are of the same kind.

Part IV

The following cases are of the same kind.
The following cases are of the same kind.

11

THE FOLLOWING CASES ARE OF THE SAME KIND.
THE FOLLOWING CASES ARE OF THE SAME KIND.

Section I

SMALL FINDS (TMG)

By ABDUR RAHMAN

The recent excavations conducted at Timargarha and Thana have brought to light, apart from a repertoire of pottery, quite a good number of small finds, which pre-dominantly consist of personal objects, a few small weapons and other household utensils. The antiquities other than pottery resolve themselves into the following functional groups: (1) Pins, (2) Toilet objects (3) Needles, (4) Antimony rods (5) Pendants (6) Ear rings (7) Finger rings (8) Net Sinkers and (9) Beads. The remaining small finds which, by their very individuality, do not fall under any of the above mentioned groups are placed under the miscellaneous head. Only representative types and among them selected specimens are illustrated. Grave number is given in bracket for further reference.

(1) PINS

These pins, round in section, are made very scantily of ivory and predominantly of copper bar and are found associated with cremation and fractional burials exclusively. No example has so far been recorded from complete burials (see distribution chart below). The tops of these pins exhibit a variety of devices. They fall into the following types: those with

- a) Globule surmounted by flat top.
- b) Convex top.
- c) conoid top.
- d) conical top.
- e) loop head.
- f) pyramidal top.

TYPE (A) GLOBULE SURMOUNTED BY FLAT TOP

Total: 17 — Copper is represented by sixteen and ivory by one. This type appears to be the prime favourite in view of the greater percentage it enjoys among other antiquities. Not counting two damaged pieces, almost all the specimens in this type precede over others of the similar nature in length as well as in thickness. The tallest example measures 128 mm. from end to end. Moreover, in proportion to the actual size of the rod, the tops of

these pins vary in diameter — 10 mm. being the average size. It should be pointed out by way of negative evidence that the disc-like flat top in this type is plain and undecorated without exception, whereas the actual rod, always gently tapering towards a point, is, in majority of the cases, decorated just above the pointed end or below the globular projection, or, as in two cases, at both places. This ornamentation consists of a panel of zigzags placed within deeply incised lines and hatched triangles (not clear in the photograph). It is worth pointing out that the disc-like top always overshadows the globular projection, with one exception where the case is exactly the reverse. This type is associated largely with fractional burials.

ILLUSTRATIONS

PL. XLVIII, a

1. (Grave 139) Copper pin: round in section, with globule at one end surmounted by a disc top and pointed at the other. Decoration consists of incised lines on the actual rod; length 6.6".
2. (Grave 202) Copper pin: variant; round in section with globule at one end surmounted by a disc top, and pointed at the other. The globule is slightly irregular; length 5.6".
3. (Grave 240) Copper pin: Same as No. 1 above but here the globule is more pronounced; length 6.2".
4. (Grave 124) Copper pin: variant; round in section with large globule surmounted by an unproportionately small disc head; length 6.1".
5. (Grave 212) Copper pin: variant; round in section with globule at one end surmounted by a circular head which tapers downwards at the neck; damaged.
6. (Grave 101) Copper pin: round in section, with globule at one end surmounted by a disc head twisted upwards due to some lateral pressure, and broken at the other. The globule decorated by incised chevrons whereas the actual rod has a panel of zigzags placed between

incised lines on the one side and hatched triangles at the other.

7. (Grave 114) Ivory pin: Same as above but without decoration. It is smoothly polished, and the pointed end is damaged.

TYPE (B) CONVEX TOP

Total: 5. Out of them copper is represented by three and ivory by two. The convex or umbrella shaped top with a downward trend at the circumference is invariably preceded by an irregular globule, or just two projections on opposite sides, probably indicating the same idea. All the examples are smaller in size as compared to other types. They are sharply pointed.

ILLUSTRATIONS

PL. XLVIII, b

8. (Grave 218) Ivory pin: round in section with convex top at one end preceded by a globule like raised surface. The top is slightly tilting to one side. It is broken at the other end.
9. (Grave 256) Copper pin round in section with a globule at one end surmounted by a convex top; sharply pointed at the other end; length 2.8".
10. (Grave 217) Copper pin: round in section with convex top at one end preceded by two projections instead of globule; length 2.8".

TYPE (C) CONOID TOP

Total: 2. both in copper. These are quite as big in size as those representing type (a) mentioned above, but without globular projection. Their big size may not be without significance, as this type is also associated with fractional burial.

ILLUSTRATIONS

11. (Grave 176) Copper pin: round in section with conoid top placed directly above the vertical rod at one end, and pointed at the other. No globule. Pl. XLVIII-b.

- 11- a (Grave 176) Copper pin: round in section with conoid top placed directly above the vertical rod without being preceded by any globule. It is much damaged and given for chemical analysis. Not illustrated in photograph.

TYPE (D) CONICAL TOP

Total: 8. All of them are made of copper. None of them has been provided with the globular projection, except one. They are comparatively thin but sharply pointed. They are equally distributed in fractional as well as in cremation burials.

ILLUSTRATIONS

12. (Grave 251) Copper pin: round in section with conical top at one end and a point at the other; length 5". Pl. XLVIII-b.
13. (Grave 157) Copper pin: variant; round in section with conical top at one end and pointed at the other. It has a narrow neck below the top; length 5.7".

PL. XLVIII-b.

TYPE (E) LOOP HEAD

Total: 1. It is illustrated below. It was associated with a cremation burial.

DISTRIBUTION OF METAL, BONE & IVORY

Objects in different periods

(Figures indicate number of graves)

Material	Complete burial	Cremation			Fractional Burials			TOTAL
		Mixed Burial	Burial Pot	Children's	Mixed Burial	Fractional Burials	Fractional children	
Iron	—	1	—	—	—	4	—	5
Iron & Copper together	—	—	—	—	1	1	—	2
Copper	2	4	4	1	1	16	5	33
Gold and Copper together	—	—	1	—	—	—	—	1
Silver	—	—	—	—	—	—	1	1
Silver & Copper	1	—	—	—	—	—	—	1
Bone	—	—	—	—	—	1	—	1
Ivory	1	1	1	—	—	2	—	5
	4	6	6	1	2	24	6	49

14. (Grave 201) Copper pin: round in section with one end twisted to form a ring or an incipient spiral, and pointed at the other. Apparently it was hammered out of a rounded wire; length 4.8". Pl. XLVIII-b.

TYPE (F) PYRAMIDAL HEAD

Total: 1. It is illustrated below.

15. (Grave 203) Ivory Pin: round in section with ring like projection instead of globule at one end surmounted by a pyramidal top. It is broken at the other end; Surface smoothly polished. Pl. XLVIII-b.

(2) TOILET OBJECTS

Total: 2. Made of copper, both appear to have been hammered out of square sectioned thin bar. Curiously enough, they have been provided with unproportionately square sectioned long stems with a hook at the end. It is difficult to determine the function of unproportionately long stem, though it is relatively easy to understand the purpose of the blade sharp at both the sides. It should be noted that both of them are thin and almost incapable of being used with force; they could only have been worked with delicate handling. It would be a pardonable exaggeration to say that one of their distant function might be mixing *Sindur* (red pigment). All the two examples are associated with urn burials.

1. (Grave No. 122) Toilet Object; with a long square sectioned stem which terminates in a hook at one end and a small, thin blade sharp at both edges at the other. Tip of the blade is broken. Measurements of blade: Length = 44mm, width = 9mm; those of stem excluding hook: length m. width 2 mm, sq. Pl. XLIX-a.
2. (Grave 218) Toilet Object: with a square sectioned stem which terminates in a hook at one end and a small, thin blade sharp at both edges at the other. Here the stem is comparatively short. Measurements of blade: length = 38mm; width 9mm; those of stem excluding hook: length 65 mm width 2 mm sq. Pl. XLIX-a.

(3) NEEDLES

Total: 3. All of them are hammered out of thin copper rod with a sharp point at one end and eye at the other. Apparently the eye is made by bending the stem end. Two of them are illustrated below.

3. (Grave 218) Copper needle: round in section with elliptical eye at one end and a sharp point at the other. It measures 4.6" from top to end. Pl. XLIX-a.
4. (Grave 213) Copper needle: Same as above, but bent in the middle. It measures 3.5" from top to end Pl. XLIX-a.

(4) ANTIMONY RODS

Total: 4: Copper and ivory are equally represented, each by two spe-

cimens. They can be easily distinguished from pins not merely because they do not possess any decorative device upon the top but also because they are provided with ends which have been carefully rounded off. The examples in ivory are slightly swollen in the middle. Only one is illustrated.

5. (Grave 183) Copper antimony rod: round in section, it tapers gently towards the ends which have been smoothly rounded off, length 5.8". Pl. XLIX-a.

- 5-a. (Grave 2, trench CO, 1964) Ivory antimony rod: Oval in section with one end smoothly rounded off, whereas the other is missing, swollen in the middle. Not illustrated.

(5) PENDANTS

Total: 2. One represented by copper and the other by bone. Both of them are associated with fractional burials. The one made of bone has its exact parallel in Swat². These are illustrated below:

6. (Grave 146) Copper pendant: Crescent shaped pendant made of thin sheet, broad in the middle but gradually narrows towards the ends which are twisted for further attachments. There are three rows of pin hole decoration running parallel to each other on the outer face. The outer edge appears to be indented. Pl. XLIX-a.
7. (Grave 182) Bone pendant³: consisting of rhomboid plate with a waist groove flanked by two holes—one on each side. Pl. XLIX-b.

(6) EAR RINGS

Total: 7. Four represented by copper, two by gold and one by silver. Those of copper and silver are by far the most common types. They are made of thin rounded wire twisted in the form of a circlet to join at the ends, with the provision of expanding the ring when putting on or putting off. Those in gold are comparatively ornate. Made of thin gold sheet each has been provided with four tiny bead-like attachments soldered at regular intervals at the outer edge. Illustrations.

4. (Grave 107) Copper ear ring made of thin rounded wire. The ends are twisted so as to bring them close to each other. Plain. Dia. .5". Associated with fractional burial. Pl. XLIX-b.

5. (Grave 122) Gold ear ring: made of a flat gold sheet with four tiny bead-like attachments at the outer edge. Dia. .5". Associated with urn burial. Pl. XLIX-b.

(7) FINGER RINGS

Total 2: Both are spiral shaped, made of round sectioned thin copper wire, the ends of which have been smoothly rounded off. They vary in size and number of coils they contain. Both of them belong to the fractional burials. Illustration.

6. (Grave 197) Copper finger ring consisting of four coils, Dia. .7". Pl. XLIX-b.

- 6-a (Grave 157) Copper finger ring consisting of two coils, Dia. .6". Not illustrated.

(8) BEADS

Total 17: Ten of them come from one grave (Gr. 192)—which is a fractional burial.

Quartz is the material of the largest number (seven) of beads. Of these one was obtained from the urn burial (Gr. 122), whereas others were found associated with fractional burials. The commonest shape in this material is the barrel-bicone-circular type of which six specimens were recovered. The other shape being long-cylinder-circular represented by two beads. Two varieties of quartz—rosy and pure white—were most favoured. There is one example, however, of smoky quartz as well. Meagre as the number of these beads is, and notable as their concentration in a few graves is, it would be scarcely profitable to earmark the association of certain specialised types with different periods.

Grey schist which comes next to quartz in order of frequency, is the material of five beads. Three of them were obtained from fractional and two from urn burials. With the exception of one—conical in shape, all the others are of the type here labelled as conjoined or composite beads. Shell is represented by a solitary half bead of this type.

Of agate, two varieties, banded black and banded red were used for two specimens; and that only is the total number of beads in this material. In shape one of them is of short-barrel-circular, whereas the other is of the standard-barrel-circular type. They belong to fractional burials.

Magnesite is the material for three beads—two of them are of the short-cylinder-circular type, whereas the third is a tiny bead. All the three come from Gr. 192 (fractional burial).

Illustrations

1. (Grave 251) Grey Schist: disc-shaped composite or conjoined bead made up of two-parts—both of schist. On the flat side of one portion there is a groove .1" wide, whereas the other is slightly rounded off. The other portion is thinner than the one having grooved face. Apparently they were joined together by some adhesive of which no trace is visible at present. The two parts were found lying separately in the same grave. Dia. .7"; thickness 3mm Pl. XLIX-b.
2. (Grave 247) Shell: Only one half of the disc shaped composite bead. It is the upper portion and thus without groove. Dia. .7"; thickness 1 mm. Pl. XLIX-b.
3. (Grave 247) Black Schist: disc-shaped composite bead, only lower half with a central groove. Dia. .9"; thickness 1mm. Pl. XLIX-b.
8. (Grave 192) Rosy quartz: Standard-barrel-circular. Pl. XLIX-b.
9. (Grave 192) Smoky quartz: Long-bicone-circular. Pl. XLIX-b.
10. (Grave 182) Magnesite: Long-cylinder-circular. Pl. XLIX-b.
11. (Grave 192) Magnesite: Long-cylinder-circular. Rough surface. Pl. XLIX-b.
12. (Grave 192) Banded agate: Short-barrel-circular. Pl. XLIX-b.
13. (Grave 192) Banded agate: Short-barrel-circular. Pl. XLIX-b.

(9) NET SINKERS

Total 12: Terracotta is the material for eleven and schist for one. Unlike magnesite or quartz, terracotta net sinkers appear through out in all the three periods. They show little variation in shape except that those belonging to the last period are comparatively better finished with an occasional coating of slip. The normal colour being terracotta red or grey.

Illustrations

1. (Trench D-Gr 1) Grey: Short-barrel-bicone-circular. Truncated cones; rough surface, and a spacious axial hole. Pl. La.
2. (Trench B-Gr 1) Light grey: Short-barrel-bicone-circular. Truncated cones, with spacious axial hole. Pl. La.
3. (Grave 101) Terracotta red: Short barrel-bicone-circular. Truncated cones, with spacious axial hole. Pl. La.
4. (Grave 183) Grey: Same as above. Median ridge worn off. Pl. La.
5. (Grave 192) Light grey schist: Conical at one end and closely truncated at the other, with a wide axial hole. It is smoothly polished. Pl. La.

(10) MISCELLANEOUS

6. (Grave 109) Iron Spear head with rectangular sectioned stem for fixing in wooden shaft. It is relatively heavy at the base and tapers gently towards the ends. No mid rib is seen; length 5.3". Pl. La.
7. (Grave 103) Copper: Rectangular shaped object made of a thin flat sheet. Pl. XLIX-a.
8. (Grave 194) An unidentified object made of flat copper sheet with ends twisted so that they cross each other in the middle. Pl. XLIX-a.
9. (Grave 177) Copper bangle made of thin rounded wire, the ends of which have been joined to gether by twisting into each other. Pl. XLIX-a.
7. (Grave 192) Iron nail with a thick circular top at one end and broken at the other. There are two more specimens of similar nails—one from the same grave and the other from Grave 112. Pl. La.
8. (Grave 149) Iron spoon made of a beaten bar, having a circular shallow saucer and a long rectangular sectioned handle which terminates in two rings, one on each side; length 8.1". Heavily encrusted. Pl. La.

9. (Grave 149) Terracotta antimony phial: bladder shaped. It has a long narrow neck and is rounded off at the base. Coated with reddish slip. The whole surface, except neck portion, is divided into rectangular panels demarcated by incised line and a row of pin holes. The panels are either left empty or decorated with incised zigzags. Pl. La.

Pl. LI-b.

10. (Grave 183) Terracotta anthropomorphic figurine: It is hand made, terracotta red in colour with pinched face and a depression at the back of the head. Eyes are marked by two dotted circles, one on each side of the face. It has two deeply incised lines—*chhannavira* hanging down the shoulders and crossing each other at the chest. Front part of the neck is decorated by dotted circles. Pl. LI-a & LI-b.
14. (Grave 2) An indeterminate copper piece with a flattened end. Not illustrated.
- 2a. (Grave 142) Cheek-bar of horse's harness*, of a rectangular sectioned straight bar with three elliptical holes made at equal distance from each other. The ends are provided with one knob each; length 6.3". Pl. L-b.

CONCLUSION

It is evident from the description of various objects given above that the materials employed for their manufacture comprised of (a) metals consisting of copper, iron, gold, and silver in the similar order of frequency, (b) organic materials consisting of ivory and bone; (c) stones including quartz, magnesite, agate and schist; (d) terracotta. That iron was pre-eminently employed, in the last period of TMG for making weapons or utensils meant for a rough type of job is suggested by the spear head (Pl. L a, No. 6), a spoon (Pl. L a No. 8) and a few thick nails (Pl. La No. 7) and other non-descript but heavy pieces of iron; in striking contrast to other metals which were evidently used for making either ornaments or other objects which could have been worked with delicate handling. The use of bone as a material for making small objects is attested very sparingly. The specimens of ivory, however, exhibit much advanced manipulation of the material. Igneous rocks, apparently, were exclusively used for making small beads.

It remains to be added that the techniques of drilling beads from both ends for making an axial hole was employed and the results were very adroitly achieved. It does not, of course, necessarily imply the existence of a local industry. On the contrary there is nothing to disprove, and to call them import is a guess but is consistent with the meagre number of graves which yielded beads.

It is worth noting that all the copper pins (loop headed pin is the only exception) are made of cast metal. It has also been abundantly noted in almost similar graves in Swat⁵.

On the basis of the present data we may pinpoint well-defined custom or rigid practice which might have guided the arrangement of funerary equipment in relation to the skeletal remains. However, the recurrent occurrence of some copper pins along the occipital part of the skull, as evidenced in many cases⁶ tends to indicate that their position as such may not be without significance. That some sort of spatial relationship of pins with skulls can be postulated, is amplified by a few examples⁷ in which the pin was found lying near the western wall — the place normally occupied by skull. Let it be interpolated here that similar pins have also been found evidently scattered in the grave chamber, at least, in case of fractional burials (see Gr. 139) apparently unconnected with any skull. Thus the picture remains hazy but in the ultimate analysis some nebulous association of pins with skulls begins to loom up. It is, however, relatively easy to understand the position of ear-rings, as they were found, in tombs where inhumation was practised, sticking to the temporal of the skull⁸; and in cremation burials they were found mixed up with burnt bones.

As to the position of anthropomorphic figurine one can hardly arrive at any precise conclusion on the basis of a single specimen. However, when it is taken together with the observation made by Stacul in Swat, it would appear that the position of such figurines must have been governed by some definite practice which required them to be placed near the body.⁹

Out of 133 tombs¹⁰ exposed at Timargarha and Thana metal objects were found in 43 tombs altogether; 36 of these contained only copper objects and those of metals other than iron, 5 had iron objects alone and 2 both copper and iron mixed up. Now if this meagre number of iron objects is to be relied upon, one can easily point out not only specific grouping of metal objects but also their associative tendency towards skeletal remains and for that matter, burial customs in an overall view of the cemetery. Here

it is worth noting that iron is conspicuous by its absence in tombs which yielded evidence of cremation — complete or semi-burning¹¹. Similarly no iron object was found with complete burials of period I. Apparently iron objects are exclusively associated with fractional burials (period-III). Striking as the association of iron with fractional burials at TMG is, it is at the same time consistently in line with Swat Period III tombs where inhumation burials had almost absolute prevalence over cremation¹². In the present context it is not something to be taken lightly. One can argue, does it not indicate that a certain people who had altogether different traditions of the disposal of their dead, as they practised fractional burial, prevailed over the population which practised cremation, with the help of a superior metal-iron, which they appear to have brought alongwith them? As the evidence stands at present, it is favourably inclined towards such an hypothesis.

Quantitatively as well as qualitatively the copper pins (Pls. XLVIII-a, XLVIII-b) occupy a place of prominence among the metal objects found at Timargarha. The actual purpose of these pins is problematical. It has often been suggested that they could have been either used as garment pins or hair ornament. As to their use as garment pins for holding the clothes in position, the bulk of evidence revealed in our excavations militates against any such hypothesis. One can argue that there could hardly have been any necessity of providing pins for the fractional burials, if it is to be taken for granted, that the dead bodies were exposed to animals before their final disposal in graves. But the fact remains that out of 29 copper pins at least 19 were found alongwith fractional burials. Thus it is far from easy, at the present state of our information, to label them as garment pins. No less confusing is the next alternative for the association of pins with cremated bones is incompatible with any decorative purpose which they might be expected to have served. They appear to be objects of some ritual significance. It should be admitted however that the problem remains unsettled.

The tops of these pins, however, exhibit a variety of shapes and a typological comparison with those found in different stratigraphical horizons at Hissar and some other western Asiatic sites brings out intriguing parallels which go as far back as the third millennium B.C. It should be emphasised right here that the objects found in our excavation do not claim any such great antiquity, though they do mark the ebb and tide of several cultural waves from that direction at a relatively later age. Thus it is worth repeating that when interesting individual cases can be brought forward

for comparison, they should not be taken to mean an identical depth of chronological or cultural levels with all their inherent implications. Nevertheless a similar comparison with the metal objects found in Swat excavation indicates a striking similarity. Although certain types present at one place have not come to light at the other as yet; but it need not worry us much for the impact of parochial traditions can not be ignored altogether. The large pin with big disc-head (Ma/I)¹³, for instance, found in Swat period II and another type with five globules at one end¹⁴ is conspicuous by its absence at Timargarha.

The large pin with globule surmounted by a small disc-head (our type a, Pl. XLVIII-a, Nos. 1-7) wide spread in Swat Period II¹⁵ is associated with fractional burials at Timargarha (See distribution chart P. 15), although a fair scatter of them has also been found in mixed as well as cremation burials¹⁶. Associative relationship of the ornate example in this type with fractional burials exclusively is noteworthy.

Our type "C" with conoid or hat-shaped head appears to have enjoyed a widespread spatial and chronological distribution as it is reported from Swat Period II¹⁷, Sialk VI¹⁸ and Giyan I¹⁹. At Hissar it occurs as early as Hissar IB and IC²⁰, and continues during the last sub-phase Hissar IIC²¹, in addition apparently to pins with double and single loop head. In West Pakistan it occurs even in a much later context in the Saka-Parthian levels at Taxila.²² In such a depth of time stretching almost over two millennia it would be no more than a guess to assign any well defined fixed horizon to this pin, but as its use lingers on at Taxila its association with fractional burials at TMG is fairly consistent with the known evidence.

Copper pins with conical tops, our type 'd', Pl. XLVLLL-b, Nos. 12, 13) are distributed equally in cremation and fractional burials. In Swat they appear to have been related to Period I tombs²³.

Due to the wide chronological and spatial distribution the loop headed pins (our type 'e' Pl. XLVIII-b, No. 14) enjoyed, they have been a subject of heated discussions among the scholars. A similar illuminating commentary²⁴ has been given by Stuart Piggot on the two examples known from the Indus Civilization, West Pakistan. Out of these two the one from Mohenjodaro²⁵ consisting of a single spiral head is most interesting for us, as it gives us the earliest clue to the use of these pins in this part of the country. It has often been pointed out that the very rarity of these pins emphasises their intrusive nature. Now as the number is increasing, the

weight of evidence is probably shifting to the other side. The specimen from TMG. consists of a single coil or an incipient spiral made by twisting the flat end of the rod. Probably a few examples have also been recorded from Swat, though none of them is illustrated. However the description "large pin, round in section, one end bent round to form a ring"²⁵ conforms very closely to the shape of this type of pin. Similar three examples have recently been obtained from our Balambat Excavation where they were found in a rather later context, associated with the last building phase.²⁷ Whatever their implication, the new finds have broadened in orbit of distribution from the lower Indus Valley up to Dir and Swat. Our find, however, is more akin to those found in Hissar²⁸ III and Shah Tepe²⁹ where eight specimens were recorded.

Another type having pyramidal top (our type f; Pl. XLVIII-b, No. 15) though represented by a solitary example in ivory at TMG. has its identical parallel in Swat.³⁰

Needles of copper offer similar interesting parallels. In Egypt they have been found as early as the pre-historic times³¹ and at Hissar they occur in all principal strata of the mound.³² However, the nearest parallel again comes from Hissar III³³ and Susa³⁴ which correspond in all details to those found in association with cremation burials at TMG. Similarly identical cases are recorded from Shah Tepe³⁵ and Swat.³⁶

Little is known as yet about the use and character of finger rings of the remote past in this part of the country, and those belonging to the historic period, many of them ornate and much sophisticated or even in the simplest form consisting of a single circlet of wire, are altogether different from the spiral finger rings (Pl. XLIX-b No. 6) which have come to light in this cemetery. Is it not likely that a similar idea can be traced, though in a much later context and also in an improved form, in the multiplicity of rings worn on fingers and thumbs shown in the early school of sculptures?³⁷ The suggestion should not be pressed too much as it is not free from its own limitations. However, when we turn to Hissar III, where finger rings of coiled wire are frequent in all sub-layers of stratum³⁸ III, identical cases can be brought forward. Again cultural affinity of TMG. with the neighbouring Swat is emphasised by the recovery of similar rings³⁹ in that region.

The anthropomorphic figurine (Pl. LI-a) associated with a fractional burial in the present excavation is the most interesting find. Al-

though its facial features are most sketchily drawn it, however, reveals some of the distinctive characteristics — the pinched face and the applique technique of the so-called "baroque ladies" so common at the prehistoric and historic sites. The present example is not provided with elaborate coiffure, the very absence of which is highly suggestive of an intermediate period. Similar terracotta human figurines are known from Swat⁴² and from our Balambat excavations related to the first building phase.⁴¹

Let it be added that the cheek-bar of horse's harness obtained from our excavation is of the protected snaffle type. The use of protected snaffle with a large ring or bar at each side to prevent it from slipping into the mouth was already known in Western Asia. Initially the bit with side bar arose from using tusk, bone or horn to prevent the horse from playing tricks with the harness. Then in order to keep the animal under greater control the cheek bar was provided with cross ties through holes on the bar. Our example belongs to a fairly developed stage and has great affinity with those found in Marlik⁴³ and Sialk necropolis B.⁴³ Similar cheek bar but slightly bent in the middle was known to Petrie from Egyptian invasion⁴⁴.

DISTRIBUTION CHART OF COPPER AND IVORY PINS

Type	Complete Burial	Cremation			Fractional			Total
		Mixed	Urn or cremated bones.	Children	Mixed	Adults	Children	
A	—	4	2	—	1	8	2	17
B	—	1	1	—	—	2	1	5
C	—	—	1	—	—	1	—	2
D	—	—	4	—	—	4	—	8
E	—	—	—	—	—	1	—	1
F	—	—	1	—	—	—	—	1
TOTAL:	—	5	9	—	1	16	3	34

CHEMICAL ANALYSIS OF BRONZE

1) ANALYSIS OF THE SAMPLE (A) — Grave No. 185

Weighed sample was taken and was dissolved in H No. 3 Copper was determined volumetrically (Iodimetrically) as well as Instrumentally (Electrodeposition), and average percentage is being reported. Zinc Was determined gravimetrically as $Zn_2 P^3 07$) as well as Tin was determined gravimetrically.

RESULT

Copper:—	72	Percent
Zinc :—	4	"
Tin :—	8	"

2) ANALYSIS OF THE SAMPLE (B). Grave No. 119

Copper Zinc and Tin were determined by the same methods as for the sample (A).

Iron was determined gravimetrically as Fe 2 03 (Fe 2 03)

RESULT

Copper:—	76	Percent
Tin :—	12	"
Iron :—	1.3	"
Zinc :—	12	"

3) ANALYSIS OF THE SAMPLE (C) Grave No. 122

Copper Zinc and Tin were determined by the same methods as stated for the other two samples.

RESULT

Copper:—	81	Percent
Zinc :—	4	"
Tin :—	9	"

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1. With the exception of pottery of course.
2. East and West, New series, Vol. 16—Nos. 1—2 (March-June 1966 Fig. 67, type S/VI.)
3. For discussion see below by Professor Jettmar P.
4. For discussion see appendix by Professor Jettmar P. 223.
5. East and West (Is Mo), New Series, Vol. 16—Nos. 1—2 (March-June 1966) Preliminary Report on the Pre-Buddhist Necropolis in Swat, p.
6. See Graves 148, 119, 114.
7. See Grave 110.
8. There is only one example—Grave No. 107, disappeared alongwith earlobes.
9. East and West op. cit., p. 49.
10. This is the total number of tombs excavated at Timargatha and Thana.
11. Grave 149 is the only exception. It is a mixed burial, and the likely hypothesis is that the piece of lion found there entered the grave when fractional burial was accommodated in it at a subsequent date.
12. East and West, op. cit., p. 66.
13. East and West, op. cit., p. 76, Ma/I.
14. Ibid p. 57, type Ma/V; illustrated on p. 76.
15. Ibid.
16. Two specimens were found with urn burials (Graves 218, 219), and two in mixed burials (GBs 240, 114).
17. East and West, op. cit., p. 77.
18. Ghirshman, Fouilles de Sialk, Paris, Pl. 25, 2.
19. G. Contenau, R. Ghirshman, op. cit. Pl. 26, No. 2.
20. Schmidt, Tepe Hissar, (the University Museum of Philadelphia) p. 57 and Pl. XVI, No. 2972.
21. Op. cit. pp. 205-206, Pl. L III, Fig. 4873.
22. Marshall, Sir J. Taxila, P. 286, Pl. 182, No. 2.
23. East and West, op. cit. p. 77.
24. Piggoet, S. 'Notes on certain metal pins and a mace head in the Harappa culture': Ancient India No. 4; p. 26.
25. Mackay, E.H.H.; Further Excavation at Mohenjodaro, Vol. I, P. 539; Vol. II, Pl. C, No. 4.
26. East and West, op. cit., p. 205.
27. Balambat Excavation, Iron Objects: Pl. LI/4, Nos. 1-3.
28. Schmidt, op. cit. Pl. L III, p. 205.
29. Arne T.J. Excavation at Shah Tepe, p. 301: Nos. 648—a, b and c.
30. East and West, (New series, Vol. 14—Nos. 1—2 March-June 63) 'Preliminary Notes on the excavation of the Necropolis found in West Pakistan', p. 22.
31. Petrie, F. Tools and Weapons: p. 53, No. 147.
32. Schmidt, op. cit. p. 206.
33. Ibid. Pl. L III, H 5265.
34. Petrie, F. Tools and Weapons: Pl. LXII, No. 18.
35. Arne, T.J. Shah Tepe, p. 301; No. 644—a and 644—b.
36. East and West, Vol. 16—Nos. 1—2, 1966; p. 57, Type Ma/IX.
37. Cunningham, Bharhut, Pls. XXII, 1; XXIV, 4.
38. Schmidt op. cit., p. 207; Pl. LIII, H 4263, and 4262.
39. East and West.
40. Op. cit. Fig. 65; Types ch/1—a, see also East and West, Vol. 14—Nos. 1—2 1963, Fig. 11.
41. See small finds from Balambat, Pls. LIIa, Nos. 5, 6; Pls. LIIb and LIIc.
42. F. Negahban, E.O. A Preliminary Report on Marlik Excavation Rudbar 1961—62, Fig. 134.
43. Ghirshman, R. *Iran*, (Penguin Books, 1961) p. 81, Fig. 31.
44. Petrie, F. Tools and Weapons, p. 56, LXXI, 39. (London, 1917) see also Nos. 15 and 17.

SECTION 2

AN IRON CHEEK-PIECE OF A SNAFFLE FOUND AT TIMARGARHA

By PROF. KARL JETTMAR

When the Italian Archaeological Mission dug for Buddhist antiquities in Swat in 1961, they detected a group of graves with a somewhat barbaric appearance and obviously belonging to an earlier period than that sought. Up to now, three cemeteries are known: Butkara II, Loebanr I and Katelai I. They have many features in common but also show differences on the other hand, so that they may belong to different periods of a long sequence. In some graves there were objects made from iron, in others none.¹

At Timargarha in Dir State a cemetery of the same kind was excavated by Professor Dani, University of Peshawar. Moreover, he discovered similar graves in Bajaur (Inayat Qila) and in the Talash Valley (Ziarat). It seems that we here have to do with a facies spread over a considerable part of what was once called Gandhara, hence Dani coined the term Gandhara Grave Complex.

Dani grouped the material belonging to this complex into three "cultural — and possibly chronological periods". Period I "should be dated sometime in the second half of the second millennium B.C.". To period II he assigned a duration of two centuries, i.e., the 10th and 9th centuries B.C. Period III according to him falls into the 8th — 7th centuries B.C.² The reason for the dating of the last period is that Dani observes distinct affinities with the material from Charsada (6th — 4th centuries B.C.), but he considers the grave goods from Timargarha to be more primitive and, therefore, a little earlier.

It is interesting to compare the statements made by Stacul.³ He, too, grouped the graves from Bulkara II, Loebanr I and Katelai I into three periods with all the graves containing iron objects assigned to period III, though in many other aspects there is a considerable difference. Stacul lays stress on the analogies with pottery recovered from the deepest levels at Charsada (6th — 4th centuries B.C.).

II.

My own opinion had been that the Dardic tribes settled in this area

before the coming of the Pashtuns included at least one component which had its home in Western Turkestan, i.e., in the area now called Kazakhstan and Middle Asia by Soviet scholars.⁴ In this respect I am perfectly in accord with Litvinskij⁵, and therefore have sought analogies between the Bronze Age cultures of Middle Asia and the Gandhara Grave Complex. I believe that these will be forthcoming in the next years. Here, only two examples may be mentioned.

In the Gandhara Grave Complex we see that the graves have an upper hollow, rectangular in shape, and at the bottom a smaller pit covered with slabs. The lower pit is lined with dry rubble-stone masonry. Here the body of the dead person was placed in an empty chamber, whereas the upper cavity was filled with earth and stones.

One can reasonably compare this structure (and the ritual behind it) with the graves of the Andronovo culture, which was an extensive culture flourishing in the western steppe-belt during the second half of the 2nd millennium B.C. It had however earlier beginnings continued in certain areas down to the 8th century B.C. Especially close to it are the grave types from Central Kazakhstan of which an example is here shown⁶.

In Loebanr a laurel leaf shaped object with a central rib and a flat circular base-like support⁷ was found. I have seen this piece in the Swat Museum and I was permitted to photograph and publish it in "East and West". In fact there is more than one rib to be seen and patently the object was not "fit for common use",⁸ so there is a considerable similarity to the leaf-shaped blades from the Sukuluk Hoard found in Kirgizia which was tentatively dated about the turn of the 2nd to the 1st millennium B.C. (Pl. Lb, 1a, 1b)⁹.

III.

The structure of the Andronovo graves was the same for several centuries, so the dating of the Sukuluk Hoard is rather dubious, nor can other comparisons, which I omit here, be used for exact dating. More promising in this respect is an object found by Professor Dani at Timargarha (Grave No. 142) which was attributed to period III, simply because it is made of iron. Dani recognized it as being a piece of horsegear.¹⁰ The physical anthropologist working with him at Timargarha, Dr. Bernhard, drew my attention to this object, and I saw it myself later in Peshawar in the well exhibited university collection. Photographs were presented to me and I was granted permission to publish it, a task which was very welcome

to me because of my previous studies on the cultures of the Steppes. The object is in fact the cheekpiece of a bit, or, in German, "Trensenknebel". (Pl. Lb, 2a). Reviewing all metal types from the Bronze and Early Iron Age it is impossible to arrive at any different conclusion. Indeed, we have a rather clear survey of the development of the bridle and the bit in the Steppes, from Europe to the borders of China.¹¹ Smirnov¹² has demonstrated the evolution which took place in some parts of the Asiatic Steppes, especially in the Volga-Ural area, in the late 2nd and early 1st millennium B.C. Jessen showed what had happened in the European part of the Soviet Union between the 9th and 7th centuries B.C.¹³ and from Kossack we have a valuable review correcting the chronology.¹⁴ The following period is also well documented in a general survey by Liberov.¹⁵

The definitive study, however, showing the common trend in the Steppe-belt of Asia was written by Grjaznov.¹⁶ In a short article, in fact, he gives much more than a characteristic of the Majemir culture in the Altai. We learn that after the introduction of bits made of metal but still before the end of the 6th century B.C., the construction of the snaffle was rather uniform in the Steppes¹⁷. At each side of the horse's head the leather cheekstraps were split into three strands to be affixed to three holes in the cheek-piece. Previously, the middle strand had to pass the rein-ring on the end of the bit (Pl. Lb, 2b).

The cheek-piece might have been made from bronze or bone (perhaps also from wood, but no pieces of this kind were preserved). Very seldom cheek-pieces¹⁸ with three openings were made of iron, but they existed in areas where iron was available earlier than elsewhere, e.g. in Pontic Scythia¹⁹ (early 6th century B.C.). The shape of these iron cheek-pieces is evidently taken from cheek-pieces made of bronze.

Starting with the 5th century B.C. or a little earlier, we meet a different system. The cheek-piece now has only two openings. It is itself passed through the ring on the end of the bit like a toggle. The cheek-strap has only two strands to be connected with the two holes of the cheek-piece. Iron is more and more used for both the bit and the "Trensenknebel".

So in the Steppes²⁰ we know quite well when cheek-pieces with three openings went out of fashion. It is more difficult to say that this type started at an exact date. We do not know where to put the limit.

From the very beginning, beside round or elongated cheek-plates we see more slender rods with three holes, the central one, however, put at a

right angle to the outer ones. Often the central opening is considerably larger and is sometimes divided into two parts. Evidently the bit, made of plaited leather straps, passed through it. The first artifacts of this kind can be dated to the middle of 2nd millennium B.C.²¹ At the beginning of the 1st millennium a wide diffusion can be observed, reaching from Europe to Transbaikalia²².

The next step in the development of the bridle was perhaps taken in the 10th century B.C. Then the type of cheek-piece appears which we already know: three holes, all in the same plane²³. They were still used together with a bit made of leather straps or some other perishable material²⁴. Most such cheek-pieces were made of bone, but we know some specimens made from bronze as well, in early (Karasuk: Irmen's I) as in late levels (7th-6th centuries B.C.)²⁵.

Gradually the leather bits were replaced by jointed mouth-pieces made of metal, a type already in use for a considerable time in the South, e.g., in Caucasia. Evidently this change did not necessitate any fundamental change in the system of straps for the horse's head-gear. Doubts have been expressed²⁶ about the practicability of such apparatus, but, in fact, since the end of the 8th century B.C., bits made of leather or ropes came out of use. The system of the Steppes, which combined a pair of cheek-pieces with a metal bit, without firm joint, even expanded to the South, in areas where it replaced more rigid constructions, as we may assume from Assyrian reliefs²⁷.

We now incline to date the necropolis of Sialk B in the 8th century B.C.²⁸, i.e., somewhat later than proposed by Ghirshman. This means that snaffles of the kind found in the Necropolis (e.g. in tomb 15) do not indicate that the origin of the whole type was here in the South. It is rather a hint that the horsemen buried in such graves used horsegear of northern provenance such as like Timargarha.

For three-holed cheek-pieces of this kind several different shapes are possible. A cheek-piece may be short or long, straight or curved, with studs on one or both ends, etc. For south-eastern Europe we have a typologically consistent system²⁹. It shows that straight and simple pieces mainly occur late, e.g., in the 6th century B.C.³⁰ But in many cases the reason is that the blacksmiths had difficulties in forging in iron the complicated shapes which could be easily produced in bronze foundries.

In the Asiatic Steppes a typology of the various possible shapes of the cheek-piece is rather sketchy³¹. A certain parallel to Europe is assumed.

It may be mentioned that in some cases only one cheek-piece or a fragment of it was found in graves where no horse-bones could be observed¹². Evidently in this case the object was used as *pars pro toto*.

IV.

Let us return to our piece from Timargarha. It is clear that it belongs typologically to those groups which played a great role in the Steppe-belt between the 10th and the 6th centuries B.C. Its shape is rather similar to late pieces in Eastern Europe (6th century B.C.), also in iron, but this could be due to a parallel evolution, i.e., a simplification caused by the use of the new metal. So a more exact dating depends still upon the question when iron arrived in the Indian subcontinent. Today the trend is to assume that it came earlier than in the Steppes.

We must, however, ask whether cheek-pieces with three holes did not persist much longer south of the Hindukush than elsewhere. Once more we are without answer, because we have no systematic typology of the snaffles etc. for the Indian subcontinent. In my opinion most relevant pieces are still unidentified in the stores of the museums.

With attention to all the other objects in the Steppes, a dating in the 7th or 6th centuries B.C. could be tentatively proposed, and this agrees quite well with the dating of period III as proposed by Dani (without, however, discouraging a later dating, which Stacul evidently has in his mind¹³).

The real importance of the piece lies in the fact that it once more points to the Steppes as one of the several sources of the Gandhara Grave Complex, and that it encourages us to look for other articles of horsegear in the material from sites in the subcontinent.

1. Antonini 1963; Alciati and Fedeli 1965; Cenna 1965; Stacul 1966; cf. also Tucci 1963.

2. Dani 1966a, b, c.

3. cf. Stacul 1966, pp. 66 and 78.

4. Jettmar 1966, pp. 47-48.

5. Litvinskij 1964, pp. 143-151.

6. Margulan 1966, pp. 71-196.

7. Stacul 1966, p. 58.

8. cf. Antonini 1963, p. 22.

9. Kusmina 1966, p. 52, Fig. VIII/13 and 16.

10. MS 1966 (?), p. 8.

11. The book written by Potratz in 1966 is of no use to us here. Only a small part of Soviet archaeologists' studies are known to him, so that his typological ordering of objects from the Asian Steppes is far from the reality.

12. Stairnov 1961.

13. Jesuén 1953, 1954.

14. Kosack 1954.
15. Libenow 1954.
16. Gijimov 1947.
17. But there are areas which do not follow the general trend, e.g., the eastern part of Central Asia. Cf. Tolstov and Irsin 1966.
18. Soviet authors instead permanently use the term "pashon", but this is not correct. Cf. Anderson 1961, pp. 60-61.
19. Libenow 1954, p. 151.
20. In China, however, since the Middle Chou Period in about 900 B.C., the second system (pashon) passed through the ring of the bit prevailed. Cf. Dewall 1966.
21. Mosolovs 1954, 1960.
22. Smirnov 1961, pp. 64-65.
23. Smirnov 1961, pp. 66-67.
24. As we know from undisturbed graves, the horse was equipped with cheek-piece though no bit was found.
25. Gijimov 1956, p. 74. Kuz'mina 1966, Pl. XV/40.
26. Potratz 1966, pp. 92-91.
27. Barnett, P., 63 (time of Asurbanipal).
28. Cf. Calmeyer 1964, pp. 40-42.
29. Cf. Kosack 1954/55 pp. 146-147.
30. Libenow 1954, Pl. 1/23-25.
31. Grisin 1960, p. 129.
32. Sosnovskij 1941, pp. 288-289. Sorokin 1966, p. 45.
33. Stacul 1966, p. 78.

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Extent of the
Grave Culture and
Report on the
Grave Excavation

Part V

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EXTENT OF THE GRAVE CULTURE

By

PROF. AHMAD HASAN DANI

In the *story of the discovery* (in part I) we have narrated the circumstances which led to the discovery of the grave sites. These sites have been traced in the northern hilly regions of Gandhara in Bajaur, Dir and Swat and in the northern plain of the Peshawar Valley. On the west the grave site has been found at Enayet Qila. On the east right near the bank of the Indus near Kherai the graves were found while building a road over the hills. At Panchpir near Hund they were found while digging a canal. Recently one more site is reported on the bank of the Indus at Pehur opposite Tarbela, where a dam is under construction. So far these graves are spread right upto the bank of the Indus. No exploration has been made east of the Indus. But we hope to find them in future. Meanwhile these sites are described below. We excavated only at one of these sites at Thana. The report of the excavation is also given here.

Section I

THANA GRAVE EXCAVATION*

By

FARZAND ALI DURRANI

THE village of Thana (more correctly *Sthana* meaning "The Place") lies in the lower Swat valley (Malakand Agency), a few miles south of the Swat river and about three miles from Chakdara post. The village stands on the slope of a spur and the houses range in different heights giving a conspicuous position to this place and presenting a charming invitation to the visitors and invaders coming through the Chakdara pass. It gives way to Shahkot pass that gives a direct access from lower Swat into Peshawar valley. The name Shahkot is most probably after that of either the Kushana Shahj or the Hindu Shahi rulers, whose deserted fortress, still known as 'Kafirkot', stands on a hill, not far from this place. That Thana lay on an ancient route is clear from the fact that in between this place and Sanghao on the southern side of the hill many Buddhist ruins are to-day found. The most important of them lie in and around the village of Palai about fifteen miles from Thana. Most of the Buddhist sculptures, taken away in the last

*Thoroughly revised by the editor

century and referred to as coming from the "Eussofzai" area, actually went from this place.

It is most regrettable that we do not know the full name of ancient Thana. It is still more strange that while Alexander passed this way, his historians have not mentioned this place. But the antiquity of Thana is well attested by the archaeological remains. The present village itself stands on the top of older graves. However, the graves which we excavated, belonged to a different cemetery about a mile south-west of the village on the other side of a small streamlet that flows by the village.

The cemetery (Pl. XXXII. a) starts from the slope of a barren ridge and spreads out into the open field about a square mile in area, the whole of which is today cultivated. Not far from this old cemetery lies a modern Muslim graveyard. Intense cultivation of the area has defaced the original ground surface and numerous stones lie scattered in the fields. Some of the graves were perchance hit by the ploughmen and opened by the villagers. It is from them that the information about the graves was first obtained.

EXCAVATED AREA

An area 100' by 40' was demarcated in the flat field for excavation, the longer side being north to south. This area was divided into squares of 20 feet. But only four northerly squares could be excavated within the time and funds available (see Fig. 44, p. 217) The squares were marked from north to the square 1½ feet margin was left for the baulk and the excavation was done in the limited space square-wise.

In all only twelve graves were excavated. Three different types of disposal of the dead were noted.

- Type A:* Complete burial of the dead body alongwith funerary urns.
- Type B:* Fractional burial of the dead probably after exposure.
- Type C:* Urn burials after cremation.

Two children graves were also found: one belonging to type B and the other to type C.

TYPE-A COMPLETE BURIALS

ALL these graves lay deeper under the earth in comparison to the

graves of type B. One grave of type A lay under a grave of type C, thus giving stratigraphic evidence to the priority of the graves of type A.

There was no indication on the surface to mark out the different graves. Only a few pot-sherds and broken stones were scattered all over the area, and these again were collected and deposited on the margins of the ploughed fields. The excavators have noticed two layers of earth in the course of excavation. According to the present evidence all the graves of type A lay in layer (2), though the original working floor could not be established probably because of disturbance in the upper soil. There was a material difference between this type of graves at Thana and those at Timargarha. Here there was no upper stone-lined circle nor even the upper pit below these stones. After removing the soil, the sealing stone slabs were reached directly by the excavators. When these stone slabs were removed, rectangular grave chamber was found underneath. The grave chamber was dug through in the hard compact soil and the chamber was not lined by stone walls of masonry as was the case in Timargarha. Another fundamental difference was that here the skeleton lay on a large flat schist slab or slabs. The exceptions were grave Nos. 6, 7 and those of type C. Such slabs are available in the local rock outcrop.

GRAVE NO. 2: Pl. XXXIII b.

This grave lay in the southern half of trench A, 2 feet 4 inches below surface, in whitish compact layer (2). The sealing slabs were small and were fixed with pebble and mud lining. The grave chamber, which extended from north to south, measured 5' 7" by 4' 6". The skeleton in complete form lay on a stone slab in flexed position with the skull turning to the east. Only two funerary vessels were obtained in the grave. The vessels, Nos. 20 and 21, were open mouthed drinking cups with flaring rim in grey ware.

GRAVE NO. 3: Pl. XXXIV. a

This grave lay under grave No. 11 of type C (see below) in the western half of trench B, 2 feet 5 inches below surface, in layer (2). It was sealed by four large schist slabs placed across the grave chamber and fixed firmly with smaller stone and mud lining. The grave chamber measured 7' 7" by 3' 5". It was 3' 7" deep. Complete skeleton lay on a large schist slab, north to south, with the skull facing east and legs flexed. This was a rich grave yielding 2 vessels of red ware—a globular urn (No. 1) and a lugged vase (No. 2) and 14 drinking cups in grey ware and one narrow-necked bottle (No. 14) in red ware.

The presence of urn in a complete burial is rather suspicious. Is it connected with the urn burial on the top?

GRAVE NO. 5: Pl. XXXIV b.

This grave lay in the south-eastern half of trench C, 2' 8" below surface, in layer (2). It was sealed by large schist slabs set with small stone and mud lining. The grave chamber, which measured 5' 7" x 3' 6", extended from north-west to south-east. Complete skeleton lay on two schist slabs with face turned to east. Close to the skull was a bowl-on-stand (No. 34). Two more red ware vessels were found in the grave—a bowl with its stand gone (No. 39) and a medium sized drinking goblet (No. 35). One cooking pot with a lid (Nos. 40 and 40 a) contained darkish soil. Three grey ware vessels (Nos. 36, 37, 38) were also found. There was also one terracotta head.

GRAVE NO. 9: Pl. XXXVI b.

This grave lay in the south-western half of trench D., about 2' below the surface, in layer (2). It was sealed by large schist slabs set with small stone and mud lining. The grave chamber, which extended from south-east to north-west, measured 5' 11" by 3' 3". Complete skeleton lay on four schist slabs with face turned to east and legs flexed. Two funerary vessels were found in the graves—one grey narrow necked bottle (No. 31), and the other red medium sized drinking goblet (No. 30).

TYPE B FRACTIONAL BURIALS

This type of graves lay comparatively higher in the soil in layer (1), as observed by the excavators. There was again no indication on the surface nor could be seen any stone-lined circle or upper pit. As such the grave pit was first observed when the sealing stones were reached. The grave chamber was made in the same fashion as in those of type A and the dead were placed in the same way. The only difference was that here the bones were fractional. No sign of burning was there. These graves included one of a child.

GRAVE NO. 1 Pl. XXXIII a.

The grave lay in the north-western half of trench A, 1' 5" below the surface in layer (1). The sealing was done by three schist slabs placed across

the grave chamber and fixed with small stone lining. The grave is box-like, squarish in shape, 1' 3" deep. On a slab were only a skull and a few bones of a child—the skull on the north, facing west, and the lower bones on the south in flexed position. Inside the grave were found 2 funerary vessels—a bowl on stand (No. 17) and a medium-sized drinking goblet (No. 18) and a silver ring.

GRAVE NO. 4:

The grave lay in the eastern half of trench C in layer (1), hardly 10 inches below the surface. Part of this grave was concealed in the baulk, which was not removed. The grave was sealed by three schist slabs fixed with small stone lining. The chamber was 1' 3" deep. On a small slab lay only half skull and a leg bone together with one medium-sized drinking goblet (No. 33) placed near the skull.

GRAVE NO. 6: Pl. XXXV a.

The grave lay in the north-western half of trench C, 1' 6" below the surface, in layer (1). The sealing stones consisted of three large schist slabs placed across the grave and fixed with small stone lining. The grave chamber, which extended from north-west to south-east measured 4' 8" by 3' 9". On the floor, made up of beaten earth and grits, was placed a partly preserved skeleton. No pots were found.

GRAVE NO. 7: Pl. XXXV b.

The grave lay in the western half of trench C in layer (1). The grave was sealed by three large schist slabs fixed with small stone lining. It measured 6' by 3' 4" and was 2' 6" deep. On a schist slab, now broken, lay the skull on the north, facing west, and a few lower bones on the south. There were four funerary vessels in the grave—a bowl on stand (No. 41), two open-mouthed drinking cups with flaring rim (Nos. 31 and 44) and another cup (No. 43).

GRAVE NO. 8: Pl. XXXVI a.

The grave lay in the south-eastern half of trench D, 1' 7" below surface in layer (1). The sealing stones consisted of three schist slabs placed across the grave and fixed with small stone lining. The soil inside the grave was compact and gritty. The grave chamber measured 6 feet by 3 feet and was 2 feet 10 inches deep. On a schist slab, measuring 3' 7" x 1' 9", lay the

fragmentary bones — a broken skull and some other bones. On a lower slab stood the funerary vessels — a bowl on stand (No. 24), a storage jar (No. 27), a grey cup (No. 25), a bowl (No. 23), one cooking pot (No. 28), a drinking vase (No. 26) and three jars (Nos. 29, 22). The skeleton lay on the right side with the skull facing east. Orientation south to north.

GRAVE NO. 10: Pl. XXXVII. a.

The grave lay in the north-eastern half of trench D, 1' 6" below surface, in layer (1). The sealing stones consisted of three large slabs placed across the grave and fixed with small stone lining. The soil inside the grave was compact and gritty. The grave chamber measured 5' 3" by 3' 8" and 1' 9" deep. On a schist slab measuring 3' 2" x 1' 9" lay partly preserved bones—skull on the north and leg bones on the south—along with a red ware vessel—a medium sized drinking goblet (No. 32). The skull was facing west.

TYPE C: URN BURIALS

Of the two examples found here one urn contained ashes and some burnt bones, while the other had only a pot but no bones were found in it. On the analogy of similar pot burials in site II at Timargarha this is taken to be a child's grave, in which case the bones are decomposed.

GRAVE NO. 11: Pl. XXXVII. b.

The grave lay in trench B above grave No. 3, hardly 7 inches below surface in layer (1). A circular pit was dug in the earth, but no lining was given to the pit. Inside the pit was a long narrow necked vase with flaring rim and globular body, containing the ashes and the burnt bones. The upper portion of this grave was disturbed.

GRAVE NO. 12:

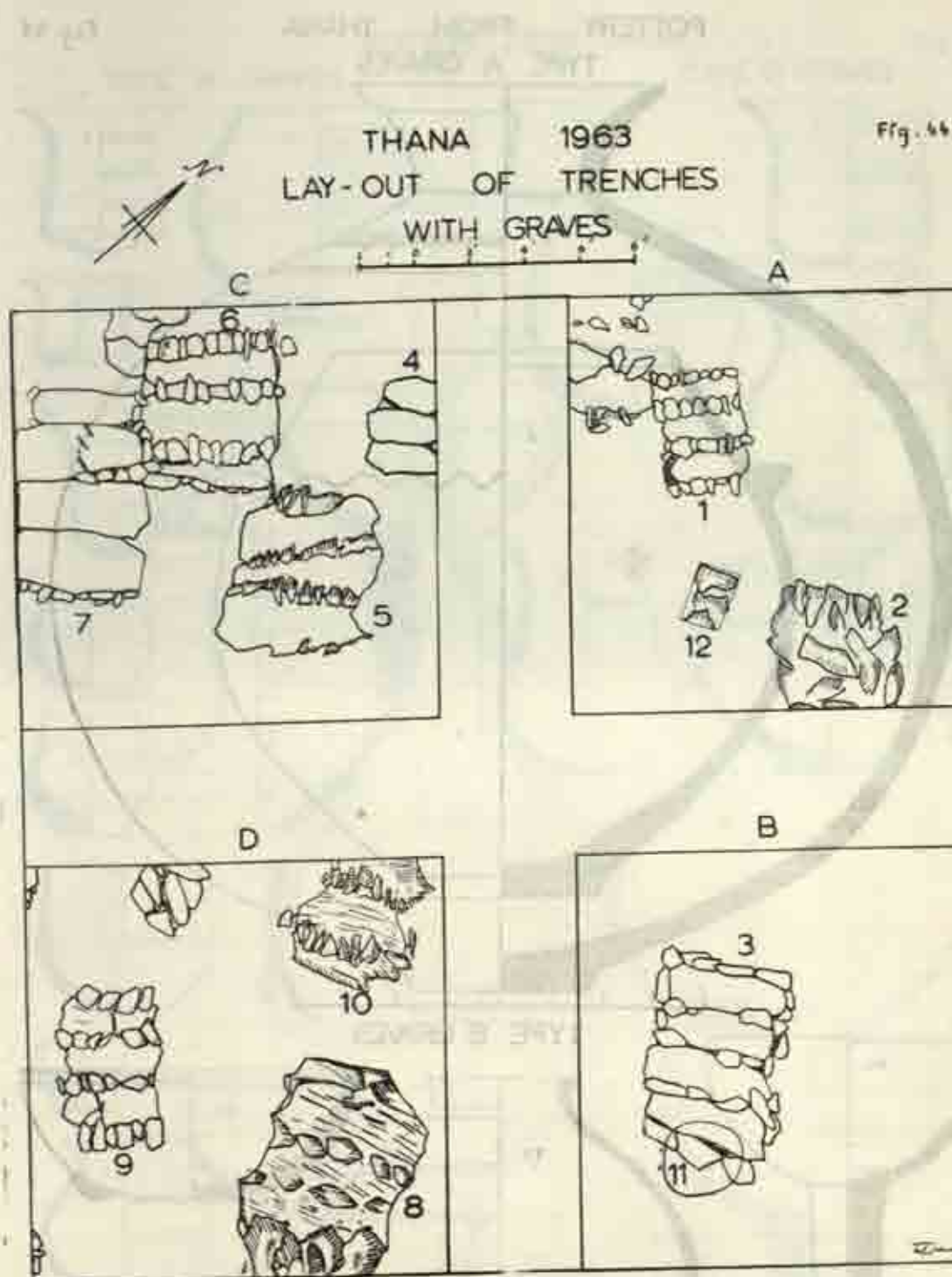
The grave lay very close to grave No. 2. It was a small grave, measuring 2' 3" by 1' 9". It was hardly 1 foot deep and was covered by schist slabs. Inside was only one grey cup.

Section 2

By *PROF. AHMAD HASAN DANI*

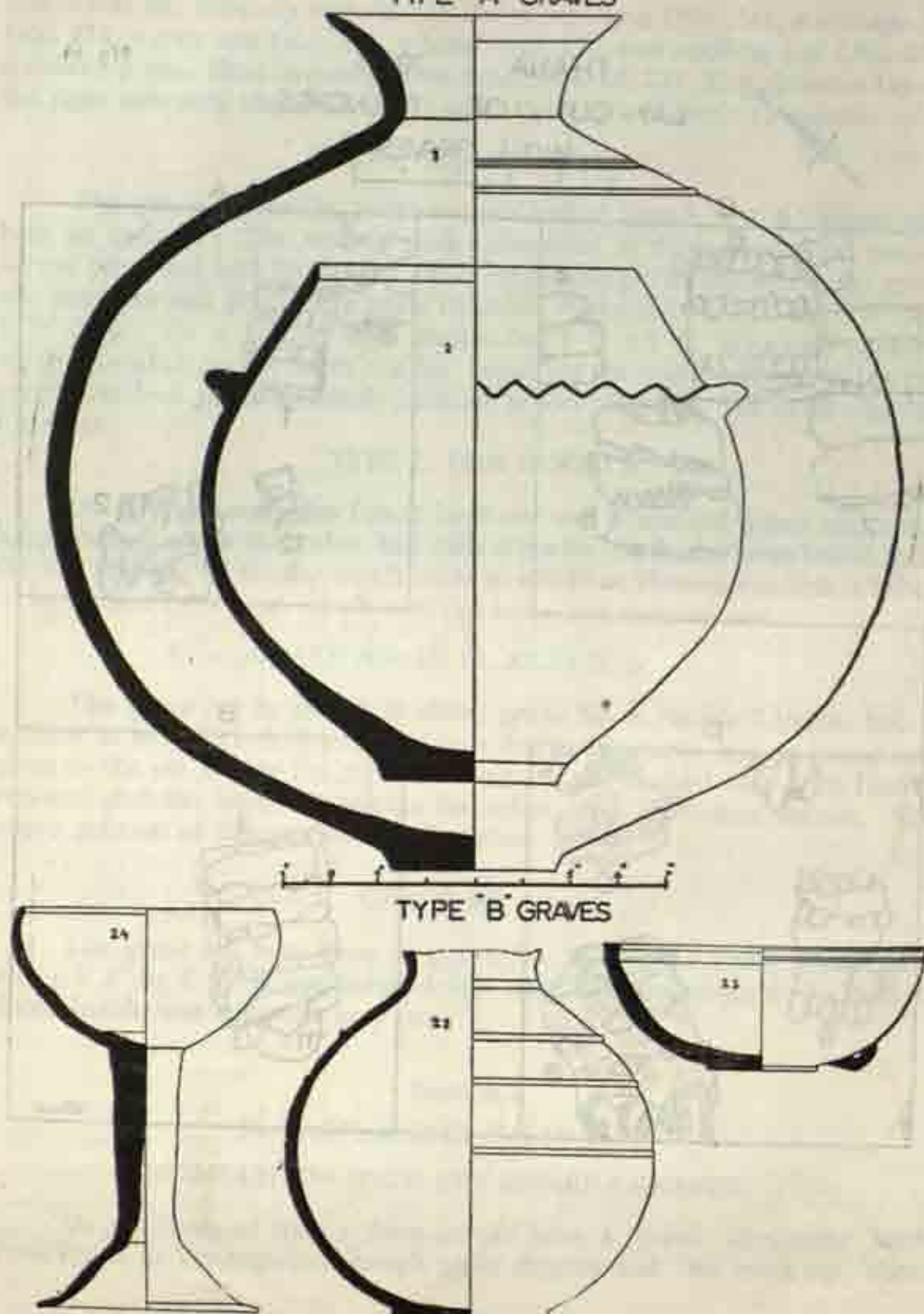
COMPARISON WITH TIMARGARHA GRAVES

On the basis of rituals these graves have a great similarity with those found at Timargarha. Though grave digging and its make-up show



POTTERY FROM THANA
TYPE 'A' GRAVES

Fig. 45

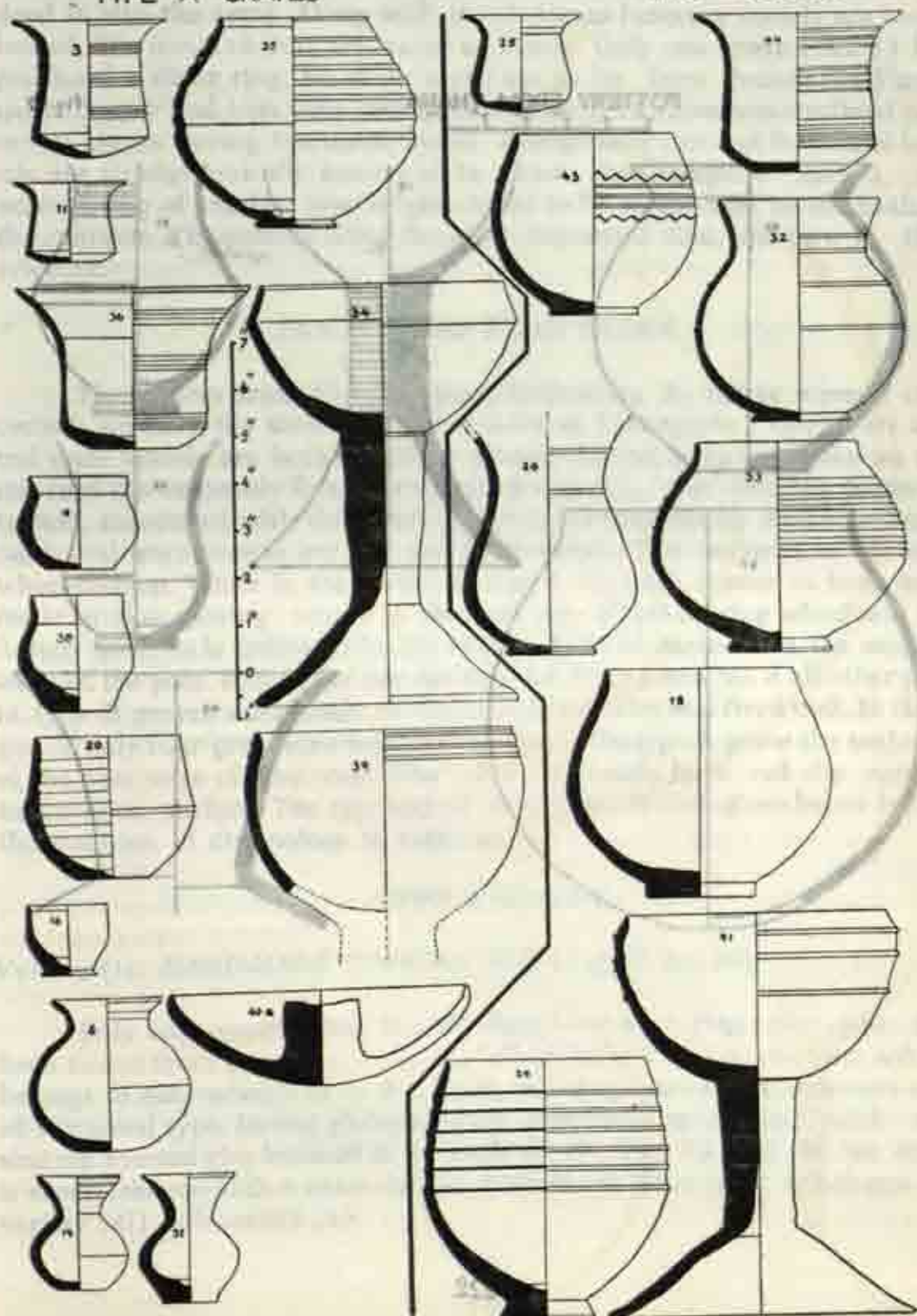


POTTERY FROM THANA

Fig. 46

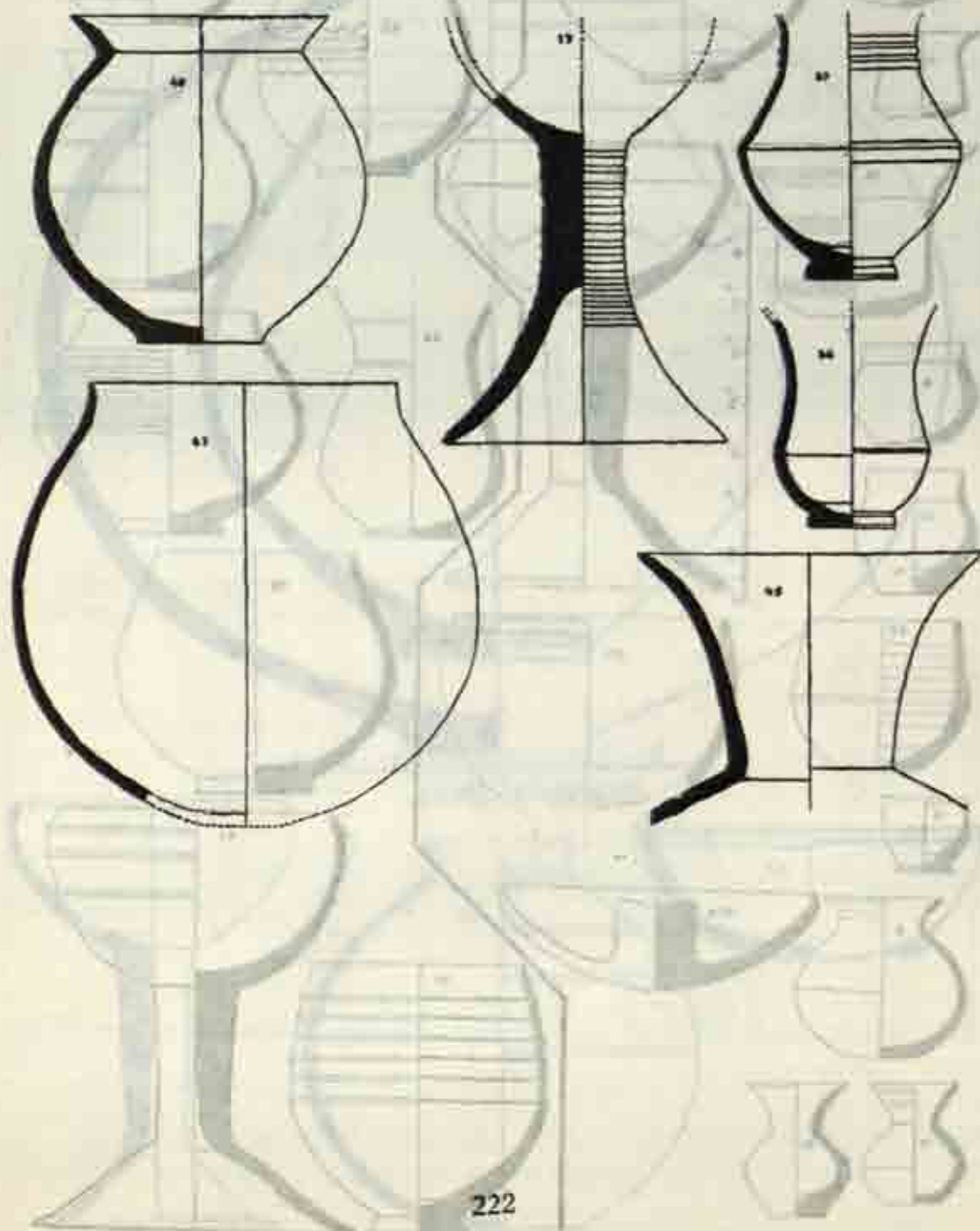
TYPE 'A' GRAVES

TYPE 'B' GRAVES



POTTERY FROM THANA

Fig. 47



variation, the actual burial produces three ritual practices—complete burial, fractional burial and urn burial. The manner of the disposal of the dead is also the same. Along with the skeletons funerary vessels are found buried. The metal objects are scarce at Thana. Only one grave (No. 1) has produced a silver ring. No other metal has so far been found. At Timargarha copper and iron were found in the graves. The iron was confined only to the graves having fractional burial. Though here urn and fractional burials are stratigraphically known to be later than complete burials, the exact dating of the last type of graves has to be determined on the basis of the contents. The pottery being the most important find, we turn to that evidence.

THE POTTERY FROM THANA

The pottery from Thana is most interesting. As far as ware is concerned, we have the same texture as noted at Timargarha. Grey ware and red ware vessels are both found but among the red ware examples we did not find the extremely fine fabric, sub-variety (c), nor even the forms of vessels, associated with this fabric, have so far been found. Again the hand-made red ware vessels are few and far between. The majority of them is wheel-thrown. While in the graves of type A the pots appear to have been made in slow-moving wheel, in those of type B fast-moving wheel was definitely used, as is indicated by the regular lines of cordons on the neck of some of the pots. Except for one cooking pot from grave No. 8 all other pots in type B graves were made of finely levigated clay and fired well. In these graves only four grey ware vessels were found. In type A grave the majority of the pots were of grey ware. The red ware vessels have red slip applied to the outer surface. The typological description is first given below before the question of chronology is taken up.

TYPE A GRAVES

Variety (i): HAND-MADE COOKING POT (Fig. 47 No. 40)

Only one example, Reg. No. 40, along with a lid, Reg. No. 40-a, has been found from grave No. 5. It was full of darkish soil mixed with ash. It belongs to sub-variety (a) as it is made of coarse material. The form is also of the usual type, having globular body, disc-base, constricted neck and sharply everted rim inclined at an angle of 45°. The lid (Fig. 46, No. 40-a) is saucer shaped with a rider-shaped knob in the inner side. It belongs to variety (xi), sub-variety (a).

Variety (ii): BOWL-ON-STAND

Only two examples in red ware of fabric (b) have been found, both coming from grave No. 5.

No. 34 (Fig. 46) has its bowl having curved sides and in-turned rim, the stem is solid while the base is in the shape of an inverted saucer. It belongs to sub-variety (c).

No. 39 (Fig. 46) has lost its stand. The bowl gently curves and bears three incised lines just below the rim. It belongs to sub-variety (f).

Variety (iii): TALL DRINKING VASE

Two examples of tall drinking vase in grey ware have been found.

No. 37 (Fig. 47) from grave No. 5 is of a broad size, having a carinated lower half, narrow waist, disc-base but the upper portion is broken. It belongs to sub-variety (d). (Fig. 47) No. 36 from grave No. 5 is a beautiful vase of sub-variety (b). Its globular lower half has a grooved line at the bulge.

Variety (iv): OPEN-MOUTHED DRINKING CUP WITH FLARING RIM

Here they are all in grey ware and are made of finely levigated clay. They are of the usual form. All but one from grave No. 3 (Fig. 46, No. 11) bear regular incised lines in twos or threes. They fall into two sub-varieties:

Sub-variety (a): SAGGER-BASED TYPE: Reg. Nos. 3, (Fig. 46), 5, 7 and 10 — all from grave No. 3.

Sub-variety (b): FLAT-BASED TYPE: To this sub-variety belongs the plain cup, Reg. No. 11 (Fig. 46.) from grave No. 3. From the same grave two cups, Nos. 9 and 12.

Variety (v): MEDIUM-SIZED DRINKING GOBLETS

Only two examples are found—Reg. No. 35 (Fig. 46) from grave No. 5 and No. 30 from grave No. 9. Both are of red slip. In form they are globular but gradually narrowing from the waist upward and have a disc-base. The narrow neck has a series of scourings at the outside. They belong to sub-variety (a).

There are other miniature examples of this goblet type, which may be termed as cups but their rims are not flaring. They are all found in grey ware. These miniature examples may be grouped in three sub-varieties.

Sub-variety (a): They have a bulging body, flat base and straight rim. Nos. 4 (Fig. 46) and 15 come from grave No. 3. These are rather squattish in form.

Sub-variety (b) In form they are similar to (a) but these are longish in appearance as they have either longer body, No. 38 (Fig. 46) from grave No. 5, or longer neck, No. 20 (Fig. 46) from grave No. 2.

Sub-variety (c): There is only one example, Reg. No. 16 (Fig. 46) from grave No. 3 with a straight side on a disc-base.

Variety (vi): NARROW-NECKED BOTTLES

Only two examples have been found. Reg. No. 14 (Fig. 46) from grave No. 3 is in red ware and Reg. No. 31 (Fig. 46) from grave No. 9 is in grey ware. Both of them are miniature examples of the usual type. They are not found in type B graves at all. They are most important for the purpose of chronology.

Variety (xi): LID

One specimen already described under variety (i).

Variety (xii): NARROW-NECKED PITCHER (OR URN).

Only one example, Reg. No. 1 (Fig. 45) from grave No. 3, in red ware of fabric (b). It has traces of red slip at the outside. It differs from the usual type in so far as the present example has a disc-base, extremely narrow neck, globular body, like that of sub-variety (a) and everted rim. From the shoulder downward the surface is rough, probably because it was meant for burial. At the shoulder there are traces of twin small lugs at four places, equidistant from one another. Above these lugs there are three grooved lines.

There is another miniature example, Reg. No. 6 (Fig. 46) from grave No. 3, in grey ware, of this narrow necked vase but this has a flat base.

The presence of these urns in grave No. 3 having complete burial is rather unusual.

Variety (xv): LUGGED VASE

Only one example, Reg. No. 2 (Fig. 45) from grave No. 3 in red ware. It has a slightly bulging body, disc-base and simple rim. From the shoulder downward the exterior surface is rough. Above the shoulder red slip is applied. At the shoulder there are two holed lugs on one side while traces of two more on the other are visible. Immediately above the lugs there is an incised wavy line. The vase belongs to sub-variety (a).

*TYPE B GRAVES**Variety (i): HAND-MADE COOKING POT*

Reg. No. 28 (not illustrated) from grave No. 8. It belongs to sub-variety (a). It is blackened with smoke.

Variety (ii): BOWL-ON-STAND

Three examples in red ware of fabric (b) have been found. Reg. No. 17 (Fig. 47) from grave No. 1 belongs to sub-variety (d) as it has a grooved pedestal stand. Reg. No. 24 (Fig. 45) from grave No. 8 and Reg. No. 41 (Fig. 46) from grave No. 7, both belong to sub-variety (b), as they are light in weight with a hollow stem. No. 24 has a plain bowl.

Variety (iii): TALL DRINKING VASE

One example in red ware, Reg. No. 26 (Fig. 46) from grave No. 8. It has a narrow waist with its lower portion globular and a disc-base. The upper part is broken.

Variety (iv): OPEN-MOUTHED DRINKING CUPS WITH FLARING RIM

Only two specimens in grey ware. No. 44 (Fig. 46) from grave No. 7 belongs to sub-variety (b) and No. 25 (Fig. 46) from grave No. 8 belongs to sub-variety (a).

Variety (v): MEDIUM-SIZED DRINKING GOBLETS

Four examples have been found No. 33 (Fig. 46) from grave No. 4, No. 29 (Fig. 46) from grave No. 8, No. 18 (Fig. 46) from grave No. 1 and No. 42 from grave No. 7. Only No. 33 is in grey ware while others are in red ware. No. 33 resembles in form No. 35 of type A grave. No. 29 is a replica of No. 30 of type A grave with the difference that the present example is rather longish. No. 18 is severely plain. No. 42 is extremely fine with narrow neck, straight rim, disc-base. The shoulder and neck have cordoned lines. It is red

slipped and burnished. There are two new sub-varieties of drinking goblets. *Sub-variety (c)*: No. 43 (Fig. 46) from grave No. 7 is rather squattish, has a disc-base and a gently curved body like that of a cup. At the shoulder three incised lines are crudely drawn in between zigzag lines. It is in red ware of rather coarse fabric.

Sub-variety (d): No. 32 (Fig. 46) from grave No. 10 has a globular body on a disc-base with a narrow neck and flaring rim. It has cordoned lines on the body. It is also in red ware but of finely levigated clay.

Variety (xii): NARROW-NECKED WATER PITCHER

Only one example, No. 22 (Fig. 45) from grave No. 8, of medium size in red ware of fabric (b), well fired, red slipped. It has a disc-base and cordons at the outside.

Variety (xxix): A broken example of open mouthed globular jar No. 27 (Fig. 47) from grave No. 8 in red ware of fabric (b). It gets smaller at the neck and has a simple rim.

Variety (xxxi): A bowl with a holed lug, No. 23 (Fig. 45) from grave No. 8, in grey ware. It has a disc-base, flat-topped rim and incised lines just below the rim. The holed lug is attached near the base on one side only.

TYPE C GRAVE

Variety (x): A long necked pitcher or urn No. 45 (Fig. 47) with flaring rim and globular body was found to contain burnt bones and ashes. Its neck is plain and hence it belongs to sub-variety (a). Such urns have been found in large number at Timargarha.

CHRONOLOGY

Having obtained the detailed knowledge of the pottery types, we are now in a position to link these graves chronologically with those found at Timargarha. Though type A graves have the same ritual practice as seen in the Timargarha graves of period I, the pottery does not place them in that period. From the point of view of dating the most important types are variety (vi) narrow-necked bottles, variety (xii) narrow-necked urn and variety (xv) lugged vase. These varieties are known at Timargarha only from period II onwards. It is therefore reasonable to assume that this type of graves at Thana belong to the second period of Timargarha. The

pottery forms found in type B graves are known from period III at Timargarha, though some of the typical examples of period III are absent here. Thus according to the present evidence Thana graves are later than the earliest graves known from Timargarha.

Section 3

SWAT

By *PROF. AHMAD HASAN DANI*

The Italian Archaeological Mission in Pakistan have excavated several cemeteries in Swat — a state that comprises the upper reaches of the Swat river. So far four articles¹ have been published on them. The excavations have been conducted at three sites in the vicinity of Saidu Sharif, one site near Kherai and one site near Barikot. Summary descriptions are available only for the sites near the first two localities. The following analysis is extracted from the published articles so that the readers of our journal may have some idea of the Swat graves in the light of the terminology adopted here. Until the complete report is published, the analysis is provisional and no definite correlation can be established between these graves and those found in Timargarha. The same remark applies to the comment on pottery.

Professor Tucci in his article speaks of the wide-spread nature of these cemeteries, and besides those excavated near Saidu Sharif, he says how "I discovered other extensive graveyards of the same kind and containing the same pottery and grave furniture in Chakdara, Gogdara, Gumbatuna, Charbag, along the route to Kalam; pottery of the same type, though coarser and more primitive has been found along the Indus River". He correctly judged, "The fact is certain that they are pre-Buddhistic". He goes a step further and says, "Returning to the subject of cemeteries, it seems to me that it can hardly be doubted that they should be attributed to Assakenoi of Alexander's historians". This attribution is rather too premature.

C.S. Antonini, in her article, sums up the excavations conducted in 1961 and 1962 and speaks of three localities — Butkara II, Katelai I, and Loebanr I. She has classified the graves on the basis of two funeral rites that she could detect — A, inhumation, and B, cremation. Later while giving some details she speaks of three different types of A — Single burial, double

or triple burial, and burial after exposure. Similarly she records that "the remains of two or more persons are present even in the jars containing burned bones". One important point of stratigraphy is noted: At Butkara II "in the filling of the upper cavity of some tombs were found the remains of the cremation itself, with some fragments of bone, ashes and coal". But no advantage is taken of this stratigraphic evidence to classify the graves on chronological basis. The manner of grave digging was the same, as has been noticed at Timargarha site No. 1. We have here also the upper pit, below which were the sealing stones covering the lower pit. The circle stones demarcating the upper pit were almost absent. Similarly only a few of the graves had dry stone masonry lining the lower pit. At Butkara the stratigraphic evidence was available to show that the graves were earlier than the Buddhist remains but the section published is too poor to give any definite idea. We are not made wiser whether there was any break between the grave period and the Buddhist occupation. At Katelai a few tombs were super-imposed over others but the author could not detect variations in the ceramic material of the graves. Among others, there were only two cremation burials, three are double burials, and two contain "secondary deposition". Two complete horse skeletons were also found here. At Loebanr 27 had cremation, 28 had inhumation, of which "7 are double, one triple, 18 single, 2 are almost certainly secondary depositions". Ten more graves had either fragmentary bones or no bones at all. The description of the pottery is given together as if falling in one period site-wise, and hence not of much value, except that many new forms are known here. The most noteworthy are a cup on a long stemmed stand, a tall drinking vase on a stand, a lid with a horse-handle and a triple pot on a stand — last variety is also known from Marlik². Of the other objects illustrated, the most noteworthy are the two terracotta human figurines. Her Fig. 10 has a close resemblance with an alabaster effigy from Hissar III³, and her fig. 11 has much in common with the bronze figure from Marlik⁴. The Peshawar Museum specimen, quoted by the author, does not come from Baluchistan. At the end without giving any particular example, the author concludes on the pottery: "It seems to us particularly close to the ceramic production of the locality of Hissar II B".

Now we take the second report of Stacul dealing with the Kherai necropolis. Here only twelve graves were excavated. All of them were of one type. In our terminology we would call them box-like graves with schist slabs forming the sides. Generally babies are buried in this type of graves. Stacul also found the skeleton of two babies in nos. 6 and 10. These along with the one in no. 3 were lying in the inflexed position on one side. The

remaining graves had either fractional bones or no bones at all. Quite in keeping with this type of the graves Stacul did not find the upper pit in these examples. According to our chronology they belong to TMG period III. They may be even later in this far off place. Among the potforms the flat based cups² are dominant. His fig. 4 No. c is a deep bowl with hollow pedestal, found also from grave No. 111 a in TMG I. The finger rings (wrongly called ear-rings) are similar to those found in Timargarha (see ante P. 192).

Now, we take up Stacul's first article, which deals with his further excavations at Katelai and Loebanr in 1964 and 1965. The analysis is very important as stratigraphic evidence is available to confirm the classification made by us at Timargarha. We made the classification on ritual basis as little of stratigraphic material was available to us. Here because of the superimposition of tombs it was possible to draw better conclusions.

His first classification is based on the association of metals. Those graves, in which only copper is found, are placed in category A, and those, in which both copper and iron or only iron objects, were found, are placed in category B. His next basis is the ware. The graves characterised with ware having "thin sides" are grouped under AIII and B. This ware is the same, which we have termed "fine ware of fabric C" (ante P. 122). In our graves they are found only in period III. Stacul places the graves having ware with "thick sides" in groups AI and AII. This ware is the same which we have called "medium clay ware of fabric B" (ante P. 122). In our case this ware is found from period II onwards. Stacul's AI graves are further distinguished by "box-urns", which we have not found. In his AII graves visage urns are found, as we have also found in period II. Stacul further clarifies the ritual position. In graves of groups AI and AII, 24 cases of cremation and 14 examples of inhumation of single burial were found. It is unfortunate that the author has not separated these two types of burials along with their equipments. In our case we have found a few graves of the first period, in which only single burial is found. Stacul further observes that, in group AIII, 94 cases of inhumation with single or multiple burials and only 14 of cremation were found, while, in group B, 20 examples of inhumation and one of cremation. The evidence can now be summarised:

A I: thick ware, box-urn, more cremation and a few single burials, and copper.

A II: thick ware, visage urn, more cremation and a few single burials, and copper

A III. thin ware, multiple burial, a few cremation and copper.

B. thin ware, multiple and single burial and only one cremation, copper and iron.

His superimposition of graves further shows that the graves of group B lie over all other types, those of group AIII lie over AII and AI, and those of AII over AI. After noting this succession he makes three periods:-

Period I — In this period he brackets both groups AI and AII, probably because both have cremation ritual along with single burial, and have "thick side" vessels.

Period II — In this period he places graves of group AIII.

Period III — In this period he places graves of group B.

According to our classification his periods II and III fall in our period III as they are characterised by thin ware pottery of an entirely different tradition, and secondly they introduce new ritual practice of multiple burial, generally of fractional bones. Stacul's period I has been classified by us into two periods — our period I has only inhumation of single individuals and period II has only cremation. It is our belief that inhumation and cremation are two separate rituals and the graves must be distinguished accordingly. We have earlier shown the chronological difference on the basis of the evolution of pottery.

The material objects illustrated by Stacul add new varieties to those published by us. His terracotta human figure (his Fig. 66) has a close resemblance to the one seen in the Peshawar Museum. Many new types of vessels in fine red ware are illustrated by him. Most of them come from period III. His Fig. 49 has tall-necked *surahis*. There are quite a number of new varieties of pedestalled vases (see his Fig. 71 and 73). A complete specimen of dish-on-stand is illustrated (his Fig. 74e). In conclusion Stacul has made a typological comparison with the pottery types from Tepe Hissar, Shah Tepe, Tepe Giyan, and other sites in north-east Iran. His references to chalcolithic sites in Anatolia, or even to Harappa, Baluchistan and Bampur sites are not very striking. But when he makes a determined comparison with Wheeler's material at Charsada and wants to bring down the date to 6th — 4th B.C.—the date of the deepest levels at Charasada—one may wonder what is the necessity then of three period classification of the graves? Even if we accept that his period III belongs to the earliest time of Charsa-

da, as it is here that iron is found, his first two periods must ante-date Charsada. It is unfortunate that the author is silent on this point. Even in the case of Charsada material, he has not taken into consideration the entire range of the objects found. In the areas so near to each other and particularly when we know that between 6th and 4th centuries B.C. the two areas were united under the rule of the Achaemenians, there should not be striking cultural difference. As we have said elsewhere, the grave pottery types at Charsada are survivals in the Achaemenian age.

1. The Italian publications are —

- (i) C.S. Antonini, 'Preliminary Notes on the excavation of the necropolis found in Western Pakistan, in East and West, Vol. 14, Nos. 1-2, Rome, 1963, pp. 13-26.
- (ii) G. Tucci, 'The tombs of the Asvakayana-Asakeroi', *ibid.*, pp. 27-28.
- (iii) G. Stacul, 'Preliminary report on the pre-Buddhist necropolis in Swat (W. Pakistan), *ibid.*, Vol. 16, Nos. 1-2, Rome, 1966, pp. 37-79.
- (iv) G. Stacul, 'Notes on the discovery of a necropolis near Khural in the Gorbund valley (Swat West Pak), *ibid.*, Vol. 16, Nos. 3-4, Rome, 1966, pp. 261-74.

2. Easat O. Negahban, *A Preliminary Report on Marble Excavation*, Tehran, 1964, Fig. 26.

3. E.F. Schmidt, *Excavations at Tepe Hissar, Damghan*, Philadelphia, 1937, Fig. 114.

4. Negahban, *op. cit.* Fig. 90. In this case the hands and the head are properly formed.

5. These cups can be compared with the cups found in Hissar IIIc. See Schmidt, *op. cit.*, Pl. XI.11, Nos. II. 4115, II. 4305 and II. 4338.



Section — 4

CHAKDARA

By

PROF. AHMAD HASAN DANI

Chakdara is probably a Mughal term consisting of the compound of *Chak* (a revenue term) and *dara* (a pass). It is really at the head of a great opening that leads into the flat plain of Talash valley, surrounded on three sides by hills and the river Swat on the south. The Mughals erected a fort at this place but no trace of the Mughal fort is now above ground. The modern fort, just overlooking the river, was built by the British on a lone ridge that dominates the entire area. A *khiwar* (torrent) separates the fort from the old village of Chakdara. The northern part of the village stands on an ancient mound. The pot-sherds are strewn all over the place, and ex-

tend northward much beyond the limits of the village. Some of them relate to grave pottery. To the south-west of the State Rest House, close to a modern grave, a ditch has been dug by the villagers. It is in this ditch that the remains of the graves were noted. As no proper excavation was undertaken by us, it is difficult to assign them to any definite period.

When we leave Chakdara, cross the *khwar*, and go over towards the village of Charpat, about one mile to the west, the ground gradually rises. The whole area has been turned into fields in different terraces. The ploughshares of the villagers have struck against huge slabs in the fields. These slabs serve as the covering stones of the graves lying underneath. From these graves several pots have been collected by the villagers. Two complete pots came to our hand. They are both medium sized jars of red ware of fabric (b) and belong to variety (ix). Charpat jar No. 1 is bigger in size, light red in colour, rough at the lower portion and has an applique rope design below the neck only for a length of 3". It does not go round the whole pot. Charpat jar No. 2 is smaller in size, has deep red slip all over, but the lower half is slightly rough. It is decorated between the neck and shoulder. Just below the neck there are three cordoned lines, next is a row of incised inclines followed by an incised zigzag pattern. Both the pots have disc-base and flaring rim. These pots suggest cremation burial.

ZIARAT

Ziarat is a village almost midway between Chakdara and Timargarha. The name is derived from the fact that a locally famous Muslim saint is buried in a Gumbad here. The tomb is in the old locality just at the foot of the hill but the modern village has now shifted to the road side. To the west of the village is a Muslim graveyard that spreads out at the foot of the hill. In the slope of the hill side and underneath the Muslim graves we have traced the ancient graves, recognizable in a ditch excavated by the villagers. A few large covering stones are visible below the modern graves. As the Muslim graves are lying on the top, it is difficult to excavate the area.

ENAYET QILA

Enayet Qila is a strong fort a few miles northwest of Khar. Mamun Khwar separates this fort from that of the old mound of Shinkot. To the south of the newly-built fort spreads out an open field right upto the bank of the *khwar*. In a number of places erosion has cut through the fields and

made some gullies. In the field several large stone slabs are sticking out. During the course of constructing the fort some graves were hit by chance. A few complete pots were given to us. Three of them are *surahi* type of long necked water pitcher (variety xix) in fine red ware of fabric (c). They have cordoned lines on the body. The fourth is an hour-glass type of drinking vase (variety xiii) in fine red ware. The fifth is a water picher having a collared rim (variety xvi). All these pots belong to period III. It can therefore be said that the cemetery here includes the graves of this period. There may be earlier period graves here.

PANCHPIR

Panchpir is a village at the foot of a hill not far from Hund — the old crossing of the river Indus. The name of the village is derived from the graves of five saints. Over the hill top there are some rock engravings. The village is situated on a low mound of old. To the north of the village on either side of the newly-built canal the graves are spread out in the open field. They were discovered at the time of digging the canal.

PEHUR

Pehur is a village on the west bank of the river Indus opposite Tarbela Dam Colony. For some years past there has been an Indus crossing at this point. In winter, when the water is less in the river, a boat bridge takes the traffic from the northern areas of Mardan district direct to the Hazara district. About half a mile south of this village there is a low-lying bridge, on the top of which there are Buddhist ruins. At the foot of this ridge there is a wide sloping ground, generally washed by the Indus river, when in flood. The whole area is full of river sand and silt. At the time of digging out the earth for the installation of pump house, lot of human burnt bones and potsherds were encountered at a depth of ten feet from the ground. The sherds that came to our hand were all red ware of fabric (b) belonging to the graves. One is a complete shallow bowl with flat base of the type found by Stacul at Kherai site. The exact nature of the graves could not be determined as modern construction is standing there.

Report
on the Excavation
of Balambat
Settlement Site

Part VI

By

Prof. AHMAD HASAN DANI
with contribution from
Mr. ABDUR RAHMAN
on "Small Finds"

the first of the series of lectures on the history of the world, which were given at the University of Cambridge, in the year 1828. The lectures were given by the Rev. John Wilson Croker, who was then a member of the University, and who afterwards became a member of the House of Commons. The lectures were given in the form of a series of papers, which were published in the form of a book, under the title of "Lectures on the History of the World, from the Earliest Period to the Present Time." The book was published in the year 1829, and was received with great favour by the public. It was the first of a series of lectures, which were given by Mr. Croker, and which were published in the form of a book, under the title of "Lectures on the History of the World, from the Earliest Period to the Present Time." The book was published in the year 1829, and was received with great favour by the public.

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THE HISTORY OF THE WORLD, FROM THE EARLIEST PERIOD TO THE PRESENT TIME. BY JOHN WILSON CROKER, ESQ. VOL. VI. LONDON: PRINTED BY J. JOHNSON, ST. PAUL'S CHURCH-YARD, 1829.

Section — 1
BALAMBAT SETTLEMENT SITE: 1966

By Prof. AHMAD HASAN DANI

INTRODUCTION

In 1965 Timargarha site No. 3 was excavated. As noted earlier, here twenty refuse pits were exposed but though their chronology could be established on the basis of their contents, they remained unrelated to the life pattern of the time. About one hundred yards east of this site lay a few huts just on the bank of the river, Panchkora. Local enquiry showed that the people living there had dug underground, brought out stones and built their own walls out of the ancient material. In order to check this alleged robbery Mr. F. A. Durrani laid a trial trench in 1965 towards the close of our excavation season. The attempt did not go waste. He struck stone walls and found two periods of occupation with refuse pits similar to those excavated before. As a result, it was clear to the excavators that the actual settlement site of the grave people lay buried here. To find the exact nature of the settlement full scale excavation was undertaken in 1966. The actual excavation was conducted by Mr. Abdur Rahman, Mr. Sardar Muhammad and Mr. Mohammad Sharif.

BALAMBAT SITE (abbreviated as B.B.T.).

Balambat is the name of the area west of the river Panchkora which separates it from the village Timargarha, standing on the opposite bank. The origin of the name is doubtful, but as the last old association of the area relates it to the Buddhists, it is possible to break the word into Balam (or *Parama*) bat (or but, correctly Buddha), meaning thereby the *Great Buddha*. Today the area is marked by a modern fort (Pl. XXXIX, a) which is perched on the highest point to give a commanding view and power to the authority vested here. The height is gained by the accumulated debris of centuries of occupation on a granitic outcrop, the top of which partly decomposed and flattened in ancient time. It is here that the water of the Panchkora river dashes against the outcrops and makes a beautiful bend. Centuries of struggle have cut adrift many a boulder that stands isolated in the stream. Some of the boulders have been utilized and a modern bridge gives access from Timargarha to a new Government colony of banglows and offices on this side as well as to a road leading to Bajaur. Balambat fort towers above all these buildings and gives the needed succour and protection.

From a distance the fort appears to sit on a flattened mound which abruptly slopes on the north and the east. Both these sides are approachable by river, though today it flows only on the east, the north being blocked and strengthened for the bridge. The road to Bajaur winds up the northern side of the fort first towards the west and then sharply turns southward. This Bajaur road has cut the ancient mound in two and it was in this cutting that the ancient remains were first identified. As a result Timargarha site No. 3 was selected for excavation in 1965. From the base of the fort the ground slopes westward in a steep incline but southward the slope is gradual and the space on this side is much greater. The villagers had levelled up the area and turned it into terraced fields. They had earlier excavated a few stone sculptures from the western and the northern sides but the southern area remained unknown and undisturbed. This wide area held out a good prospect for old cultural materials.

EXCAVATED AREA

Three sites were marked out for excavation. The first and the most important spread out south of the fort (Pl. XXXIX, b) with the earlier year's trial excavation as the focal point. The excavated area was divided into two sites by an approach road leading to the fort. Site No. 1 lay to the south of the road and site No. 2 to the north of the road immediately at the foot of the fort. But both the sites were brought under the same grid pattern (Fig. 48). A hundred feet east-west line was marked on the ground with AO at the westernmost end. The line was cut into a unit of 20 feet and was marked A1, A2, A3, A4 and A5. From this base line the trenches were laid northward, each measuring 20 square feet and numbered serially B0, B1, B2, B3, B4, B5 and then C0, C1, C2, C3, C4, C5, D0, D1, D2, D3, D4, D5, E0, E1, E2, E3, E4, E5 and so on until we reached the foot of the fort. Near the fort only one long trench was excavated from north to south, numbering G7, H7, I7, J7 & K7. The third site consisted of only two trenches of the same measurement, numbering TTX, on a flat area to the west of the fort. Out of these the second and third site proved to be of later historical period, showing the Buddhist materials of the Kushana period. Hence these two sites were given up after determining their exact nature. The first site (Fig. 48) was excavated in full.

SUMMARY OF THE RESULTS:

Four different structural periods were recovered in the excavation of these sites:

PERIOD-II. In the earliest period at Balambat were found a few disturbed graves having burnt bones and some complete pots in them. These graves lay under the walls in trenches C1, D2, and D3. Their stone structure was cut by the later walls. It appears that the builders of these walls had either no knowledge of the graves, or if they had at all, they deliberately disturbed them and erected their own houses. As these graves relate to period II of our Timargarha grave excavation, we relegate the earliest level in Balambat to period II. So far no earlier structure has been found here.

PERIOD-III. The fragmentary walls (shaded dark in Fig. 48) of the structures in trenches C, D, E, and F belong to period III. All the walls are in one alignment, the longer arms being from north-west to south-east. A number of stone-lined pits have been found among them. Besides, we find several other pits dug in the yellow hard soil in the same fashion as we found in TMG III. site. The materials include iron and copper objects, ground stone celts and ring stones, terracotta human figurines like the one found in period III grave at Timargarha. The pottery types include some of the forms seen in the graves of this period. Hence this level is attributed to period III.

PERIOD-IV. The end of this last period was abrupt. The new-comers gave up the old alignment of the houses. The new structures (walls with ruled lines in Fig. 48) have been found in trenches A and B with walls running north to south and east to west. These new walls have cut the walls of the earlier structure in trenches B (See Fig. 48 and Pl. XXXIX, b) and thus provided firm evidence of their later date. It is in these houses that we get the most advanced pottery along with improved iron objects together with arrangement for fire place in every room. For the first time diaper stone masonry is seen in the walls of this period. Not a single coin, sculpture or terracotta human figurine has been found in these rooms. But alongwith the advanced pot forms, grave pottery survives to some extent. Hence though the change is abrupt, there does not appear to have been a lapse of time. Hence period IV is placed immediately after period III.

PERIOD-V. The last period had an abrupt end with no survival at all. There is a break in the occupation. The next period is traced near the fort where we get coins from the Kushana period to the Hindu Shahis, Buddhist stone sculptures, and other materials of this period.

Thereafter, there is again a break until we come to the modern fort.

CHRONOLOGY

As may have been noticed from the summary of the results given above, the chronology of the Balambat settlement site has been linked with the general periodization scheme made for the graves found at Timargarha. These graves have been classified by us into three cultural, and chronological periods:

- Period — I — Complete burial with copper.
- Period — II — Cremation and burial with copper.
- Period — III — Fractional and multiple burial with copper and iron.

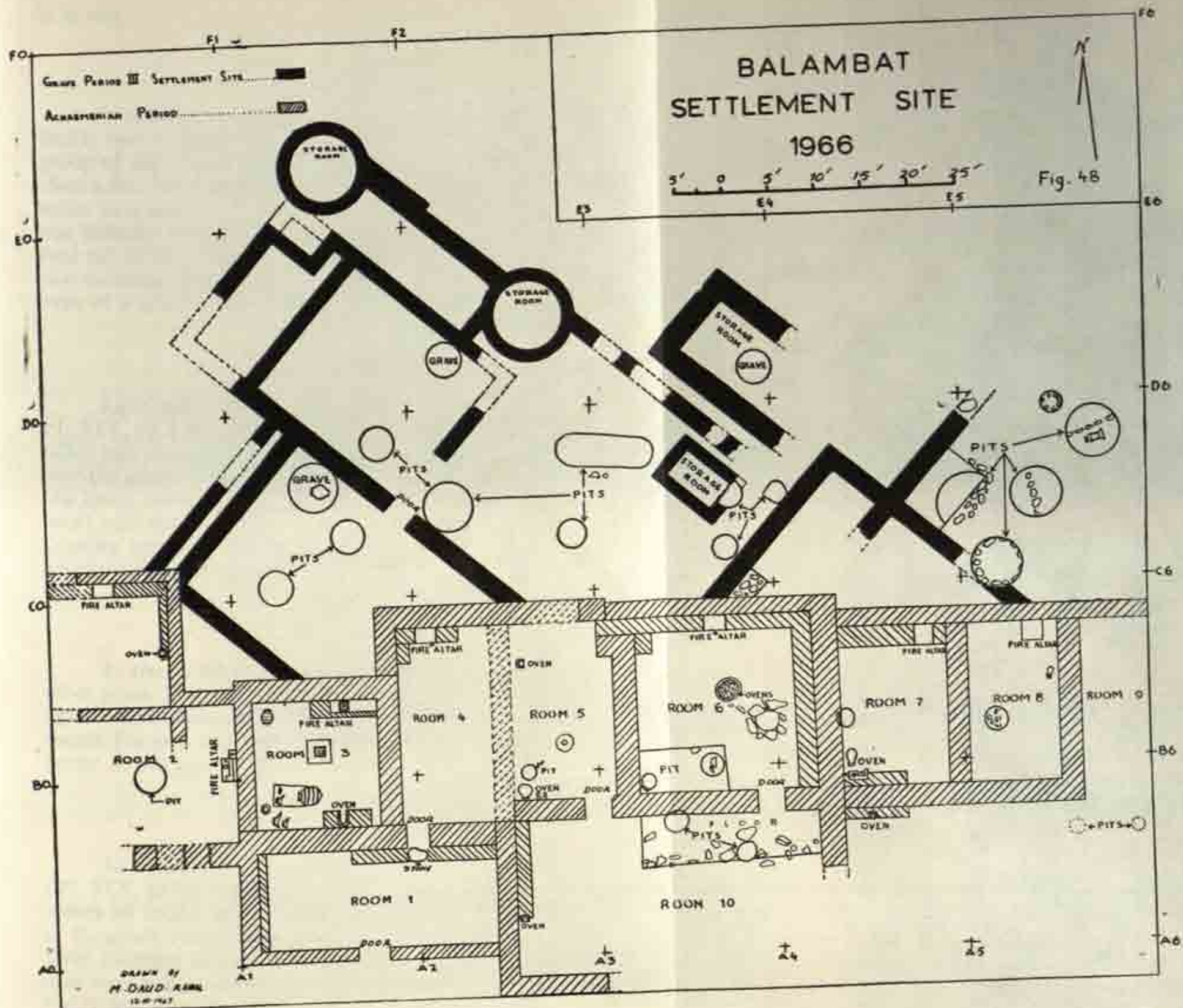
Leaving aside the last historical period, which was not exposed fully by us, we found at Balambat three main periods. In the earliest period we found a few graves with cremated bones and usual pottery associated with them. Hence we have relegated the earliest period at this settlement site to period II of the general stratigraphy at Timargarha. In the next occupation period, seen in the northern zone of our excavation, these graves were cut and spoiled by the builders of the houses above. In these rooms we obtained iron, pottery and human terracotta figurines of the same type as found in the last period graves. The stone masonry is also of rubble, very similar to the dry stone masonry seen in the graves. Hence this occupation is relegated to period III. In the next period the new settlers cut across the walls of the earlier houses and had a different alignment for their own houses, which were built of stone masonry showing a crude type of diaper. In most of these rooms we found fire altars, improved iron materials and new type of pottery along with the survival of the old. The pottery forms definitely place this occupation to the Achaemenian period (i.e. 6th to 4th century B.C.). This occupation has been referred to as period IV.

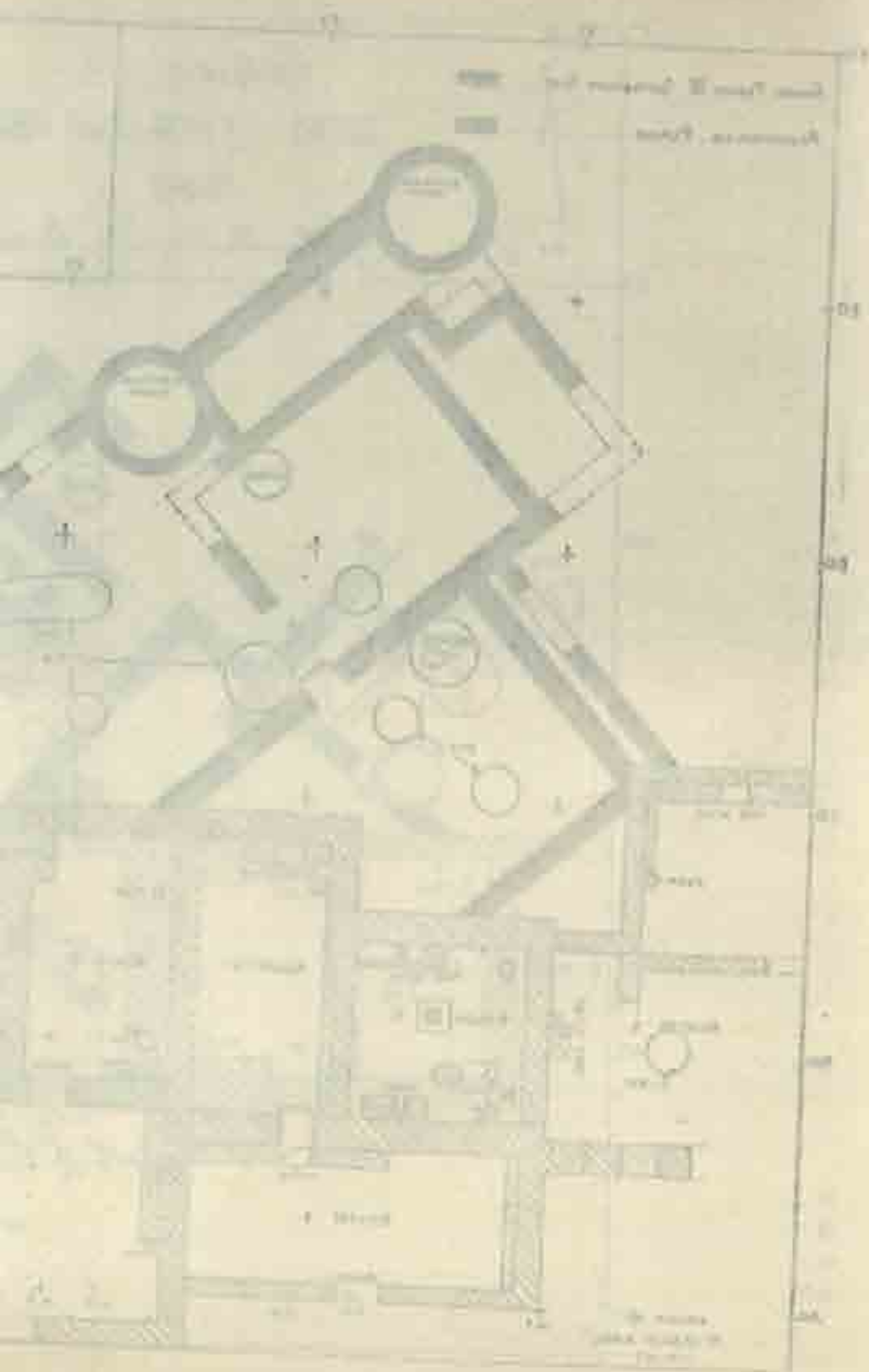
EXCAVATED REMAINS

PERIOD — II

GRAVES

A lot of pottery groups were found here and there in pits as well as along side the walls of the later period but it is not clear whether such groups originally belonged to the graves or not. Here only four graves are described in which actual burnt bones were recovered. The evidence of cremation and pottery types clearly place them in the second period.





GRAVE NO. 1

In trench C1, where the two walls meet each other along the north baulk, just at their corner, (Pl. XLV, b) about 1' 8" below the surface a group of ten almost complete pots were found in layer (2). Along with them a few burnt wood pieces and bones were recovered. Some patches of ashes were noted. A terracotta bead was also collected. The pots included one globular pitcher with a long neck and flaring rim, a bowl-on-stand, four tall drinking vases, two open-mouthed drinking cups with flaring rim, two medium-sized drinking goblets, one narrow necked bottle and two small cups of a new variety having thick set flat-base and open mouth.

GRAVE NO. 2

Right below the above pottery group was found another grave (See Pl. XLV, c) 3 feet below the present ground level. A few stone slabs had fallen into the grave chamber while the walls of the later building crossed over the grave. It was from underneath the foundation of these walls that a few burnt bones were extracted. Here we found a broken burial urn of the usual type along with other pots. Among them were two small hand-made cooking pots, one bowl-on-stand, two tall drinking vases in grey ware and another miniature specimen of the same.

GRAVE NO. 3

In trench D3 just under the baulk of D3-D4 (Fig. 48) was located another grave, 2' 6" below the present ground level in the reddish soil. Here again burnt bones along with river pebbles and funerary vessels were found. The pots included a tall drinking vase in grey ware, a narrow necked bottle in red ware of fabric (b).

GRAVE NO. 4

In trench D2, to the west of the storage room No. 1, a small grave (Pl. XLV, a) has been exposed. It is almost circular in plan and is lined by stones all round. A later stone wall in this trench robbed some of the stones of the grave. From inside the grave were recovered some burnt bones and three funerary vessels — two tall drinking vases of carinated sub-variety in grey ware and a hand-made cooking pot. Two pottery discs with a hole in the middle were also recovered.

PERIOD III

The structural remains of this period are very fragmentary as the later comers robbed many stones from their walls and built their own houses. Though the whole area must have been utilized by the subsequent builders, their own structural remains have been traced only in the trenches from A0 to A5 and B0 to B5. The top soil in trenches C, D, E and F show a mixture with the later materials. As we go upward near the fort from trenches F onward to G, H, I, J and K, period IV materials increase in number. But period III materials are mainly concentrated in the trenches from C0 to C5, D0 to D5 and E0 to E5, though pits of this period are spread all over the area, and in fact even beyond in TMG 3 site, as revealed in the excavation of 1965 season.

In this period III we have three different types of remains (1) Fragmentary walls of rubble stone masonry belonging to some houses, the plans of which are now much disturbed, (2) Circular or rectangular store rooms lined with rubble stone masonry, and (3) underground pits, rubbish or otherwise, which have yielded animal bones, ash, and lots of pottery. These will be described in their proper order. Stratigraphically all these structures belong to a single phase of occupation. This occupation layer (2) consisting of dark loose soil, mixed with ash and charcoal, lies immediately below the cultivated soil of the top layer (1) and is formed on the top of the hard compact red soil forming layer (3). The graves, noticed in period II, are all dug in layer (3) and underlie the floors and walls of period III. The stone-lined store rooms are above the floor level of this period but the other pits are dug underground from this floor level into the red soil and hence stratigraphically they belong to this period.

(1) If we leave aside the odd walls in trenches C3, C4 and D3 (See Fig. 48), we get two nice rooms adjacent to each other and connected by a door in trenches C1 and D1. The rooms spread over the neighbouring trenches. They are all built of dry masonry of rubble stones in the same fashion as the stone walls of the graves. The difference was that here the surface of the wall was plastered with mud. The door is facing north-east and the walls are aligned north-east to south west while the cross walls cut almost at right angles going north-west to south-east. The room in D1 has a long antechamber to its north-west while to its north-east there is a long rectangular platform in between two large circular storage rooms. This platform must have some connection with the grains stored in the circular rooms. Eastward the structures continue and two rectangular storage

rooms are easily identifiable, in between which runs a straight rubble wall. In trench C0 we have two walls of the later period. All over the area the occupation layer was full of ash, charcoal, pottery and other materials. Iron objects were rather rare. A number of broken terracotta human figurines of the same type, as was found in TMG graves, of the third period, were obtained here. Two terracotta bulls were also recovered. The other most important find relates to a limited number of polished stone tools—pointed butt stone axes and ring stones so well known from South India. The significance of these tools has been discussed below. On the whole the structures and their materials convincingly relate them to period III of Timargarha grave people.

(2) *Circular storage room No. 1:* (Fig. 48). This room lies in the centre of trench E1. Its stones were visible immediately below the top soil and its foundation goes down into the compact red soil layer (3). It is built of rubble stone masonry, circular in plan with a diameter of 8 feet. Inside was loose dusty soil mixed up with some ash. The pottery includes sagger-based *thalis*, hand-made cooking pots, and fragments of drinking vases. One biconical terracotta bead was also found in it.

Circular storage room No. 2 (Fig. 48). This room lies in trench D2. Its stones were noted only 4" below the present ground level and its foundation was dug into the compact red soil layer (3). It is also built of rubble stone and is circular in plan with a diameter of 8 feet. The inner face of the stone lining is smooth while the floor is also made of stone pitching. Inside was loose soil mixed with ash and charcoal. Abundant pottery of red and grey ware was found from inside this room. One important find consisted of a blade of iron knife.

Rectangular storage rooms: There are two of them. No. 3 is in trench C3 and No. 4 starts in trench D3 and extends into the neighbouring trenches. No. 4 is partly missing. Both of them have their rubble walls starting from the red soil of layer (3). They were full of loose soil, ash and pottery.

(3) *Refuse pits:* The number of these pits is large. They are also found in the trenches of A and B. They are all dug from the existing floor level of these houses and hence belong to this period III, but some of the pits in the trenches of A and B are of later period as their contents will show. These pits are generally oval in shape and they broaden out as they go down. Inside the pits loose earth, ash, potsherds and some bones were found. In one pit there was an iron object. All these pits are marked in the plan (Fig. 48).

PERIOD IV

In this period eleven well-formed rooms were found, ten of which are numbered in the plan (Fig. 48). The eleventh is lying north of room No. 2. The walls of these rooms were aligned in a regular north-south or east-west direction, cutting the earlier period walls, which lay at an angle of 45° . While the earlier walls were of rubble stone masonry, these walls showed rough kind of diaper. The walls were standing hardly 3' from the original floor level. The first layer was full of ash, charcoal and signs of burning. From room Nos. 1, 2, 3, 4 and 5 large pieces of burnt logs of wood were recovered along with other roof materials. It seems that the logs of wood were used in the roof and these fell down as a result of firing. In the opinion of the excavators the firing was deliberate, caused by the destructive hand of some invaders. As in all these rooms there was only a single period occupation, it seems that the end of this period of occupation was abrupt. The site was not occupied immediately after the destruction. The later settlers of period V came here after a long break and brought coins, iron weapons, new type of pottery and also stone sculptures. Who brought about an end, is difficult to surmise. Even if we recall the march of Alexander the Great through this part and his fight against the Gourais, generally located in this neighbourhood, the archaeological material has not produced any evidence to identify the invader.

All the rooms, except Nos. 2 and 11, are facing southward. Evidences of four definite doors have been found, one each in room Nos. 1, 4, 5 and 6. Room Nos. 2 to 9 are in one row. There were more rooms on the east but now that area is occupied by some village huts. Originally the rooms must have extended right upto the river front on the east as the modern huts do today. Room Nos. 1 and 10 are large halls facing the northerly rooms. There may have been another hall in trench A0. When we find that the room Nos. 2 and 11 are facing westward, it is possible that the rooms on the river side faced the river, i.e., eastward. It is unfortunate that the walls of this period in the northern zone are all destroyed. However, it is likely to surmise that the existing rooms were at the margin of the main building that might have stood over the walls of period III.

In almost all the rooms two types of ovens or fire places were discovered. One type definitely served the purpose of hearth, as can be seen in the southern side in room Nos. 3 (Pl. XLI, c), 5, 7 and in the middle of room No. 6. The other type was placed on a high platform or bench. We find them on the northern side of room Nos. 3, 4, 6, 7, and 9. In room No.

9 (not shown in the plan but see P1. XLIII b) there was an elaborate arrangement above the bench. In the centre stood a square solid altar of mud with side alleys on right and left. The altar as well as the bench were plastered with mud. The altar showed signs of redness. In the side alleys ashes were found and signs of burning on the altar. Not far from this place was a pit dug under the floor. The pit widened as it went down. It was full of pot-sherds, ashes and charcoal. In other rooms the altar was not so well preserved but pits were found to be full of ashes and pot-sherds. In room No. 4 just above the altar lay burnt logs of wood. It was difficult to determine the purpose of these altars until we hit upon an indubitable ritual seat for fire worship (P1. XLIII, a) in room No. 2 facing westward. Close to it was the usual pit with similar material. The eastern wall of this room, which measured 15' 3" in length and 1' 11" in width, had an off-set projection in the middle. About a foot and half above the floor level stood the ritual seat on this off-set projection. The seat, which was made of mud and plastered with lime, was supported by two pillars in front. Right above the tops of pillars were lotus flowers carved in mud. On the seat was a terracotta lamp. Below the seat was an incense burner. On the east was an ash-tray (Saucer-like) and on the west a terracotta model, shaped like a truncated cone. The whole is an elaborate construction, associated with the worship of fire or flame. No image or terracotta figurines have been found in these rooms. Obviously the seat was not meant for installing any image. The presence of huge quantity of ash in the nearby pit suggests fire burning in the room. This ritual seat as well as other altars found in other rooms must have served some religious purpose. The obvious comparison is with the "altar-ovens" found at Dahan-i-Ghulaman by the Italians in their excavations (*East and West*, Vol. 16, Nos. 1-2, 1966, Figs 9 and 22). The Italians could recognise them easily as they discovered almost complete religious building. In our case the destruction had left little of the original evidence. However, the sanctity with which the altars have been raised on benches, suggests the presence of the people in whose life fire worship played a dominant part. When we remember that the whole complex belongs to the Achaemenian period, the presence of such fire altars is all the more justified. So far we have not found any other example of fire altars in Pakistan. These are the first of the type.

Several complete jars were found buried under the floor in the rooms. One jar (P1. XLII, a) was in room No. 4. The most elaborate storage jar (P1. XLII, c and P1. XLVII, c) was found in room No. 3. From the same room came a round stone grind stone with its inner side blackened. It was placed along the wall, as can be seen in P1. XLI, C. It may have been used

for grinding medicinal herbs. In general the rooms yielded iron objects, net sinkers, terracotta weight and lots of pottery, plain and painted. Among the plain pottery red ware predominated. The grey ware pots were small in number.



Section — 2

POTTERY FROM BALAMBAT EXCAVATION

By Prof. AHMAD HASAN DANI

PERIOD—II

POTTERY FROM THE GRAVES

The forms of pottery from these graves are limited. Almost all the forms are of the same types as those found in the cremated graves. But we have three exceptions. Among the tall drinking vases in grey ware we have the carinated sub-variety (Fig. 49, No. 3), which has been earlier noted only in period I graves. However, the present examples have broader base. We also have a new variety of crucible-like cups with thick set heavy sides and flat base (Fig. 50, Nos. 4 and 5). Finally we have pottery disc with a single hole in the middle (Fig. 50, No. 6). Other forms are of the usual type. Not a single piece of period III forms is found in these graves. This is quite in keeping with the fact that these graves were disturbed by the settlers of period III who built their houses here. Selected specimens are illustrated and described below.

VARIETY—I: *HAND-MADE COOKING POT*

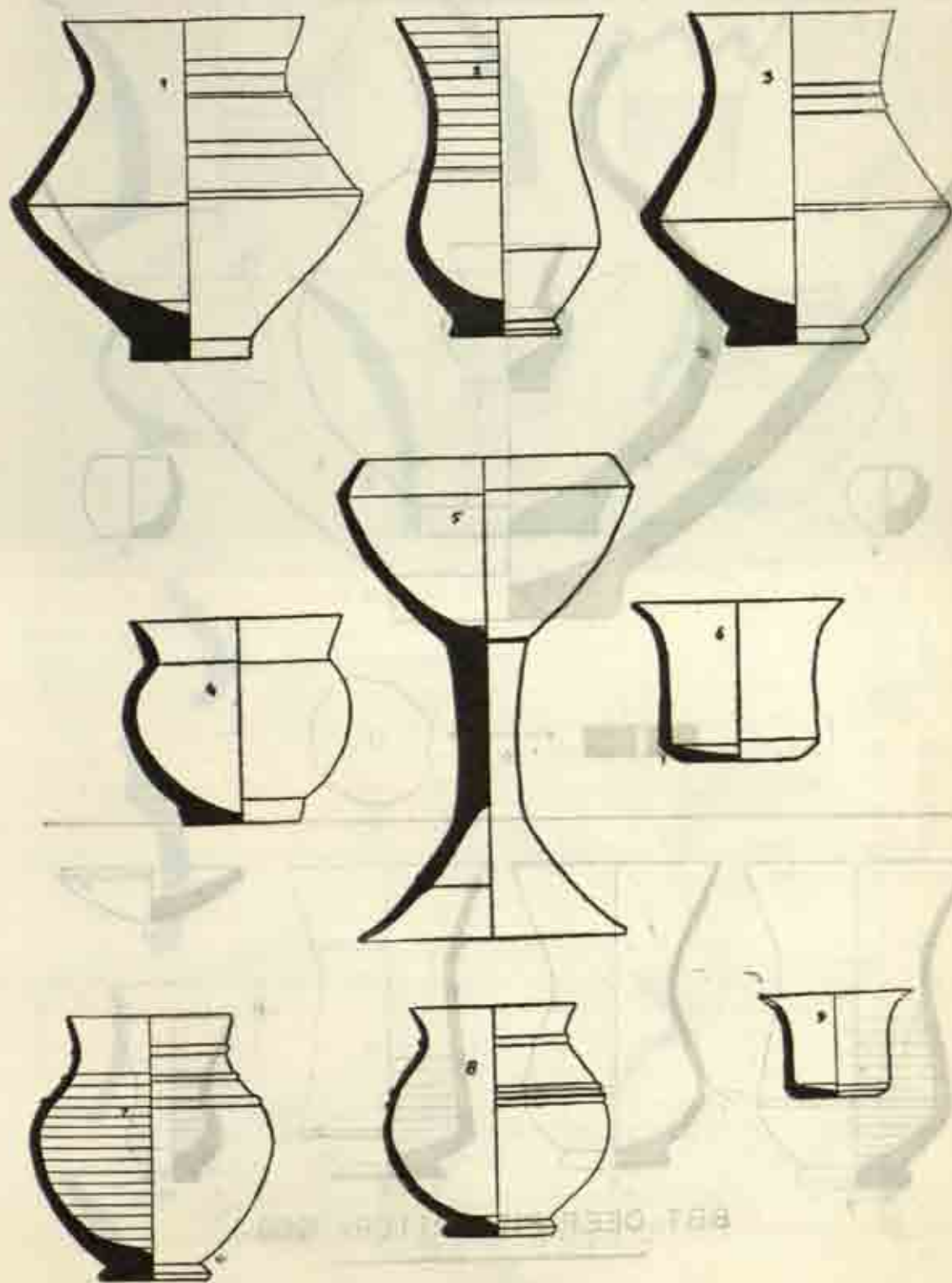
A well-fired hand-made cooking pot of miniature size, red ware of medium texture. In this case the rim is not rippled but other examples are known where the rims are rippled. Trench C1 grave No. 2 (Fig. 49, No. 4).

VARIETY—II: *BOWL-ON-STAND*

A very well fired bowl-on-stand with a hollow stem on an inverted saucer. The bowl is tapering with an inverted rim and hence belongs to sub-

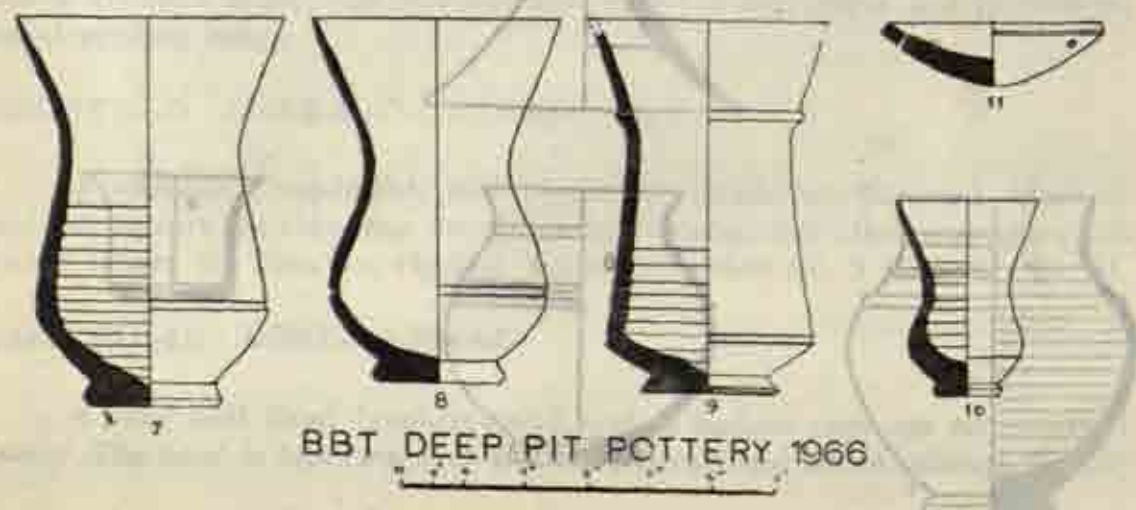
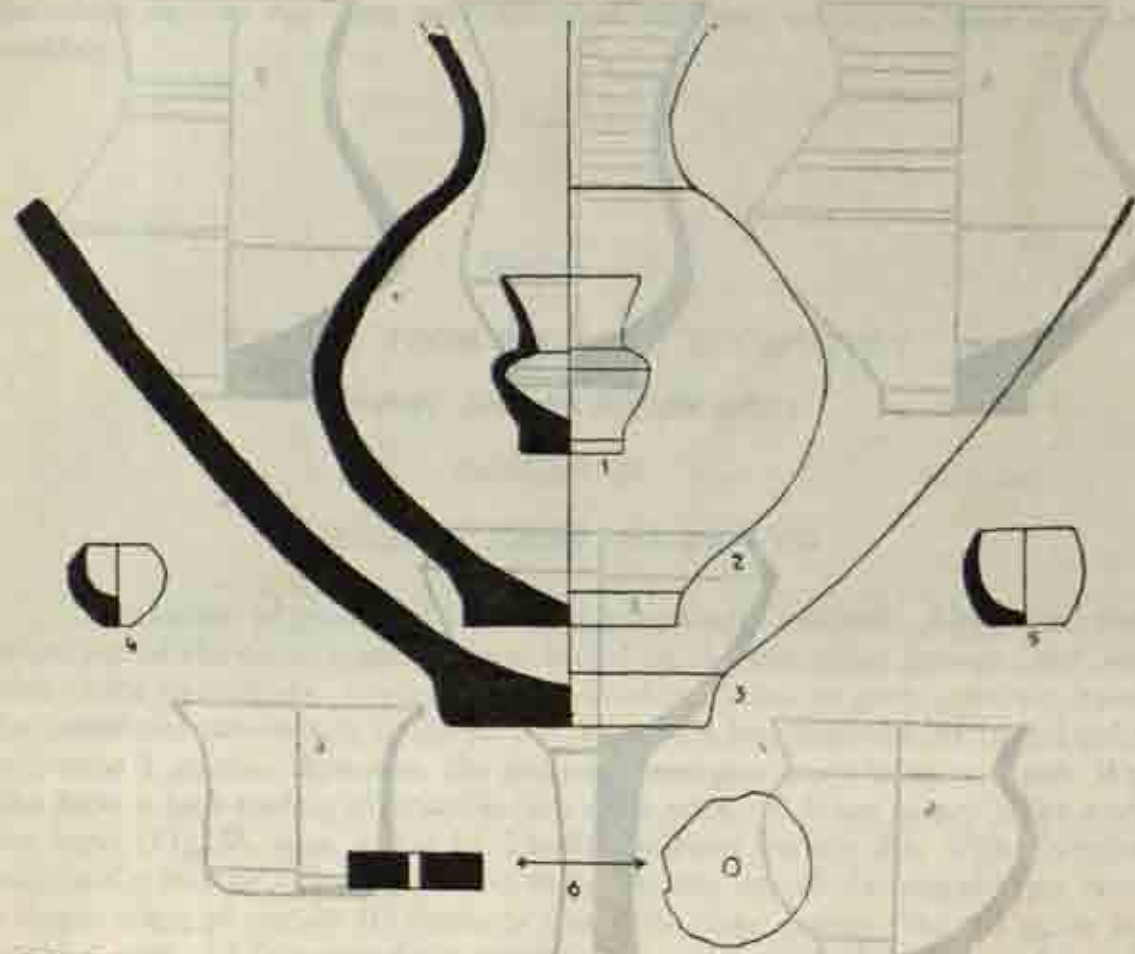
BBT GRAVE POTTERY 1966

Fig. 49



BBT GRAVE POTTERY 1966

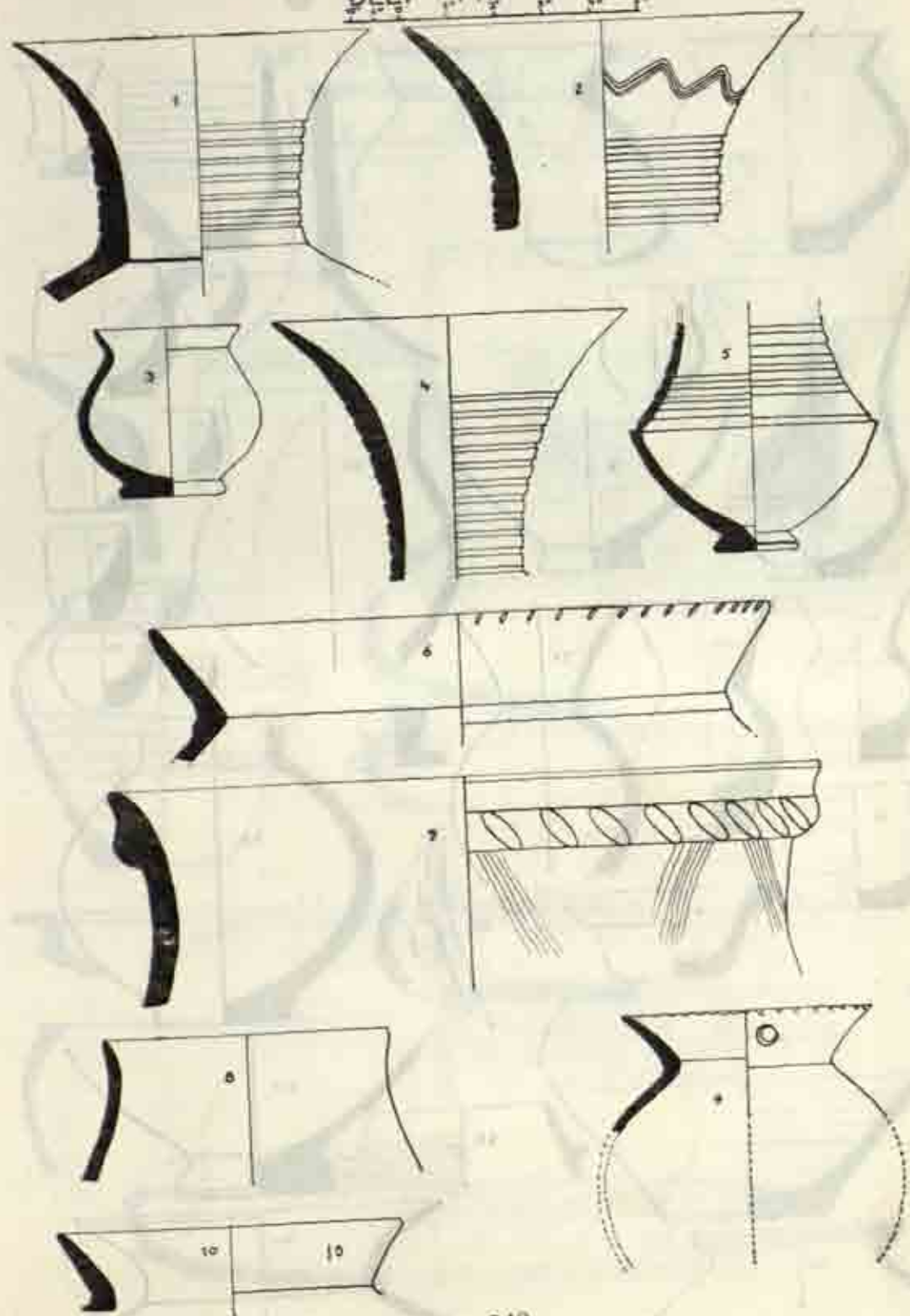
Fig. 50



BBT DEEP PIT POTTERY 1966

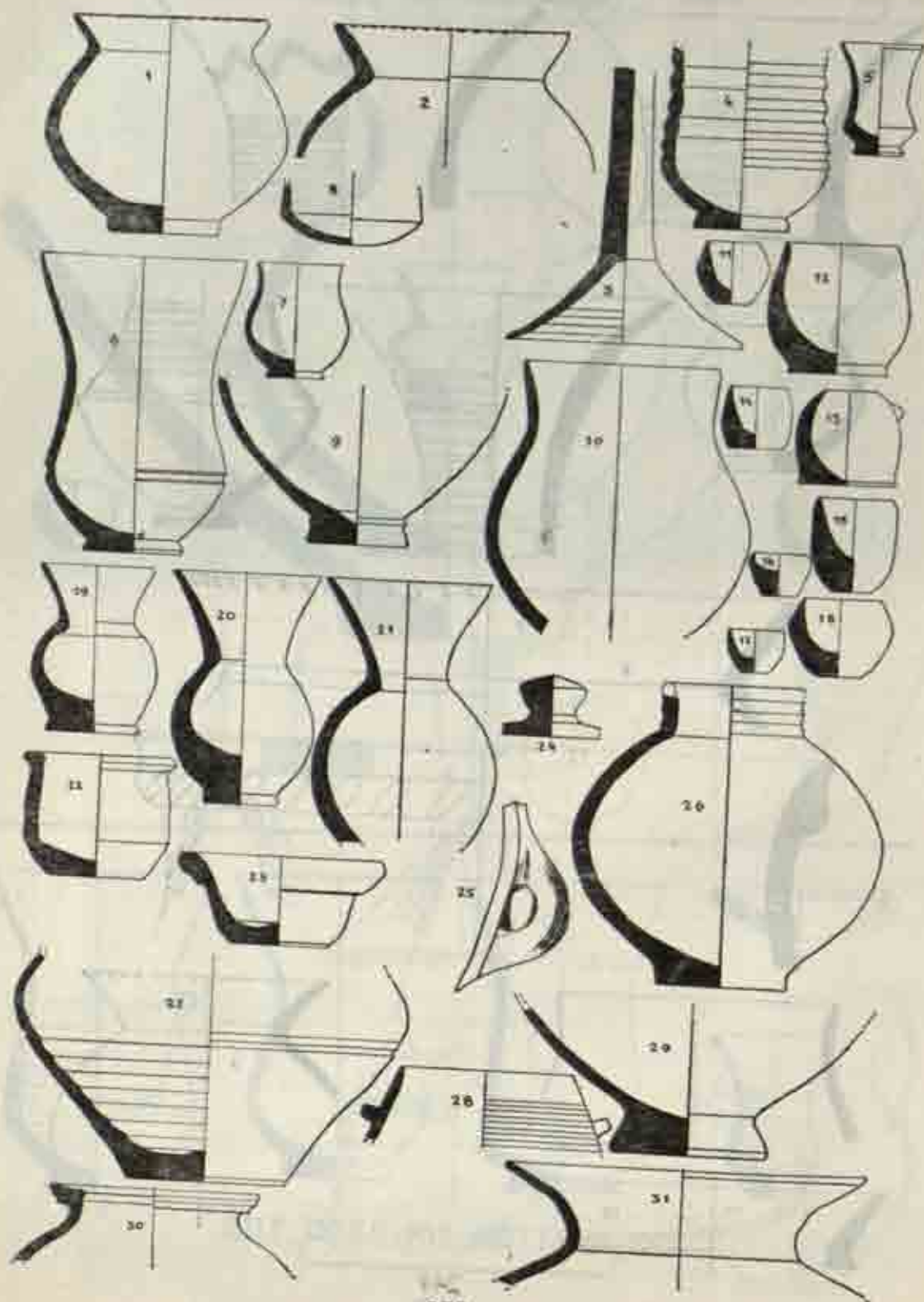
BBT SETTLEMENT SITE 1966
NORTHERN ZONE
DEEP PIT POTTERY

Fig. 51



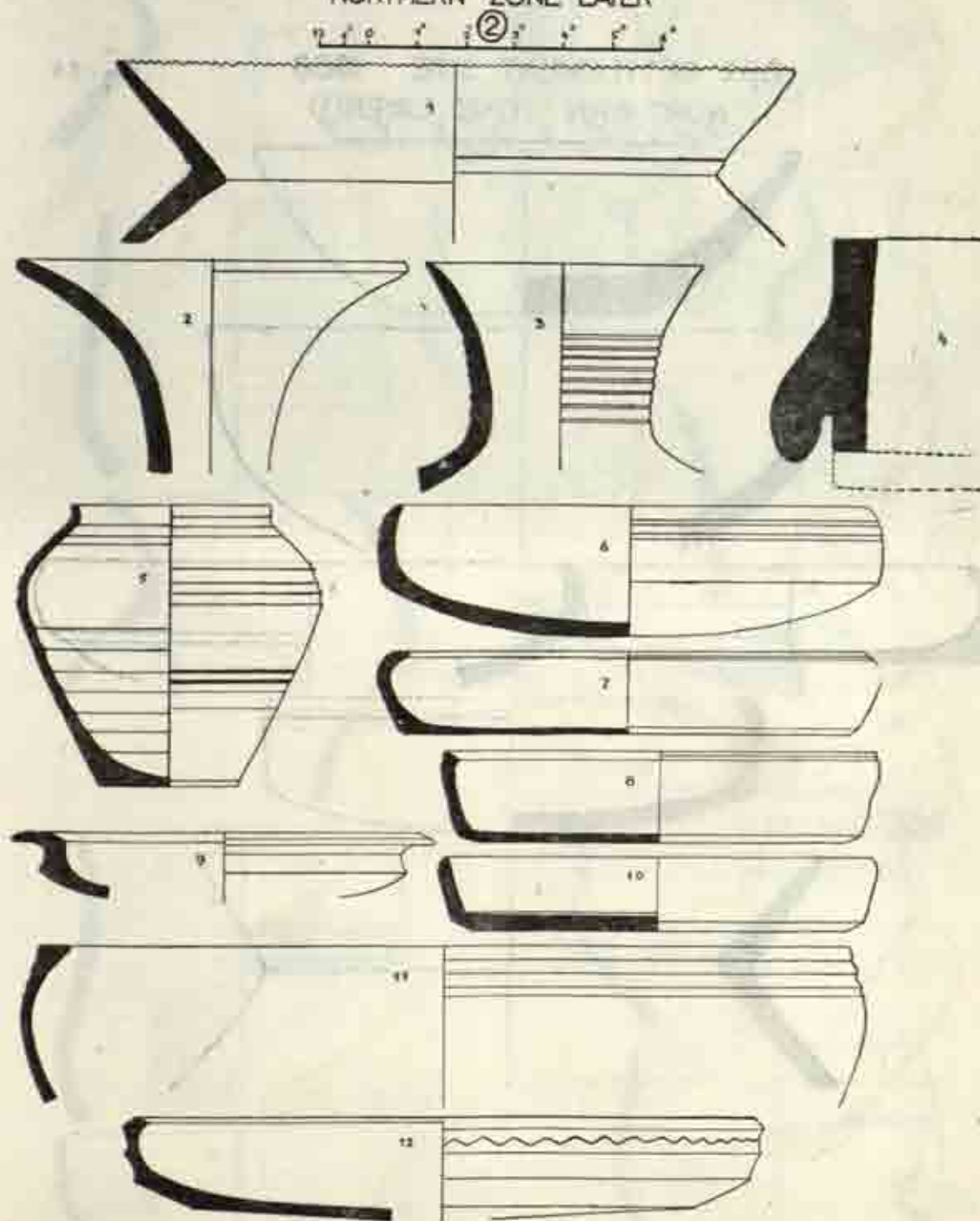
BBT SETTLEMENT SITE 1966
NORTHERN ZONE LAYER ②

Fig. 72



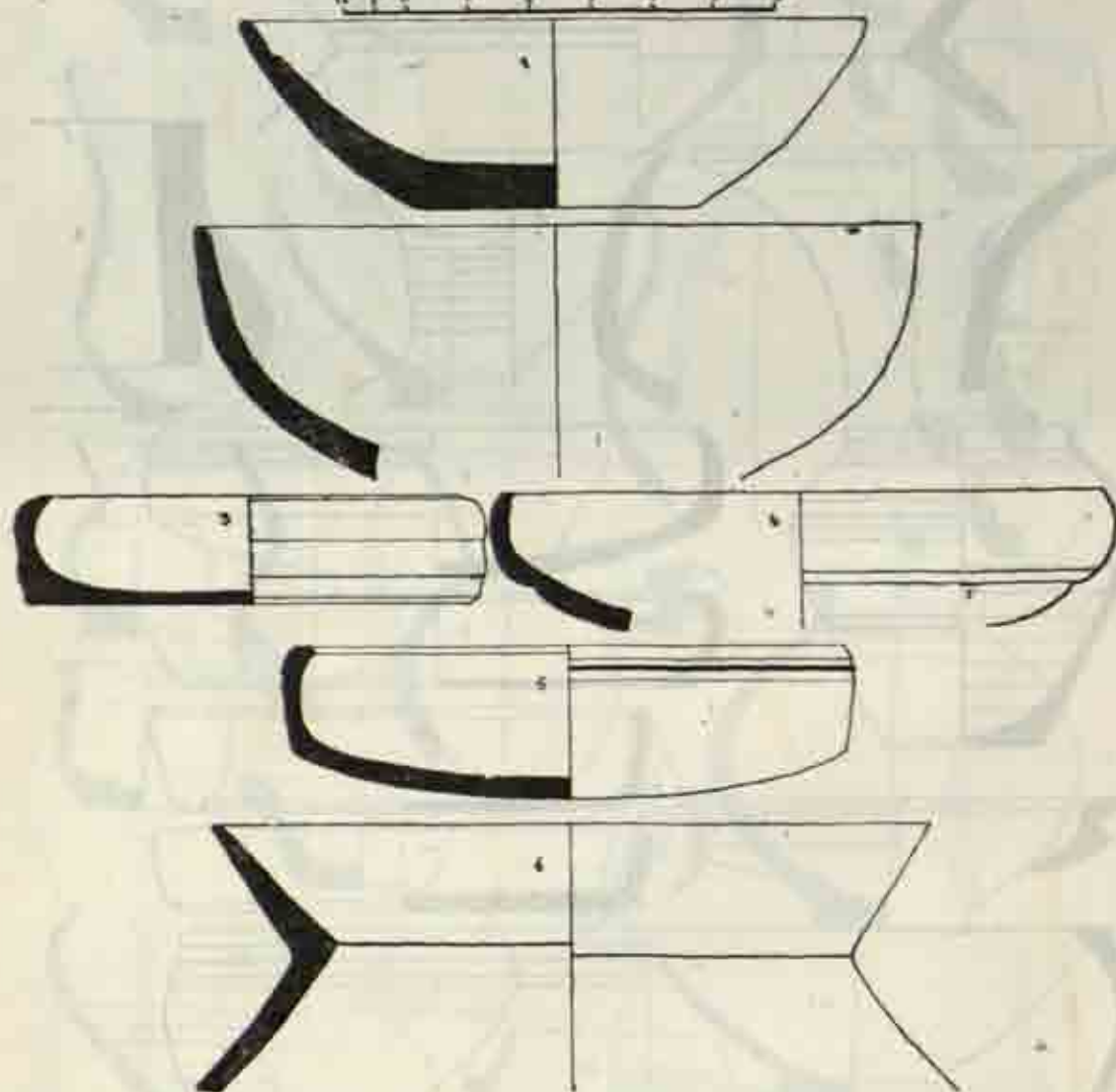
BBT SETTLEMENT SITE 1966
NORTHERN ZONE LAYER

Fig. 53



BBT SETTLEMENT SITE 1966
NORTHERN ZONE LAYER ①

fig. 54



BBT SETTLEMENT SITE 1966
NORTHERN ZONE LAYER ①

Fig. 55

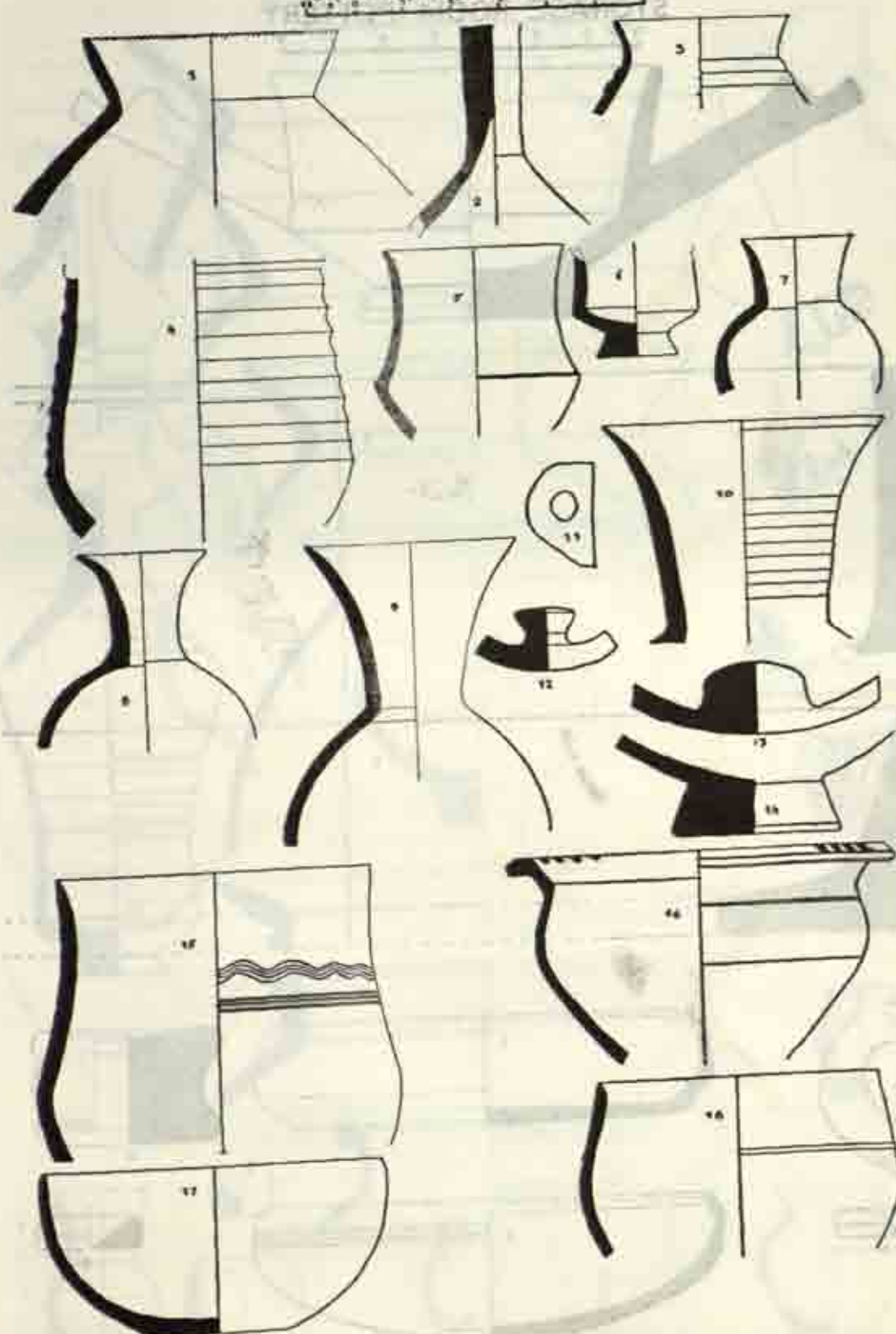
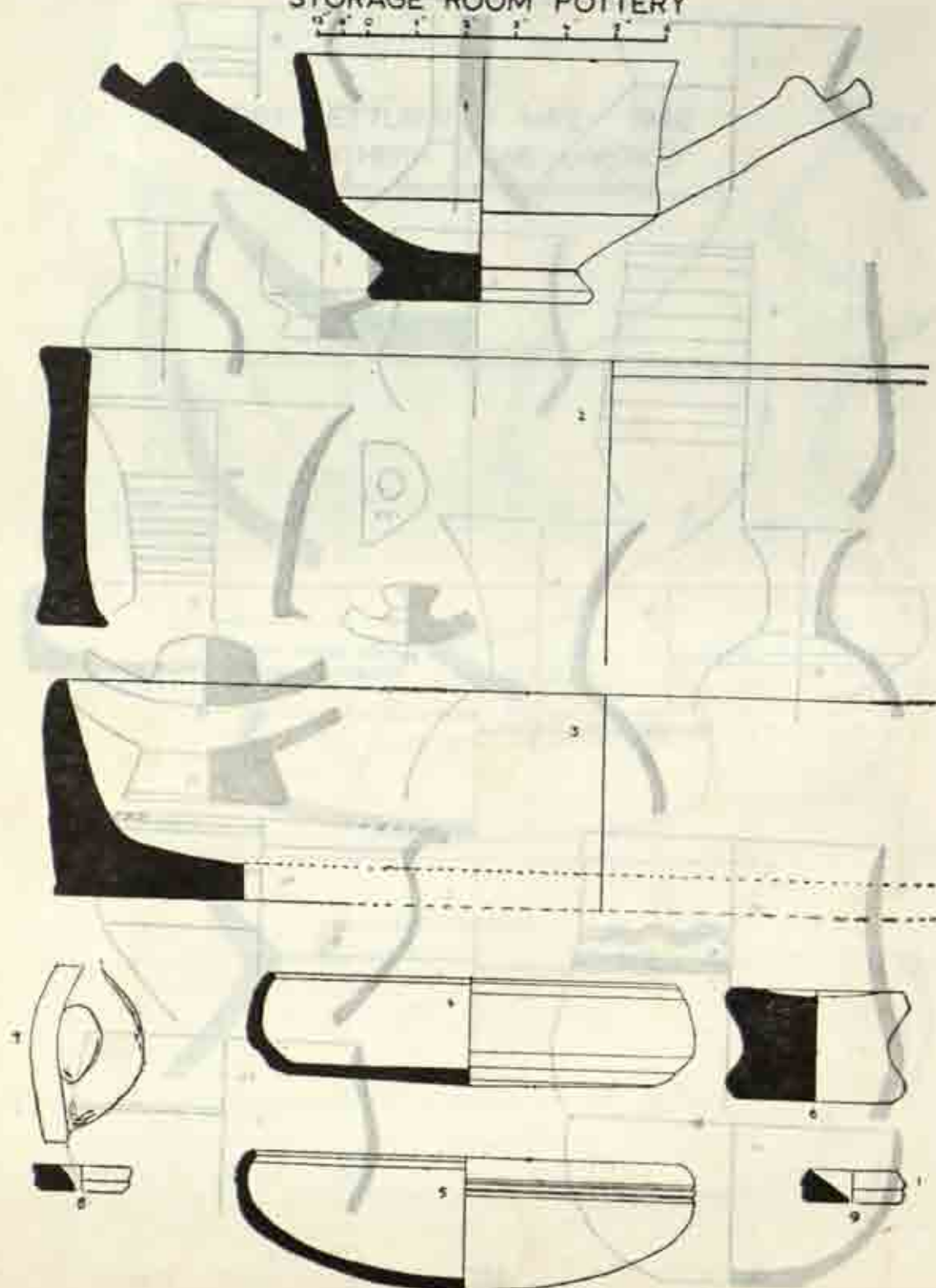


Fig. 36

BBT SETTLEMENT SITE 1966

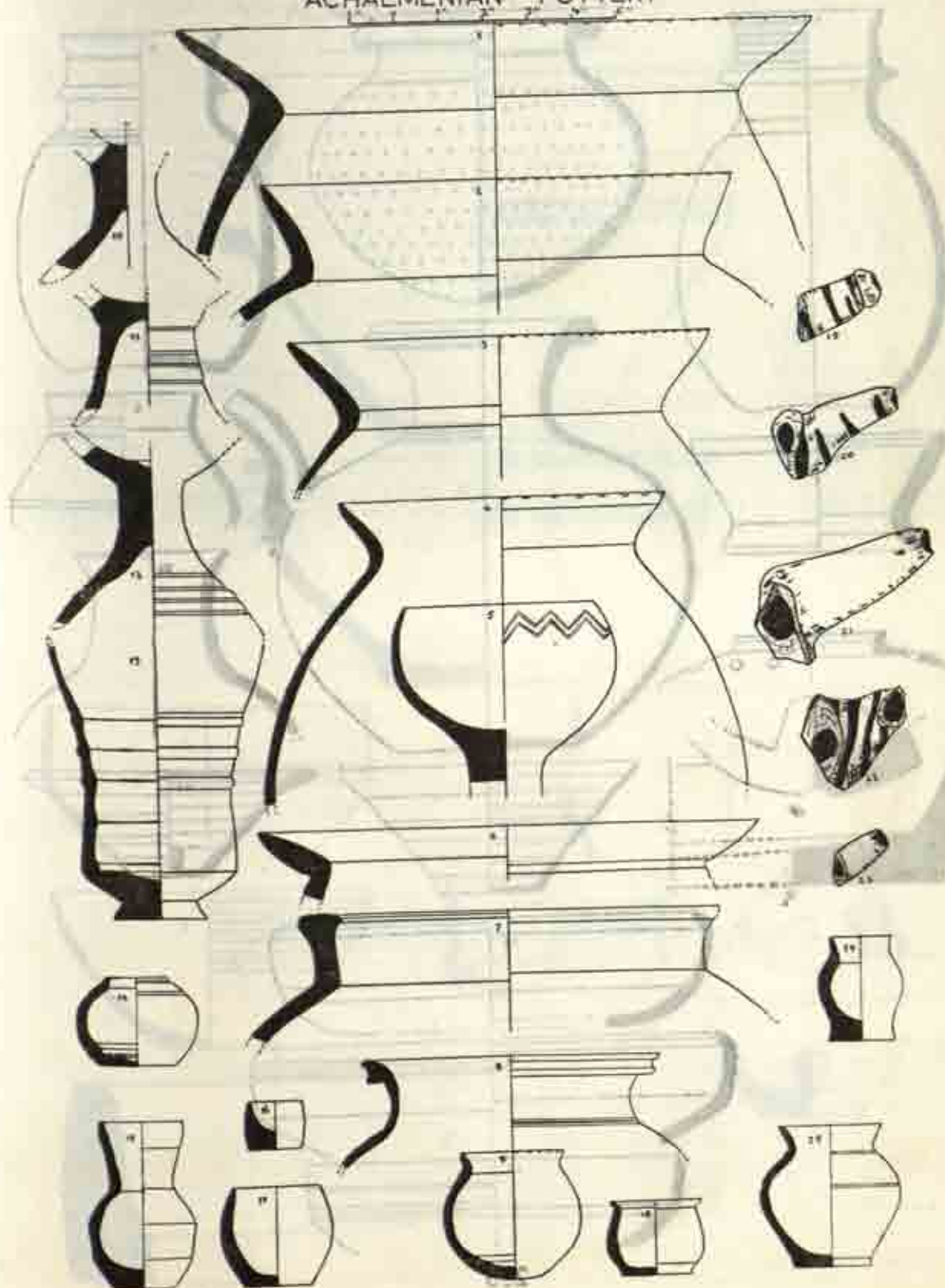
NORTHERN ZONE STORAGE ROOM POTTERY

Fig. 36



B B T 1966
ACHAEMENIAN POTTERY

Fig. 57

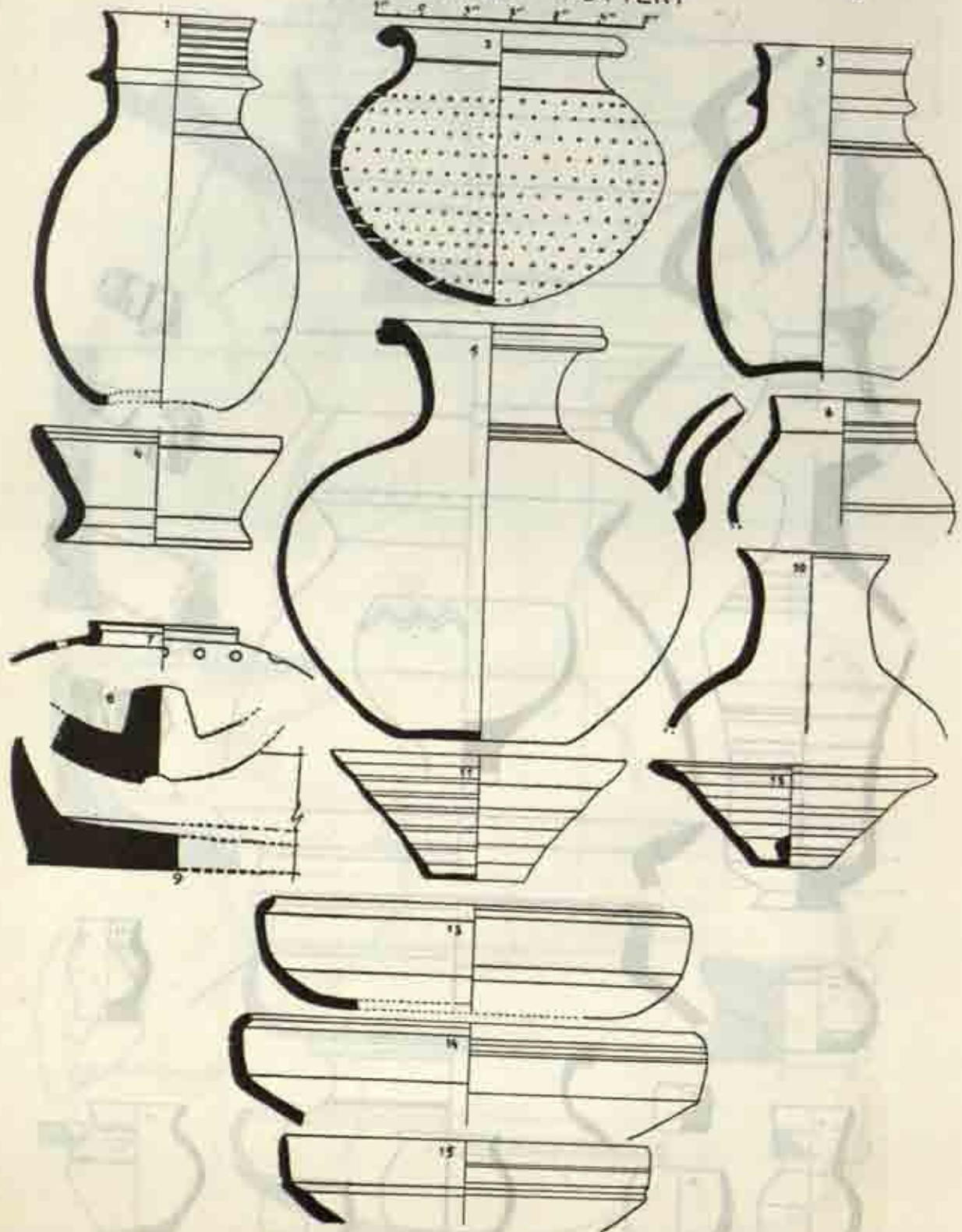


DANI

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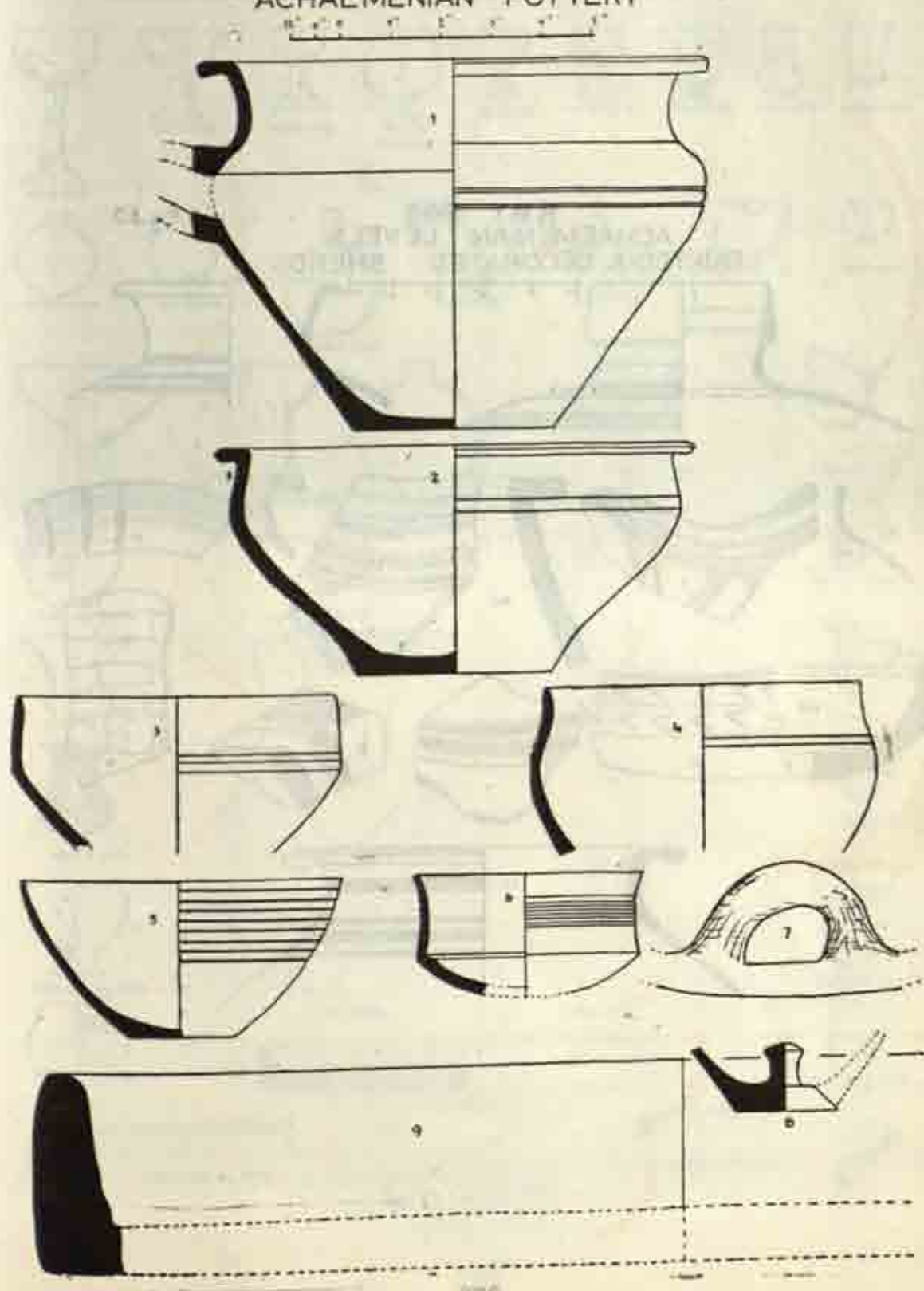
BBT 1966
ACHAEMENIAN POTTERY

Fig. 58



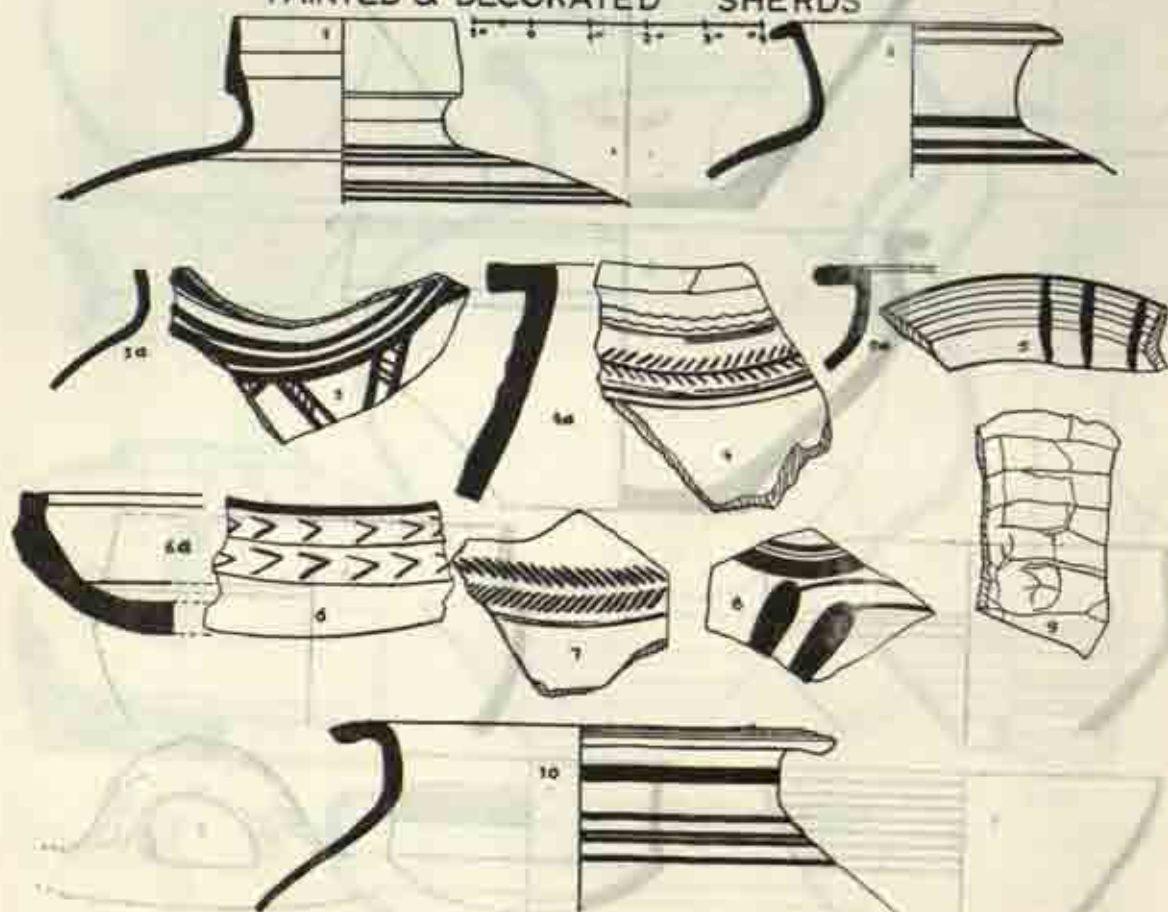
B B T 1966
ACHAEMENIAN POTTERY

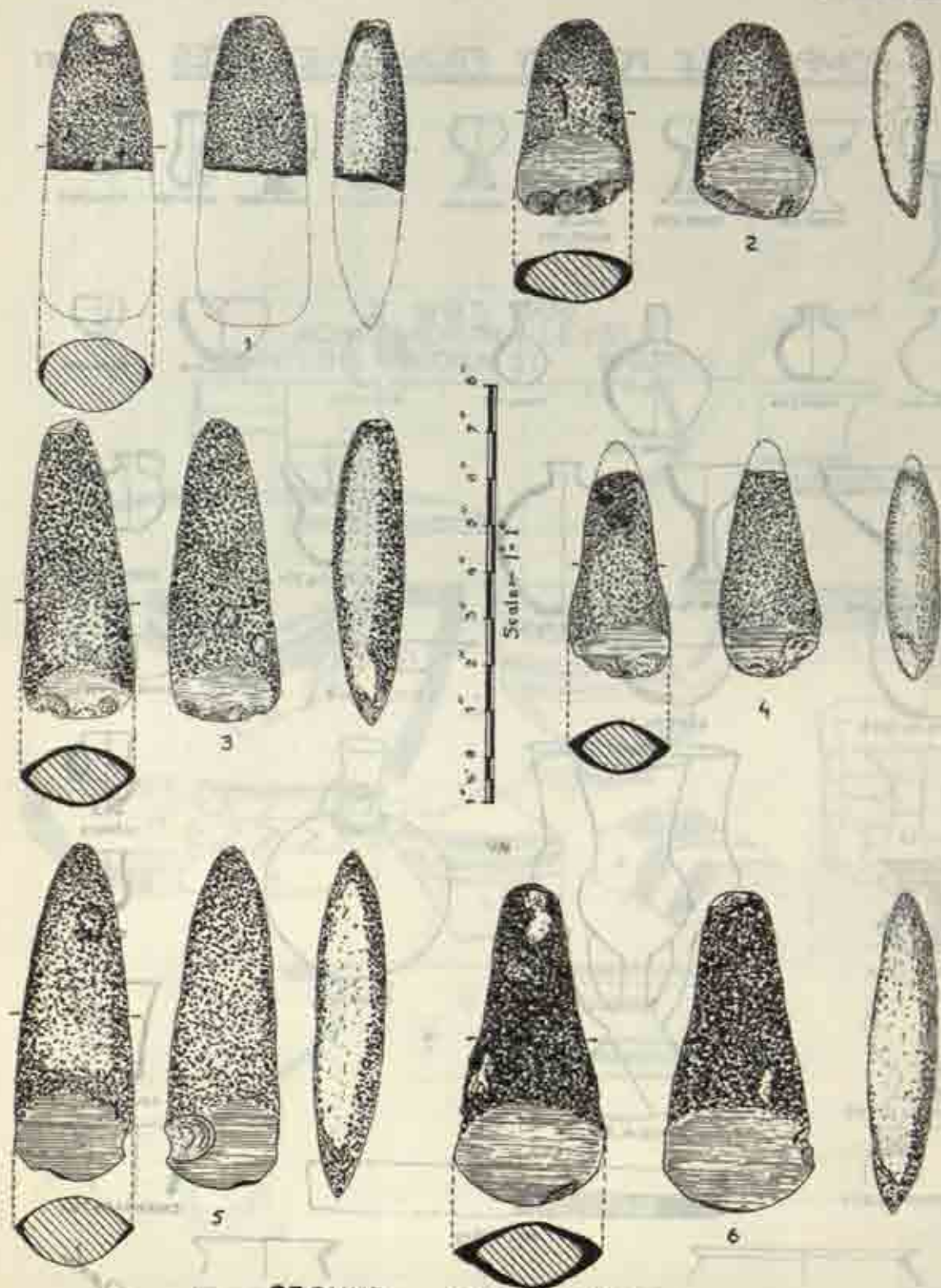
Fig. 59



BBT 1966
ACHAEMENIAN LEVELS
PAINTED & DECORATED SHERDS

Fig. 60





DRAWN BY
M. DAUD KHAN
(1950)

GROUND STONE TOOLS
1-4 FROM TIMARGARHA
5-6 FROM SWAT

Fig. 62

variety (b). It is made of well-levigated clay of fabric (b), red slipped. Trench C1 grave 1, (Fig. 49, No. 5).

VARIETY—III: *TALL DRINKING VASES*

All are in grey ware. Only three examples are illustrated here.

Sub-variety (C):— One example from trench C1 grave No. 1 is illustrated. It is a complete pot having a graceful contour with narrow waist, globular lower half, disc-base and rim gradually curving out. (Fig. 49, No. 2).

The following two are absolutely new sub-varieties:

A complete example from trench C1, grave No. 1. It has a broad carinated body with a disc-base, narrow neck and flaring rim. Incised lines are given at the shoulder and the neck (Fig. 49, No. 1).

Another example, almost complete, from trench D2, grave No. 4. It is similar to the above but it has grooved lines at the narrow neck (Fig. 49, No. 3).

VARIETY IV: *OPEN-MOUTHED DRINKING CUP WITH FLARING RIM*

All of them are in grey ware and have flat base. The bigger specimen (Fig. 49, No. 6) from trench C1 grave No. 1 has slightly chamfered corner at the base.

The smaller one (Fig. 49, No. 9) also from the same grave has a grooved line just near the base.

VARIETY—V: *MEDIUM SIZED DRINKING GOBLETS*

Two examples are found in grey ware from trench C1, grave No. 1.

The bigger one (Fig. 49, No. 7) has a globular body, small disc-base, narrow neck with cordons and almost straight rim.

The smaller one (Fig. 49, No. 8) is rather stumpy with a constricted neck and slightly flaring rim.

VARIETY—VI: *NARROW-NECKED BOTTLE*

It is a poor example of narrow necked bottle (Fig. 50, No. 1) in red ware of fabric (b), not well-made. It is roughly prepared by hand. From

trench C1, grave No. 1.

VARIETY—IX: GLOBULAR URN WITH FLARING RIM

The urn was found in trench C1, grave No. 2 but was crushed into pieces. It contained some bones. The burial urn has a globular body, narrow neck and flaring rim. It is in red ware of fabric (b). (Fig. 50, No. 3).

VARIETY—X: LONG-NECKED PITCHER OR URN

It is a small example of this variety (Fig. 50, No. 2) from trench C1, grave No. 1 in red ware of coarse fabric, made by hand. It has a simple long neck and flaring rim.

THE FOLLOWING ARE THE NEW VARIETIES.

1. A convex-sided thick-set cup with flat base and truncated top in red ware, hand-made, from trench C1, grave No. 1 (Fig. 50, No. 5).
2. A smaller example of the above, almost round with truncated top from the same grave (Fig. 50, No. 4).
3. A roughly made pottery disc with a hole in the middle in red ware with one face blackened, from trench D2, grave No. 4 (Fig. 50, No. 6).

PERIOD—III

POTTERY FROM THE DEEP PITS IN B.B.T.

NORTHERN ZONE

The following selection of pottery is made from those found in the deep pits in the northern zone below the settlement site. These pit sherds are of the same type as found in the graves as well as in the floor of the settlement here but in these pits no bones were found. Therefore we have not taken these pits as proper graves. However, the pottery suggests that they belong to the same period as the settlement in this area.

FIGURE — 50

- No. 7. Tall drinking vase, variety (iii), sub-variety (b), with a deep groove at the lower half, grey ware, D1 (1b) pit.

- No. 8. Tall drinking vase, variety (iii), sub-variety (b), with a deep groove at the lower half, grey ware, F2 (1b), pit.
- No. 9. Tall drinking vase, variety (iii), sub-variety (a), with a cordoned line at the middle where the flaring starts, red ware of fabric (b), C5 (2), pit.
- No. 10. Miniature drinking vase in grey ware, variety (iii), sub-variety (b), D1 (2), pit.
- No. 11. Shallow saucer-like lid in red ware, with a hole on one side. C0 (2), pit.

FIGURE — 51

- Nos. 1, 2 & 4. These are rims of long necked pitcher, variety (x), sub-variety (b), in polished red ware. No. 2 has incised zigzag decoration below the lip. All come from D3 (2) pit.
- No. 3— Is a small cooking pot, hand-made, coarse ware, variety (i), sub-variety (a), D2 (1b) pit.
- No. 5 Is a tall drinking vase, variety (iii), sub-variety (d), in grey ware, D3 (2) pit.
- No. 6 Is a rim of a storage jar, the rim being flaring and rippled, red ware. D1 (2) pit.
- No. 7 Is a rim of a storage jar, grey ware, having an applique rope design, the lower portion being combed. D2 (1b) pit.
- No. 8 Is a rim fragment of an open-mouthed globular jar, variety (xxix), in polished red ware. D3 (2) pit.
- No. 9 Is a fragment of a cooking pot with rippled rim having an additional hole at the rim in coarse red ware. D3 (2) pit.
- No. 10 Is a fragment of a cooking pot-like vessel in red ware of fabric (b), polished. D3 (2) pit.

POTTERY FROM THE ROOMS

The pottery from the settlement has been divided into two main groups: those coming from the rooms in the northern zone, which has revealed the settlement of the last period of the grave people above the graves of period II. It will be seen that all the types seen in the graves are not

found here. We do not get here the fine ware specimens of hour-glass and *Surahi*. We have found a few sherds of fine ware. The long-necked jar is rather rough and crude. The number of troughs and dishes is very large. The trough has not been found in the graves. We also get here many examples of storage jars showing proper rim formations. The pottery coming from the southern zone belongs to the Achaemenian period. There are many new forms, new ware as well as painted designs. The bowl is a typical form, also known from Dahan-i-Ghulaman (*East-West*, Vol. 16, Nos. 1-2, 1966, Figs. 58 and 59), a typical Achaemenian site. The most significant are the rim formations and new varieties of storage jars whose photographs are published here. In this period some of the pot forms of the grave people also survived, as will be seen in the illustrations.

The following selection of pottery is made from layer (2) in the northern zone of the rooms where the last period of the grave settlement has been found.

FIGURE — 52

- No. 1. A complete cooking pot in coarse red ware with rippled rim, trench C1.
- No. 2. Fragment of a rippled rim of a cooking pot-like vessel in coarse grey ware, trench C1.
- No. 3. Stand of a bowl-on-stand in red ware of fabric (b), trench C5.
- No. 4. Lower part of a tall drinking vase in grey ware, trench D1.
- No. 5. A miniature drinking vase in grey ware, complete, trench C1.
- No. 6. A tall drinking vase, variety (iii), sub-variety (b), in grey ware, trench D2.
- No. 7. A miniature goblet in light grey ware, trench C2.
- No. 8. Fragment of an open-mouthed cup in grey ware, trench C1.
- No. 9. Lower part of a big size tall drinking vase in grey ware, trench D3.
- No. 10. Medium-sized drinking goblet in red ware, coarse fabric trench D2.
- No. 11-18. Thick-set straight sided small crucible-like cups, all in coarse red ware, of these No. 13 has three lugs and its sides are

- slightly curving. Nos. 13, 15 and 17 from trench D1, Nos. 11, 14 and 18 from trench C1, No. 12 from trench D2 and No. 16 from trench E1. This is a new type.
- Nos. 19-21. Are narrow necked bottles in coarse red ware. No. 19 from trench D1, No. 20 from trench F2 and No. 21 from trench C1.
- No. 22. A straight-sided open-mouthed cup with flat rim, the base having chamfered corners in coarse red ware from trench D1.
- No. 23. A small bowl with thickened rim in coarse red ware from trench C0.
- No. 24. Is a knob of a lid in red ware from trench C2.
- No. 25. A holed handle of a jar in red ware from trench C1.
- No. 26. A narrow necked vase in coarse red ware, from trench C2.
- No. 27. A deep bowl with tapering sides, from trench C2.
- No. 28. A fragment of a rim in fine red ware of fabric C. It has a lug, from trench C1.
- No. 29. Lower part of a cooking pot in coarse red ware from trench D1.
- No. 30. Rim fragment in fine red ware from trench E1.
- No. 31. Rim fragment of a storage jar in coarse red ware, from trench F2.

FIGURE — 53

- No. 1. Rippled rim of a large storage jar, coarse red ware, trench D4.
- Nos. 2 & 3. Necks of long-necked pitchers, variety X. No. 2 from trench C2 is plain, sub-variety (a) and No. 3 from the same trench has grooves, sub-variety (b).
- No. 4. Fragment of a straight-sided trough with a lug. This is a new variety. It is in coarse red ware, from trench D4. This is a very common type in the settlement area both in this period as well as in period IV.
- No. 5. A complete flower-vase like pot with tapering sides and flat base, rim flat. It has incised lines on the exterior, light red ware with blackish marks because of ill firing, made in a slow wheel. This is a new type. From Trench C0.

Nos. 6, 7, 8, 9, 10 & 12: Varieties of dishes, showing different forms of rim (variety No. XIV), No. 9 has extended lip and sagger base. Nos. 6, 7 and 12 from trench D2, No. 8 from trench D4, No. 9 from C4 and No. 10 from C5. All are in red ware of fabric (b) and red washed but not polished.

No. 11. Is a rim fragment of a bowl. It has a flat top, red ware of fabric (b), from trench C5.

The following selection of pottery is made from layer (1) in this northern zone.

FIGURE — 54

Nos. 1 & 2 Are flat-based bowls, almost semi-circular in shape and having simple rims. No. 1. is in grey ware but of coarse fabric from trench D1. No. 2 is in red ware of fabric (b), from trench E1.

Nos. 3, 4 & 5 Are varieties of dishes in red ware of fabric (b). No. 3 is flat-based while Nos. 4 and 5 are sagger-based. Nos. 3 and 4 from trench F1, and No. 5 from trench F2.

No. 6. Rim fragment of a large storage jar in coarse red ware. It is similar to No. 1 Fig. 53 but the present example has no ripples at the rim.

FIGURE — 55

No. 1. Fragment of a cooking-pot like vessel with rippled rim in coarse red ware from trench C0.

No. 2. Stem of a bowl-on-stand in red ware of fabric (b) from trench F2.

No. 3. Fragment of a medium sized goblet in fine red ware of fabric (c), outer surface is slipped and burnished, from trench D1.

No. 4. Fragment of a tall drinking vase with cordoned lines in grey ware. It is of sub-type f, variety (iii). From trench C0.

No. 5. Fragment of a tall drinking vase in grey ware, variety (iii), sub-variety (d). From trench D1.

- No. 6. Lower portion of a tall drinking vase in red ware. It is of drinking glass type, sub-variety (a), variety (iii) from trench D1.
- Nos. 7, 8 & 9. Long necked *Surahis* in red ware of fabric (b). This is a coarse imitation of the fine ware type. All from trench D1.
- No. 10. Neck of a long-necked pitcher having grooved lines at the neck in red ware of fabric (b), from trench D2.
- No. 11. Holed handle of a pot in red ware of fabric (b), trench D1.
- Nos. 12 & 13. Are knobs of lids in red ware. No. 12 from trench C5 and No. 13 from trench C0.
- No. 14. Disc-base of a cooking pot-like bowl in red ware from trench E1.
- No. 15. Simple rim fragment of an open-mouthed globular jar in red ware, having incised decorations consisting of zigzag lines and straight lines, from trench D1. (Variety xxix).
- No. 16. It is a flat-topped bowl with a constriction at the neck, having black painted lines on the flat rim. This is a type very common in period IV. Here it may be a mixture from a later period. From trench C4.
- No. 17. Fragment of a flat-based bowl in red ware from trench E1. This type has been found in the graves near Kherai by the Italians.
- No. 18. Fragment of a bowl in red ware from trench D1.

The following selected vessels are taken from the stone-lined storage rooms belonging to period III.

FIGURE — 56

- No. 1. A straight-sided bowl on a disc-base, having handles on either side in coarse red ware. This is a new type.
- No. 2. Fragment of a trough in coarse red ware. This has generally a lug for holding (see Fig. 53, No. 4).
- No. 3. Fragment of a trough in coarse red ware. Similar to above.
- Nos. 4. & 5. Are varieties of dishes in red ware of fabric (b).

- No. 6. Pottery stand but solid in coarse red ware.
 No. 7. Is a holed handle of a pot in red ware.
 No. 8. & 9. Are pottery rollers with a hole in the middle.

PERIOD — IV

The following selection of pottery is made from the Achaemenian levels. The selection includes the pots surviving from the earlier period as well as those that were introduced in this period.

FIGURE — 57

- Nos. 1, 2 & 3. Are rim fragments of large storage jars, the rims having ripples, in red ware. No. 3 has a highly burnished red surface. No. 1 from trench B3 layer (2), Nos. 2 and 3 from layer (1).
 No. 4. Fragment of a cooking-pot-like vessel having rippled rim in coarse red ware, rough surface, from trench B0 (2).
 No. 5. Bowl of a bowl-on-stand in red ware having a burnished surface. Below the rim there is an incised zigzag decoration, from trench (2).
 No. 6. Rim fragment of a large storage jar in coarse grey ware. It is a new type from trench A1 (2).
 No. 7. Flat-topped rim fragment of a storage jar. It is also a new type, red ware, from trench B3 (2).
 No. 8. Rim fragment of a small jar in coarse red ware, from trench A1 (2).
 No. 9. A small flat-based pot having rippled rim in coarse red ware, ill fired, from trench B3 (2).
 Nos. 10, 11 & 12. Are a new variety of bowl-on-stand having short stems. No. 11 is in red ware having burnished surface from trench B3 (2) and Nos. 10 and 12 are in grey ware. No. 10 from trench A2 (2) and No. 12 from trench B3 (2). Probably incense burners.
 No. 13. Is a drinking glass type of tall drinking vase in grey ware from trench B0 (2).

- No. 14. Is a narrow mouthed little vase having flat base in light red ware from trench B4 (2).
- No. 15. Is a long narrow necked vase in coarse red ware from trench B0 (2).
- Nos. 16 & 17 Are thick set type of little pots in red ware from trench B3 (2).
- No. 18. Is a little squat type of pot having everted rim and flat base in coarse red ware, from trench B3 (2).
- Nos. 19-23 Are all spouts of pots. The first four are in red ware while the last is in light grey ware. Nos. 19, 20 and 22 have black paint on red surface. No. 19 is from F1 (1), No. 20 from B3 (2), No. 21 from B3 (2), No. 22 from E1 (1) and No. 23 from B3 (2).
- No. 24. Is a narrow-mouthed little pot in coarse red ware, from B3 (2).
- No. 25. Is a small vase having flaring rim, constricted neck, wide shoulder and flat thick base. It is in coarse red ware, from B3 (2), pit 1.

FIGURE — 58

In this sheet are drawn typical examples of Achaemenian (period IV) pottery. Except for Nos. 8, 10, 13, 14 and 15, the other types are entirely new. They introduce not only new forms but also new ware. They are all red ware but of a lighter fabric. Their exterior surface is not polished.

- Nos. 1 & 3 Are elongated pear-shaped vase (*mariban-like*) having a concave base, a flange above the constricted neck and gad-rooned rim. No. 1 is from B5 (2) and No. 3 from B0 (2).
- No. 2. Is a perforated jar having a beaked rim and rounded base from trench B3 (2).
- No. 4. Is a pottery stand from B3 (2).
- No. 5. Is a big spouted vase having a flat base, narrow neck and grooved out-turned rim from trench B0 (1b).

- No. 6. Is a new variety of medium-sized goblet with a simple cordoned rim but it is in thin red ware. From trench B2 (2).
- No. 7. Is a fragment of a big jar, probably having a pointed base. It has an insignificant rim and a series of holes at the shoulder. From trench B1 (2).
- No. 8. Is a saucer-like lid having a rider knob in the middle so well known from the graves. From trench A0 (2).
- No. 9. Is a trough in a coarse clay, not well fired. From trench A2 B5 (1).
- No. 10. Is a fragment of a narrow-necked *Surahi* in light red ware, not well fired, from trench B1 (2).
- No. 11. Is a new type of bowl in fine red ware of light texture, having tapering sides and flat base. This type is not found in the graves at all.
- No. 12. Is a complete lid consisting of a bowl of the type No. 11 above but this ware is rather thick. It has a rounded knob in the middle. This type is not found in the graves but is known from Taxila. From room No. 6 pit 4.
- Nos. 13, 14 & 15 Are varieties of dishes in the usual red ware. No. 13 from room No. 6 pit 4. No. 14 from B3 (2) and No. 15 from A5 (2).

FIGURE — 59

- No. 1. Spouted vase of a deep bowl type, having constricted neck, flat rim and narrow base ending in a flat bottom. Except for the spout, this is typical in the Achaemenian sites. It is thick red ware of coarse fabric. From trench B2 (2).
- No. 2. Is a variation of the above deep bowl, but this has no spout and the neck does not have marked constriction. It is in a better red ware. From trench B3 (2) pit 1.
- Nos. 3, 4, 5 & 6 Are rather varieties of bowls in fine ware. No. 3 is in grey ware from trench A5 (2). No. 4 is in red ware from room No. 6 pit 4. No. 5 is in red ware from A2 (2). No. 6 is in grey ware from B3 (2).

- No. 7. Is a holed handle in red ware from trench B3 (1).
 No. 8. Is a lid having rounded knob in the centre. From B3 (2).
 No. 9. Is a fragment of trough in coarse ware, not well fired. From (2).

FIGURE — 60

A few selected examples of painted and decorated sherds are illustrated here. Earlier in Pl. 57 a few painted spouts have been illustrated. All these sherds, except No. 10, have deep red slip and are painted black. The painting is generally thick line, except in No. 3 where we have ladder design and No. 8 where we see long wing-like blobs with a connecting shoot. Again some of the sherds are a new type of fine red ware but heavy in weight. No. 10 has an alternate red and buff colour in between black painted lines. The other designs are incised lines, or applique decoration and a new type of sherd in light red ware having irregular design in raised lines.

- No. 1. Is a fragment of a jar, probably having pointed bottom with a straight rim and black painted lines on the shoulder. From room No. 6 pit 4.
 No. 2. Is a fragment of a pitcher with a beaked rim having black painted lines on the shoulder. From room No. 6 pit 1.
 No. 3. Is a fragment of a pitcher having ladder painted design below thick black lines. From B3 (2).
 No. 4. Is a fragment of a jar having flat-topped rim and incised decoration. From trench A5 (2).
 No. 5. Is a rim fragment having grooves on the flat topped rim and painted lines. From B3 (1).
 No. 6. Is a fragment of a dish having incised decoration at the exterior. From A1 (2).
 No. 7. Is a fragment having applique decoration imitating rope design. From A2 (2).
 No. 8. Is a fragment having black painted design. From room No. 6 pit 1.
 No. 9. Is a fragment with irregular lines raised above the surface. From B3 (2). This is typical in this period and is widely known in Waziristan as well as in Kurram Valley, as is attested by surface exploration.

- No. 10. Is a rim fragment of a jar having grooved flat-topped rim and variegated painted design in multi-colour at the neck and shoulder. The outer body is buff and is polished. From B3 (2).

PLATE XLVII, a

Painted Jar.— Round bottomed jar having broad shoulder, the body gradually narrowing at the lower end, neck narrow and flat topped rim. A series of black painted horizontal lines on red slipped ware from the neck to the middle of the body.

PLATE XLVII, b

Achaemenian Jar.— A medium-sized storage jar in red ware with its lower half rough. It has a triangular shaped rim and double incised lines below the neck.

PLATE XLVII, c

Pointed bottom Storage Jar.— A large storage jar in red ware, having angular rim and pointed bottom. It has six rows of applied horizontal bands from the neck downward. This type of jar has also been found at Udergram in Swat by the Italians.

SECTION—3

MINOR ANTIQUITIES

By ABDUR RAHMAN

The excavations conducted at the settlement site of Balambat has brought to light one hundred and twenty eight specimens of minor antiquities consisting of beads (both of terracotta and stone), whorls, pins, weights, sling balls, terracotta pedestals, bangles of glass and iron, terracotta animal and human figurines, spinning weights, various iron objects, worked stones, a few ivory and shell objects, ground stone tools and two non-descript pieces of lead. As mentioned above, stratigraphically three distinct periods of successive occupation have been identified at this site. It may be mere happy co-incident that different types of objects and also their materials tend to concentrate in one period or the other with the consequent strong associative relationship. Thus a certain type of terracotta bead generally labelled

as 'pear shaped' is exclusively, as evidenced at this site, associated with the last occupation period (Period IV). Similar is the case with glass and iron objects which, only with a meagre scatter in Period III, tend to concentrate in the last period. Terracotta animal and human figurines, on the contrary, have different story to tell. With the exception of a solitary example of a much damaged specimen of (?) bull which, having striking resemblance with those found in Period III, might be written off as a probable stray from an earlier deposit, all the terracotta human and animal figurines are conspicuous by their absence from the last occupation period. On the other hand they are abundant in the earlier stratigraphical horizon (Period III). Let it be pointed out that period II has yielded no antiquity other than pottery discs and a solitary terracotta bead.

The antiquities are grouped, according to their materials, under the following heads. Those made of:

- 1) Iron.
- 2) Terracotta.
- 3) Ivory and Shell.
- 4) Glass.
- 5) Stone.

1) IRON OBJECTS

It is already indicated that the two rows of trenches marked A0 — A5 and B0 — B5 coincide with the last building phase (BBT IV). It is from these trenches that the major number of iron objects is obtained. The variety of these antiquities consisting of loop headed pins, nails, sockets obviously for wooden shafts, a sheep shearer, carpenter's tool (chisel), a gardening implement, an arrow head and a few other indeterminate fragments exhibit a relatively rich culture abundantly familiar with the knowledge of iron. Whether this iron was obtained locally which involves the consequent knowledge of smelting process remains anybody's guess. Anyway, the variety of antiquities and their carefully finished shapes, only consistent with a mature knowledge of working in this material, emphasize a culture resplendent with iron objects.

BBT. Period III which coincides with the rows of trenches marked C0 — C5, D0 — D5 and so on produced comparatively fewer iron objects, inspite of the fact that it covered relatively extensive area. Only four specimens were found: one blade of a knife and three other fragments probably belonging to some nails. Whatever be the cultural penury of the occupants

of this phase we are here no more concerned. But the few iron fragments discovered here are highly significant in that they furnish us with the information about the earliest use of iron in this part of the country. Two copper pins were also found here in this level.

BBT, Period II, represented by a few graves did not reveal any metal objects. In the absence of any break in the occupation of this site, it is difficult to explain why copper objects are not found there, in spite of the fact that this metal was used by contemporary people living on the other side of the river (TMG II). However, the limited area under excavation and the meagre number of graves exposed here abundantly justify the complete absence of copper from this period. Selected illustrations are given below.

PLATE — LIIa

1. (Reg. No. 34) *Loop headed pin*²: made of round sectioned wire twisted at the flat end to form a ring or as incipient spiral; length 2.7". Trench B1 Str. (2). Period IV.
2. (Reg. No. 199) *Loop headed pin*: made of round sectioned wire twisted at the flat end to form a ring or an incipient spiral; length 2.5". Trench A4 Str. (2). Period IV.
3. (Reg. No. 101) *Loop headed pin*: same as above, only slightly longer; length 3". Trench B 2 Str. (2). Period IV.
4. (Reg. No. 100). *Small nail*: with a square sectioned stem and a rectangular flat top; length 8". Trench B 2 Str. (2). Period IV.
5. (Reg. No. 207). *Arrow head*³: three flanged with a considerable length of solid shank intervening between the head and tang; length 1.9". (this is the solitary example found in our excavation. It comes from the top soil of C5 and hence attributed to the last occupation period (Period IV). It can also be a subsequent intrusion).
6. (Reg. No. 224). *Tip of a square sectioned walking staff* with a socket at one end which tapers towards a point at the other; length 1.8". Trench B 5 Str. (1). Period IV.
7. (Reg. No. 37). *Finger ring*: made of rounded wire. Trench C2 Str. (2). Period III.

PLATE — LIIf

1. (Reg. No. 209). A long iron object, hollow from inside. It broadens like a socket at one end and is blunt at the other. Probably used for blowing fire; length 7". Trench A4 Str. (2). Period II
2. (Reg. No. 160). Carpenter's tool (chisel)⁴; with a tang and socket at one end (which shows traces of decayed wood) and a flat working edge at the other. It is 5" sq. in the middle; length 6.5". Trench B1 Str. (1). Period IV.
3. (Reg. No. 21). *Gardening tool*; made of a rectangular sectioned iron bar twisted below the socketed end. It is pointed at the tip. The blunt edges of its blade suggest some function other than cutting. It was probably used for digging. Width of blade .8". Trench A Str. (1) Period IV.
4. (Reg. No. 142). *Sheep Shearer*²; made of a flat iron bar which was hammered into two blades — one on each end, and then twisted in the middle with the cutting edge of blades facing each other like those of scissors; length 6.5". Trench A2/B2 BK Str. (1). Period IV.
5. (Reg. No. 9). *Knife blade*: with a rectangular sectioned broken handle made in one with the straight backed blade. Sharp at one edge; length 4", breadth of blade .9". Trench A1 Str. (1) Period IV.

2) TERRACOTTA OBJECTS

Terracotta was the material employed for the manufacture of a major portion of antiquities. They are classified into the following categories: (a) Animal figurines, (b) Human figurines, (c) Weights and sling balls, (d) Beads and Whorls and (e) Miscellaneous.

(a) Animal Figurines

The relationship of animal figurines with BBT. Period III. has already been hinted above. Out of the total number of 8 only one comes from the last building phase. All of them are hand made (not moulded) with clumsy

anatomical features and crudely fashioned beak-like snouts. The applique technique is noticed in the applied tails on a few specimens. Among the best examples is a ram's head originally designed as a catch for some globular pot. Normally the decoration consists of pin holes, but in the case of the ram's head mentioned above it consists of black painted lines upon red background. Selected examples are illustrated below:

PLATE — LVIIa

1. (Reg. No.). *Ram's head*: with closely twisted horns and beak-like snout; eyes are indicated by incised circles. It has a fine coating of red slip. It is further decorated on the horns and snout with a black painted line which travels along the curves of both horns and then drops down on the snout passing through the middle of the eyes. Trench B2 Str. (1) Period III.
2. (Reg. No. 63). *Car*: hand made with pinched mouth and tail, which are slightly damaged. Plain. Trench F1 Str. (1). Period III.
3. (Reg. No. 124). *Pair of horns*: the main body of the animal is missing and the pair of horns with broad curves appears to have been applied after making separately. They are coated with a fine red slip: plain. Trench D1 Str. (1). Period III.
4. (Reg. No. 135). *Humped bull*: hand made with applied hump and tail; front legs are almost joined and separated only by a deep incision near the lowest ends. It is light red in colour and plain. Trench D1 Str. (1). Period III.

PLATE — LVa

- 4-a. (Reg. No. 52). Front legs of an animal figurine, Trench D1 Str. (1) Period III.

(b) *Human figurines*

All the four specimens belong to BBT. III. The technique of their manufacture is the same as already referred to in the case of animal figures. Their close resemblance to their analogue from TMG. Gr. 183 is most striking. The typical features being that they are (i) hand made (not moulded); (ii) the bodily features are very sketchily drawn, (iii) the face is

applied or indicated by a single pinch, (iv) they have depression at the back of head, (v) eyes are indicated by dotted circles, (vi) decoration consists of dotted lines. Two of them are coated with red slip. Illustrations.

PLATE — LIIIa

5. (Reg. No. 97). Torso of a human figurine with pin hole decoration below the neck indicating necklace; coated with a thin layer of red slip. Trench DO. Str. (2). Period III. Also Pl. LIIIc.

6. (Reg. No. 57). Upper portion of a human figurine; broken below the the shoulders; otherwise same as above Trench CO Str. (1). Period III.

PLATE — LIIIb

7. (Reg. No. 44). Roughly made human figurine with pinched face and arms; legs broken. It has flat sides and no decoration. Grey colour. Trench DO. Str. (1). Period III.

PLATE — LIVa

8. (Reg. No. 28). A stylised miniature human figurine; arms, head and legs indicated by deep incisions. Coated with red slip. Trench C2 Str. (1). pit, Period III.
(c) *Weights* and Sling balls*

Terracotta weights are of two types: (i) conical, represented by three specimens and (ii) pulley shaped, only one example. All the specimens are crudely made and ill-fired. Sling balls (total 4) however are well fired (baked red) and almost uniform. Illustrations:

PLATE — LIVa

1. (Reg. No. 13). *Weight*: conical in shape with a flat base; crudely fashioned, red colour. Trench B2 Str. (1). Period IV.
2. (Reg. No. 14). Same as above Trench B2 Str. (1). Period IV.
3. (Reg. No. 6). *Weight*: pulley shaped; concave at the waist and circular in section. Trench BO. Str. (1). Period IV.

47. (Reg. Nos. 1, 15, 184, 191). Spherical sling balls, red colour, Trenches A2 Str. (1), CO (1), D7 (1), D2 (1).

(d) *Beads*?

Of the 42 beads obtained from the excavation only three are made of stone and the remaining 39 are of baked clay, both in red and grey colour — the last being the most favoured. Typologically these are classified into (i) barrel-bicone-circular, (ii) pear shaped and (iii) composite beads.

The most common shape in terracotta as well as stone is the barrel-bicone-circular² which accounts for 28 specimens. That this type has strong associative tendency towards Period III, has already been hinted above; and is further emphasized by the fact that out of 28 only two specimens were found associated with Periods II and IV — each represented by one bead. Thus one can postulate an unbroken continuity of this type throughout the occupation periods at this site. The typical features of this type should be enumerated for the sake of a better distinction between the two types. These are: (1) biconical (2) hand made, (3) provided with wide axial hole, (4) decorated with groups of striated lines around the cones (5) having traces of white filling in the striations (6) relatively bulky in size.

Equally interesting is the association of pear-shaped (eleven) beads with the fourth period. None was found in the earlier levels. The typical features are as follows (1) all of them are wheel turned, (2) have narrow axial hole (3) they are coated with a thin layer of either light red or grey slip (4) have truncated or worn off apex (5) have incised groove, around the axial hole, at the bottom (6) they are relatively better finished.

The difference in shape and size between the two types is fundamental and it would be no exaggeration to say that they indicate different functions. In view of the big size of the biconical beads it has often been suggested that they could have been used as net sinkers, but it can be argued that in case of the present examples the white filling in the striation is, indeed, incompatible with any such function. Even the stone bead shows traces of white filling, in order perhaps to enhance the decorative effect.

Our type iii — composite or conjoined bead — is made up of two

parts one of stone and the other of shell, which appear to have been made separately and then joined together. These are only two in number, related to period IV¹. Illustrations.

PLATE — LIVb

1. (Reg. No. 11). *Terracotta*: barrel-bicone-circular with wide axial hole, having groups of striated lines around the cones showing traces of white filling. Trench B2, Str. (1). Period IV.
2. (Reg. No. 107). *Terracotta*: pear-shaped with truncated apex and narrow axial hole and a groove at the base. It is coated with grey slip. Trench B2, Str. (1). Period IV.
3. (Reg. No. 202). *Terracotta*: pear-shaped with a fine coating of grey slip and a narrow axial hole and groove at the base. Apex is worn off. Trench A1, Str. (1). Period IV.
4. (Reg. No. 203). *Terracotta*: Same as above, but more regular in shape and slightly worn off at the apex. Trench A4, Str. (1). Period IV.
5. (Reg. No. 203a). *Terracotta*: Same as above, but relatively heavy at the bottom. Without groove. Coated with grey slip and worn off apex. Trench A4, Str. (1). Period IV.
6. (Reg. No. 206). *Terracotta*: pear shaped without bottom groove, coated with grey slip. It has scratches, obviously, made by some pointed object. Trench A1 Str. (1). Period IV.
7. (Reg. No. 81) *Terracotta*: Same as no. 6 above. Trench A2, Str. (1). Period IV.
8. (Reg. No. 217). *Stone*: Composite or conjoined head, only one half with a central groove. Trench B0. Str. (1). Period IV.

PLATE — LVa

1. (Reg. No. 198). *Terracotta*: barrel-bicone-circular, with wide axial hole, having groups of oblique striations with traces of white filling. Trench D1, Str. (1). Period III.

2. (Reg. No. 195). *Stone*: Same as above with oblique striations around one cone and double zigzags around the other, showing traces of white filling. The tops of cones are worn off. Trench D3, Str. (1). Period III.
3. (Reg. No. 122). *Terracotta*: barrel-bicone-circular with wide axial hole and finely finished surface. Trench D1, Str. (1). Period III.
4. Reg. (No. 111). *Terracotta*: Same as above, but coated with red slip. Trench D1, Str. (1). Period III.

WHORL BEADS

5. (Reg. No. 226). *Terracotta*: Short-cylinder-circular with a wide axial hole, rough surface. Trench C1, Str. (1). Period III.
- 6-7. (Reg. No. 109, 125). *Terracotta*: Same as above, with gritty surface. Trench D1, Str. (1). D1. (1). Period III.

(e) *Miscellaneous* (Not illustrated)

1. (Reg. No. 5). *Pottery lamp*: consisting of a plain simple bowl with a disc and almost straight rims pinched on one side for wick. Wheel turned. Trench B0, Str. (1). Five other similar specimens were obtained together from trench B5, Str. (1).
2. (Reg. No. 93). *Pottery lamp on stand*: Same as above, except that it is provided with a grooved stand instead of disc base. Trench B2, Str. (1). Not illustrated.
3. (Reg. No. 64). *Terracotta pulley shaped object* with cavity on two sides. Probably used as a toy. Trench F1, Str. (1). Period III.
4. (Reg. No. 230). *Terracotta miniature cot or table* having four legs — one on each corner. The rectangular upper surface measures 7" length and 4.5" in width. It is ill fired, made of clay mixed with husk. Trench B1, Str. (1). Period IV.
5. (Reg. No. 4). *Terracotta (?) spinning weight*: rectangular at the bot-

tom, pyramidal in shape, tapering upwards to a point. It has rectangular hollows on all the sides. Well fired, height 3.5" (It comes from a pit in layer 1— of trench BO and may be a subsequent stray).

3) IVORY AND SHELL OBJECTS

Very few objects of ivory and shell were found in the excavation. Thus ivory is represented by four and shell by two antiquities. These are illustrated below:

PLATE — LVb

1. (Reg. No. 121). *Ivory awl*: elliptical in section in the middle, it tapers towards a point, damaged. Trench D3, Str. (1), pit. Period III.
2. (Reg. No. 123). *Ivory antimony rod*: round in section, flat at one end and broken at the other. Tr. D1, Str. (1). Period III.
3. (Reg. No. 123a). *Ivory antimony rod*: round sectioned tip which has been smoothly rounded off at the end. Tr. D1, Str. (1). Period III.
4. (Reg. No. 8). *Ivory antimony rod*: round in section, slightly swollen in the middle and tapering towards ends which have been smoothly rounded off. Tr. C1, Str. (1). Period III.
5. (Reg. No. 16). *Shell*: Conve-convex circular disk with a central perforation. Trench C1, Str. (1). Period III.
6. (Reg. No. 1967). *Shell*: fragment of a bangle. Tr. D5, Str. (1). Period III.

4) GLASS OBJECTS

Glass was pre-eminently used for making bangles. Of the eleven fragments obtained in the excavation five come from the top stratum of period III, and the remaining six belong to Period IV.

It is noteworthy that for bangles favourite colour from first to last was blue and of this there were several shades from pale to dark. Except one or two specimens, all of them are coated with a thick layer of vitreous

paste which gives it a yellowish lustre. Other colours are green and black—each represented by one specimen. Black glass looks very much like obsidian.

As to the shapes the most common type is circular, two inches diameter being the average. It is flat on the inside and either convex or relieved by a line on the outside. In one specimen of yellowish colour the outer surface is indented or relieved by raised dots.

The regular use of glass for making bangles in this part of the country is still shrouded in mystery. The Indus Valley people appear to be abundantly familiar with various vitreous substances which they employed for the decoration of pottery. These vitreous substances though closely related to glass little help us in pinpointing the discovery of true glass in that period. At Hastinapur¹⁰ (Period II) a few fragments of glass bangles were brought to light and further south in Andhra culture at Brahmagiri¹¹ it looms large in still later context. However when we refer to the earliest stratum at Bhir Mound¹² we notice the first appearance of true glass. There is a wide gap stretching over more than a millennium between the eclipse of the Indus Valley cities and deposition of the first stratum of Bhir Mound with absolutely no substantial evidence about the use of true glass in between. Before the excavation at Balambhat we could only hope that glass might have been discovered or, at least, introduced at any time during this interval. This confident hope is justified by the evidence brought to light at this site. Thus the fragments of glass found in Period III are highly suggestive of an early date, certainly earlier than that of Bhir Mound. Selected examples are illustrated below:

PLATE — LV1a

1. (Reg. No. 2). Fragment of glass with yellowish coating of vitreous substance upon blue core; flat on the inside and convex on the outside. Trench B2, Str. (1). Period IV.
2. (Reg. No. 213). Fragment of glass bangle with yellowish coating of vitreous substance upon blue core. It is almost elliptical in section. Trench A2, Str. (1). Period IV.
3. (Reg. No. 20). Same as above but outside is relieved by a line. Trench B0, Str. (1). Period IV.

4. (Reg. No. 23). Fragment of glass bangle, green in colour, with smooth inner face and irregular outside. Tr. C1, Str. (1). Period III.
5. (Reg. No. 99). Fragment of a glass bangle with greenish tinge and elliptical in section. Trench B2, Str. (1). Period III.
6. (Reg. No. 45). Fragment of glass bangle smooth inside and indented outside¹³. Tr. E2, Str. (1). Period III.
7. (Reg. No. 158). Fragment of blue glass bangle, almost round in section; it is narrower in proportion to its thickness. Trench B2, Str. (1). Period III.
8. (Reg. No. 218). Fragment of an iron bangle made of a wire twisted in the manner of a cable. Tr. B5, Str. (1). Period IV.
9. (Reg. No. 25). Same as above. Trench A2, Str. (1). Period IV.

5) STONE OBJECTS

The stone objects, 22 altogether, consist of: ring stones-14, pounder-2, lamp-1, axes-4. All of them except one lamp and two pounders, are made of granite locally available in ample quantities. Limestone is the material for pounders and scist for the lamp.

The ring stones vary in size averaging from 2" to 7" in diameter and from 1" to 2.6" in thickness. They are, without exception, circular in form. No. 1 (Pl. LVI-b) is slightly irregular but evidently it is due to subsequent wear and tear. They fall under two categories (1) perforated and (2) unfinished.

Those representing category (1) (Pl. LVIa 1-2) are fairly symmetrical and finely ground. The central perforation pierced across, was made from both sides with the resultant cup-shaped cavity at both faces. These are very few in number. Those representing category (2) (Pl. LVI Nos. 3-4) appear to be unfinished as they show primary flaking all round the circumference, whereas their bottom and upper surface is smoothly rubbed off. They, too, have a small cup shaped cavity not pierced across, at both faces. It is interesting to note that all the better examples among them come from Period III.

The pounders made of rounded river pebbles belong to Period IV. One is illustrated in Pl. LVII-a, No. 5.

More interesting among the stone objects is a schist lamp consisting of a circular deep bowl and flat rim which is nearly rectangular in form. Three of its angles are slightly damaged and the fourth accommodates a deeply carved channel for wick. The flat rims are decorated with incised circles. It is different from the leaf shaped lamps of the historic period and belongs to period IV. It comes from Trench B5, Str. (1), pit; may be a subsequent intrusion.

Of special interest among these antiquities is a flat circular shallow basin with straight sides and two lugs—one on each side, evidently the whole carved out of a granite slab. It is 11" in diameter and 3" in thickness from bottom to rim. Its bottom is carved below with deeply incised lines crossing each other at right angles. It might have been used for grinding medicines. (Reg. No. 231, Trench A1, Str. (1), Period IV).

No less important is the occurrence at Balambat of pointed-butt ground stone axes of the neolithic type commonly known in south India. Of the four (total) two were found in actual excavation and two on the surface. All of them may be strays from earlier deposits. These are illustrated below. These are made of granite. The process of their fabrication involved three stages: (1) primary flanking of the stone to give it an approximately required shape (2) removal of irregularities upon the surface by 'pecking'; (3) the final shape was given by grinding the tool, particularly, its working edge on both sides. These are illustrated below:

PLATE — LVIIa

1. (Reg. No. 76). Pointed-butt polished stone axe with ovoid section. The working edge is smoothly polished on both sides. Found in the top soil of Trench F1 Fig. 62 No. 3.
2. (Reg. No. 232). Surface Find. Similar as above, but broken in the middle. Fig. 62 No. 1.
3. (Reg. No. 154). Similar as above, but smaller in size. Tr. C1, Str. (1), pit. Found in association with antiquities belonging to Period III. Fig. 62 No. 4.
4. (Reg. No. 233). Surface find. Similar, but slightly flattish in the centre. The working edge is broken. Fig. 62. No. 2.

- 1^a There are two fragments of iron bangles. These are discussed along with other bangles of glass.
- 2^a For discussion see TMG — small finds (part IV) and Pl. No. XLVIII b, 14.
- 3^a Similar arrow heads occur at Bhil Mound. See *Taxila* Vol. II, P. 547 by Marshall, J.
- 4^a Compare, Petrie, *F. Tools and Weapons* Pl. XXI, No. 117 & 115.
- 5^a This type of shears enjoyed wide, special and chronological distribution. See Petrie, *F. Tools and Weapons* Pls. LVIII and LIX. But his remark as to their Italian origin may need amendment if the proposed chronology of this site is to be accepted.
- 6^a In the absence of large number of specimens it would be hardly feasible to work out their gradation.
- 7^a Apart from terracotta beads there are three examples made of stone. As they do not exhibit any unusual shape, therefore, for the sake of convenience they are discussed along with their terracotta analogues.
- 8^a Biconical beads go back to the sixth century B.C. at Bala Hissar see Wheeler, Sir Mortimer, *Charsada* P. 116, Type I. Noteworthy are the traces of white filling. In Swat white filling is noticed on vases from Katchai I (see *East and West* Vol. 14, Nos. 1-2, 1963; P. 25. At Charsada it is noticed on biconical beads (see Wheeler) Pl. XXXVII, 7, 8; P. 117).
- 9^a For similar Orlov beads see TMG, Pl. XLIX b; see also *East & West*, Vol. 14-Nos. 1-2, 1963, P. 23 (here these are described as "disc-shaped objects with central groove, whose use is still unknown").
- 10^a *Ancient India* Nos. 10 and 11 (1954 and 1955) "Excavation at Hastinapur and other explorations", P. 13.
- 11^a *Ancient India* No. 4, 1948: "Brahmagiri and Chandravalli: 1947: Megalithic and other cultures in Mysore State", P. 263.
- 12^a Marshall, Sir John, *Taxila*, Vol. II, P. 581.
- 13^a It was found in top soil and may be a subsequent stray.



SECTION — 4

NOTE ON GROUND STONE TOOLS

By Prof. AHMAD HASAN DANI

Long ago Sir John Marshall found ground stone tools in his excavation of the historic site at Taxila.¹ As these tools were very late survivals in the archaeological context, Sir John took them to be ceremonial objects. No further discovery was made thereafter. De Terra² used the term "proto-neolith" to describe a late blade and flake complex found by him in the Pothwar region. Similarly Paterson³ put forward the term "neolith" for a type of Kota industry. But it was left to Fairervis⁴ to assert in clear term the occurrence of the neolithic culture in his lowest levels at Kile Gul Muhammad. But in all these later works the ground stone tools are absent. The evidence brought forth by Fairervis clearly shows a nomadic people with a crude blade and core industry gradually settling down to a village life probably under the influence of distant cultural relationship. In our review⁵ of the excavated materials from Baluchistan, Afghanistan and Sind, we have clarified the position and drawn attention to the particular type of the so-called "neolithic" culture in that region.

This picture of the neolithic complex in the Indus region was first changed by the discovery of the true neolithic culture at Burzahom⁶ in Kashmir. Unfortunately the report of this excavation has not yet been published and therefore it is difficult to define the culture in clear terms.

In view of this hazy picture in the Indus region Sir Mortimer Wheeler⁷ and the late Col. D.H. Gordon⁸ have attempted to derive the Indian neolithic culture from the east. In our thesis⁹ we have distinguished two different traits in the Indian neolithic culture, one of which definitely came from the east but the second one was shown by us to be fundamentally different from the East Asiatic neolithic complex. Later Dr. Allchin¹⁰ tried to connect this second type with the materials from Western Asia but he found no comparable material in the intermediate region. It is in this context that we shall now have to consider the new materials now brought forth from Timargarha. Just a few days back one site at Sarai Kala¹¹ near Taxila has been discovered, where similar ground stone tools have been found along with the materials of the Kot Diji culture. Two such tools (described below) have also been found in Swat.

Unfortunately we have not been able to excavate a neolithic site but we have made a field study of the different hill pockets in the Frontier region, where such tools have been found. In these areas we still find cultivation limited to terraced fields on the hill slopes depending mainly on seasonal rainfall. Several measures for catchment of water are taken and it is channelled from the top field to the lowermost ones. As the soil on the hill slopes is not very deep, furrowing to a greater depth is not possible. Removal of the weeds and slight loosening of the soil are the only means that could help better cultivation. Both these processes are possible by the type of tools that we find in the neolithic period. It is therefore believed that the environment in this region was suitable for the adoption of the neolithic culture. Two main tool types are known in our region — ring-stones or mace-heads and pointed butt stone axes. So far the latter type was hardly known in this region. The distribution of this tool type here will go a long way in throwing light on the neolithic culture of South and Central India. So far the Southern neolithic was thought to have some connection with the complex at Baluchistan¹² (Kile Gul Muhammad) but the two are different in character. It is for this reason that we have earlier (in part I section 7) suggested a connection between our neolithic pattern and the Veddid people. If this connection is proved, it is

possible to visualise their migration into Central India and possible spread of this neolithic culture in Central and South India.

The ring-stones and the pointed butt stone axes from Timargarha have been described by Mr. Abdul Rahman above. We describe the two tools from Swat (Fig. 62, Nos. 5 and 6). Both of them have come from Swat, exact find-spot unknown, and are now preserved in the Central Museum, Lahore. They are made of local granite stone — a material which confirms the locality of their origin. No. 5 is of a greenish texture but no. 6, which has a wider edge, is rather darkish. Both of them are pointed butt stone axes so well known from South India. In West Pakistan these are the earliest discovered.

Both of them are longish tools carefully worked by the technique of pecking. They do not show any scar of flaking. If at all flaking was resorted to for obtaining the shape the scars have been totally removed. But it is more likely that the river-rolled long granite pebbles were picked up and by means of pecking the desired shape was obtained. Grinding is observable only towards the cutting edge in a curved fashion so that along with the cutting edge the ground surface makes a rough ellipse. The cutting edge is medial, obtained by grinding both the faces in the same fashion. The cross section in both cases is oval.

No. 6 is rather flattish and has a wider butt end. The unground portion is rough showing natural scars and roughness. At the tip there is a slight break. The unground portion shows reddish streaks but these streaks do not spread over the ground surface, suggesting that the stone got these streaks in the natural condition when it was in association with the red earth so widely spread in the slopes of hills in Swat away from the modern dark alluvium of the Swat river. This confirms that the stone was picked up from the red earth and then turned into tool. At the same time it is understandable that the tool maker was then living on such hill slopes where he must have been practising terrace cultivation.

No. 5 is rather asymmetrical, the upper surface has a rounder curve than the lower one. Its butt is pointed and there is just one natural scar-mark. The reddish streaks are again spread over the unground portion. There are two recent breaks, one at the cutting edge and the other at one side in the ground portion. The taper from the butt to the cutting edge is gradual and uniform.

NOTES

1. Sir John Marshall, *Taxila*, Vol. II, PP. 484-85.
2. De Terra and Paterson, *Studies on the Ice Age in India and Associated Human Cultures*, 1939.
3. Paterson and Drummond, *Soan the Palaeolithic of Pakistan*, P. 36.
4. Faitservis, W.A., *Excavations in the Quetta Valley, West Pakistan*, New York, 1956, PP. 234-41.
5. *Ancient Pakistan*, Vol. II, 1965-66, PP. 230 ff.
6. H.D. Sankalia, *Prehistory and protohistory of India and Pakistan*.
7. *Ancient India*, No. 4, 1947-48, P. 295.
8. *Ancient India*, No. 6, 1950, P.79.
9. A.H. Dani, *Prehistory and Protohistory of Eastern India*, Calcutta, 1960.
10. *Bulletin of the School of Oriental and African Studies*, Vol. XIX, No. 2, 1957, PP. 321 ff.
11. Dr. F.A. Khan, "A Prehistoric settlement discovered near Taxila", *Pakistan Times*, 14th January, 1968.
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Human Skeletal Remains from the Cemetery of Timargarha

Part VII

By

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From the Cemetery of Touroville
Hamon Station, New York

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HUMAN SKELETAL REMAINS FROM THE CEMETERY OF TIMARGARHA

By Dr. WOLFRAM BERNHARD

SECTION — I

1. INTRODUCTION

The following report deals with the skeletal remains exhumed during the excavation of the protohistoric cemetery at Timargarha (Dir-State, North-West Pakistan) conducted by the Department of Archaeology, University of Peshawar, in collaboration with the Department of Archaeology Government of Pakistan (Karachi) in 1965. At the kind invitation of the above mentioned Departments and the financial support by the Deutsche Forschungsgemeinschaft the author was able to participate in the excavation and was responsible for the analysis of the anthropological material. In 1964 excavation at Timargarha were mostly revealed *well preserved human remains*¹, but in 1965 the bone material was in a very bad condition. Only with greatest care it was possible to get useful material for anthropological study.

Archaeological Background: The cemetery of Timargarha belongs to a cultural complex wide-spread in the mountain region of Northwest Pakistan. It could be traced till today from the border of Afghanistan to the Indus i.e. the region of old Gandhara. Dani (1966) has proposed the nomenclature "Gandhara Grave Complex". Yet the term does not imply that the graves are typical of Gandhara. It simply means that in the present state of exploration we are likely to find them also in Afghanistan and the areas east of the Indus River (compare DANI 1966). Based on the sequence study of that region, DANI could distinguish, for the first time, three main cultural periods one following the other, which according to his tentative dating extend from the middle of the second millennium B.C. right into the historic period (approximately 8th-7th centuries B.C.). Meanwhile the date for the early period could be confirmed by radiocarbon dating, performed on bone material at the University of Heidelberg, W. Germany. The inflexed burial of grave 101, which according to Dani belongs to cultural period I, yielded an absolute age of at least 3380 ± 60 years, indicating that the earliest period began latest in 15th century B.C. (see also below). According to DANI the three cultural periods differ from one another not only in pottery but also in funerary rites and the introduction of iron in period III. Therefore it may be inferred that we are dealing with people or peoples who are passing from Bronze to Iron Age (see Section 10 on Discussion and Conclusion).

Similarly three periods had been differentiated by STACUL (1966) in his recently published report on the pre-Buddhist necropolises in Swat, which belongs to the same cultural complex. However, it is difficult to compare at present the three periods of Stacul with those of Dani.

Concerning the cultural relationships to other pre- and proto-historic sites of Asia, a question which is also important to a certain degree for the anthropological analysis, we mostly refer to the above mentioned work of Stacul. As earlier mentioned by ANTONINI (1963) in her preliminary notes on the excavation of the necropolises found in Swat, STACUL also considers most of the cultural associations with West Asia and Asia Minor. Regarding the typology of the pottery he points out many features in common with analogous pottery discovered in Palestine (4th Millennium B.C.), Khurab, Bamapur and Katakana in Persian Makran, Tepe Hissar phases IIB, IIIA and IIIB, Shah Tepe phase II A, the deepest level at Charsada, (Bala Hisar) the tombs of cemetery R 37 at Harappa, the most recent strata of Gawra, Hasanlu V, Giyan I, Turang Tepe, Sialk, Mundigak IV, and Chanhu-daro II.

According to STACUL the metal objects, especially the different types of copper hair pins, are related to similar types found in the Veri cemeteries (Soviet Caucasus) in tombs dating from the late Bronze Age, finds at Coban in late Bronze Age tombs, at Anau, Giyan, Sialk, and other sites already mentioned in connection with the pottery.

As critique of ANTONINI, which is however also true of STACUL, DANI (1966) is of the opinion, that many of these cultural associations are questionable on ground of long time gap.

Contrary to ANTONINI and STACUL, Prof. JETTMAR, ethnologist at the University of Heidelberg and an expert of Asian prehistory, suggests relationships to the North i.e. Middle Asia, especially the steppe region, as will be discussed in a later section.

From an anthropological point of view, especially from the aspect of the racial history of the Pak-Indian sub-continent, the bone material from Timargarha is of prime importance both geographically and chronologically. Besides the anthropological finds, excavated by the Italian Archaeological mission in the neighbouring Swat, which however has not been published yet², the skeletal remains from Timargarha are the only pre- and proto-historic anthropological material found in the extreme north-western corner of the sub-continent. This region is generally considered

as one of the most important gateways for immigration of foreign people from West and Central Asia to India. To emphasise the chronological importance DANI points out that "it is at this time that we learn from literature about the historic play of the enigmatic people, well known as Aryans, in this region. If in these graves we are not in the track of the Aryans, we are close upon their heels". (DANI 1966).

SECTION — 2

MATERIAL

The collection comprises unburnt and burnt skeletal remains of 137 individuals found in 82 graves of site No. 1 and 2. The material varies from complete skeletons to only a few but characteristic bone pieces representing one individual. Especially the children graves revealed only tiny bone fragments. Their discovery was possible as most of these graves had a stone lining, and were covered with big stone slabs. Yet the collection does not include the bones of all graves opened during 1965 season. Owing to different reasons the bones of some graves could not be collected. The maximum number of these graves were opened earlier than the author's arrival at Timargarha. Due to heavy rainfall these graves were filled in with mud or collapsed, so that the scanty bone pieces found in them were destroyed and could not be salvaged.

Owing to the bad state of preservation of the bone material only 25 skulls were in a good state or could be restored so that they were useful for osteological or material study and report. In this number some skulls are included, which were exhumed during 1964 season (numbered as skulls 01-06). Unfortunately the postcranial skeletons belonging to these skulls were not salvaged. The material was transported to the Anthropological Institute University of Mainz, West Germany, for final analysis.

SECTION — 3

METHODS AND TECHNIQUES

A) *Estimation of age at death.*

The eruption of the deciduous and permanent teeth as well as the epiphyseal union of various parts of the skeleton were the criteria for age determination of non-adults.

The age of death of grown up individuals was based — as far as preserved — on the whole skeleton. NEMESKERI et al. (1960) have developed a combined method of age determination based on skeletal material of known age, which in 80% of the cases determines the actual age at death within an error limit of 2 to 5 years. This method is based on the combination of four morphological features, which during lifetime show characteristic age variations: The closure of the endocranial sutures, the age change of the spongy structure of the proximale epiphyses of humerus and femur and the developmental stages of the pubic symphysis. The age determination by this method is far more exact than the usual method based on the closure of the external sutures of the skull and hence of great value for palaeodemographic analysis of prehistoric population. Unfortunately, owing to the bad state of preservation this method could be applied only in a few cases of this material. In many skeletons the pubic symphysis and the upper portions of humerus and femur were missing or so badly damaged that exact judgement regarding their structure was not possible. The determination of the closure of the endocranial sutures was also very difficult, especially in the case of the well preserved crania as the inside space of these skulls was filled up with well-backed earth, the removal of which was not possible without damaging the cranium.

For this reason the age had to be determined on the usual method of outer suture closure, according to the scheme of VALLOIS (1937) (see HEBERER et al p. 335). The other features were taken into consideration when the sutural arrangement could not be assessed. The attrition of the teeth was also very helpful in those cases where the other skeletal parts for age determination were missing. According to BROTHWELL's (1963) suggestion the wear pattern of the teeth of the individuals of unknown age were compared with the attrition of those individuals whose age could be determined relatively exactly by other age criteria. The sexual differences in attrition were also accounted for. The age determination of cremated material is completed basically on the same principles as valid for age assessment of unburnt skeletons. The changes due to the burning, however, made the analysis more difficult, so that in most cases only a broad classification of age was possible (adult, mature, senile). This is also true of those skeletons, where main features for age determination were missing.

B) Determination of sex

The determination of sex was based on usual sex characters of skull, pelvis and remaining skeleton (compare MARTIN-SALLER 1959, MONTAGU 1960, KROGMAN 1962, BROTHWELL 1963). In some cases, how-

ever, the sex could be assessed only by a few features, as the significant skull and pelvic region were mostly decomposed or so badly damaged that an exact estimation of the sex characters was not possible. In some other cases the sex determination was totally impossible, owing to the bad state of preservation of the material. Sexing of non-adults, which is very difficult owing to the less marked sex characters, could be established only in a few cases. The difficulty was all the more increased as most of the bones of children and juveniles were in a very bad condition.

C) Measurements and photographs

Most of the measurements were taken according to MARTIN's method with the instruments recommended by him (MARTIN-SALLER 1957). Only the measurements of facial flatness, which are not described by MARTIN were taken according to WOO and MORANT (1934) or according to the Russian metrical scheme. For linear measurements of facial flatness (e.g. the dakryal breadth and height and simotic breadth and height) a co-ordinate calliper was employed. Angular measurements were taken directly on the skull after proper orientation on the craniophore. The measurements were selected, keeping in mind the metrical comparison with neighbouring anthropological series from Pakistan, India and West and Middle Asia. Most of the basic measurements and indices are furnished in the collective tables at the end of the report. Linear and curvilinear measurements are given in millimeters.

The photographic material consists of photos of the well preserved skulls, which were utilised for anthropological and metrical report. The skulls are shown in norma frontalis, lateralis, occipitalis and verticalis. Regarding norma lateralis the better preserved side is given.

D). Estimation of cranial capacity and stature

The cranial capacity could not be determined with a direct method i.e. by filling of the inside space of the cranium by mustard-seed or other substances (compare MARTIN-SALLER Vol. 1, p. 470). All skulls were either fragmentary or the inside was filled with hard clay, the removal of which was not possible without damaging the skull. For that reason it was necessary to apply one of the various formulae for estimation of cranial capacity. GUPTA, DUTTA and BASU (1962) found for the Harappa bone material that estimation of cranial capacity by Lee-Pearsons Naqada formula was closest to the results direct measurements. As Timargarha

material comes from the same geographical area and as it has been shown later on that no great metrical differences could be observed between the two series, therefore, it can be assumed that this formula, applied to our material, also gives satisfactory results. Lee-Pearsons Naqada formula is as follows:

$$\text{Capacity for Males} = 0.000352. (L \times B \times H) + 372.39$$

$$\text{Females} = 0.000416. (L \times B \times H) + 189.81$$

(L denotes maximum cranial length, B maximum cranial breadth, H vertical porion height).

Out of the various formulae for estimation of the stature, Pearson's "regression formula", DUPERTIUS and HADDONS "general formula" and the Tables of MANOUVRIER as well as those of TROTTER and GLESER are mostly used. The values estimated according to PEARSON and MANOUVRIER are relatively low whereas those according to DUPERTIUS and HADDON and TROTTER and GLESER are relatively high, as it is known from literature (compare also EHRHARDT 1964). In case of our material the methods of MANOUVRIER and TROTTER and GLESER were employed. The latter method was also used by EHRHARDT (1964), who estimated the stature of 32 protohistoric skeletons from India.

E). *Type diagnosis*

The typological classification of the skulls was performed on the basis of metrical and morphognostic characteristics using the nomenclature common to prehistoric anthropology of South, West and Middle Asia (Mediterranean, Proto-Mediterranean, Australoid, Proto-Australoid, Vedoid, Nordic, Proto or Palae-Europid, Cromagnid etc.). The concept of type means to us a combination of certain morphological features. The problem, how far these types are identical with races or racial types in a strict genetical sense, should not be decided here.

During an "International Symposium on the Anthropology of Neolithic" in autumn 1966 in Mainz, SCHWIDETZKY suggested to replace the traditional typological classificatory concepts as Mediterranean, Nordic, Cromagnid etc. by more neutral terms, which at the same time present a brief morphological characteristic of the skull. The first part of such nomenclature explains the main features of the face and the second one those of the brain-case of the skull. For example, according to the new terminology the Mediterraneans and the Nordics, which are difficult to dis-

tinguish on the basis of the skull, can be termed as Lepto-dolichomorphs and the Cromagnid skulls as Eury-dolichomorphs. In the same manner the other types can also be characterized. There are further possibilities of differentiation with the help of additions like gracile, robust, aquiline etc. (i.e. gracile Lepto-dolichomorphs). Above all, the new nomenclature has the advantage that it helps in avoiding misleading associations regarding the geographical origin of the types, which are implied in most of the traditional terms. In the present work the attempt is made to use the new nomenclature along with the old terminology.

SECTION — 4

DESCRIPTION OF THE SKELETAL REMAINS OF THE GRAVES

The following is a short description of the bone material found in each grave, relating the burial position (orientation, facing etc.) of the skeletons in situ, the state of preservation of the bone material, the age and sex of each individual (as far as possible) including the detail of the main characters on which the age and sex determination was based. The establishment of age and sex of well preserved skulls is relegated to another section, where they will be thoroughly analysed. Here however, it is not intended to give a catalogue-like specification of all bones found in each grave.

The description is given in serial numbers. The position of each grave at the site can be seen from the site plan (Figs. 12, 17 and 18) in the archaeological report. The graves with the Nos. 101-199 belong to site No. 1, the graves with the numbers over 200 to site No. 2. The graves which did not contain any bone material or the bones of which could not be collected (see section 2) are omitted here. This section is not only interesting from an anthropological point of view but also from an archaeological aspect. The careful study of the skeletons, especially in situ, has revealed plenty of details concerning the varied burial customs, which are one of the characteristic features of the proto-historic population of Timargarha.

A. Site No. 1

Grave No. 101

In this grave skeletal remains of three individuals were found. One of them was a burial in flexed position facing north and that of an old woman of more than 60 years of age (101 a). Like other burials of the same type the body was placed on one side with legs inflexed and the head turned to one side. The arms were bent and the hands placed together in

front of the face. Orientation of the grave and the body was from west to east (i.e. the skull in the west, post-cranial skeleton in the east)⁵. The remains of the other two individuals were found in a disordered position close to the northern wall of the grave chamber. One of them belongs to a young woman of approximately 20 to 25 years of age at the time of death (101 b). The left partial bone of the skull of this individual was found fractured. From the close observation of this fracture it can be safely determined that it was caused by the blow of an edged tool and perhaps the death occurred due to this blow, as no signs of regeneration can be seen. The fracture was covered with earth and was discovered during the cleaning of the skull in the laboratory. Therefore the possibility can be eliminated that the fracture was caused by the implements of labourers during excavation.

The remains of the third individual present a male of about 35 years of age (101 c). All skulls were well preserved or could be restored and were useful for anthropological analysis (see section 7).

Grave 103

This grave contained the remains of one individual buried in regular inflexed posture facing south. The bones, specially the skull, were at a high degree of decomposition. Yet the massiveness of the cranial and post-cranial bones, the strongly developed muscular ridges and a fragment of a very massive lower jaw clearly indicate that the remains are those of a male. The molars show only a little sign of attrition which corresponds to an age of 20 to 30 years.

Grave 104

This grave revealed skeletal remains of two individuals. One of them was lying in regular inflexed position facing south. The skull was badly broken. Most of the calvarium and the facial skeleton were missing. The frontal bone which could be partially restored shows a strongly projecting superciliary and glabellar region and a rounded upper margin of the orbits. A fragment of the lower jaw and the long bones are rather robust. There is no doubt that the remains belong to a male individual of 40 to 50 years age group, as is proved by the wear pattern of the heavily worn off teeth.

The skeletal remains of the second individual were found scattered near the southern wall of the grave chamber. The skull was broken too, but it was possible to restore it partially. It exhibits typical female sex

characters and belongs to an individual of about 20-25 years of age, as all sutures are still visible and show no signs of ossification. From the postcranial skeleton only fraction of the upper extremities were found, whereas the bones of the lower part of the body were missing.

Grave 105

In this grave was found nothing but few teeth without roots, which probably belong to an infant who died at an approximate age of less than one year. Nothing can be said concerning the sex and the burial position of this individual.

Grave 107

This grave revealed the burial of a child in flexed position facing south. The bones were extremely fragile and in a very bad condition. Only a few bone-pieces of the skull and some teeth were preserved. Besides some milk teeth, one incisor of the permanent dentition was found indicating an approximate age of 5 to 7 years, which is also in accordance with the measurements of the long bones in situ.

Near the facial part of the child's skull were lying some more tiny pieces of bones and a few deciduous teeth without roots. Petrous portions of two right temporals, which were distinctly smaller than those of the above mentioned individual, indicate that in this grave two more individuals were buried, who were probably less than one year old. Owing to the scantiness of the remains of these two infants nothing can be said about the burial position.

Grave 108

From this grave skeletal remains of a child lying in inflexed posture facing north were found. The bones were in a very fragile condition and could not be preserved. A fragment of the upper jaw clearly indicates that the permanent incisors are still inside the jaw but shortly before eruption. The determined age of about 6-7 years accords with the approximate measurement of the long bones and the sitting height. As usual in the case of non-adults it is very difficult to say anything about the sex of the individual.

Grave 109

In the south-western part of the grave chamber was found a frag-

mentary skull, including the mandible and bones of the post-cranial skeleton of an animal. The bones were determined by a zoologist as belonging to a young female goat about 6 to 8 months of age (see section "Zoological remains"). The only human remains found in this grave were a radius and some teeth. The comparison of the wear pattern of these teeth with those of known age suggests, that they belong to an individual of about 20-30 years of age. Sex was not determinable. It is evident that no complete burial took place.

Grave 111-B

In this grave the excavation exposed skeletal remains of a complete lower part of a human body lying in natural semi-contracted position, thus the skull would have faced south. The remains included pelvis, femura, tibiae, fibulae, tarsals, metatarsals, phalanges, and three lumbar vertebrae. All these bones were lying in natural position in the eastern part of the grave. The western part did not contain a single bone of the upper part of the body. As the bones of the lower part of the body are extremely well preserved, it is impossible that the upper part of the skeleton has totally decomposed. It seems that the body was cut into two pieces between the second and third lumbar vertebrae and only the lower part of the body was buried in this grave.

The massiveness of the bones, the deep and narrow sciatic notch (and other characteristics of the pelvis), the large diameter of the caput femoris (49 mm) and the well developed muscle markings clearly indicate a male individual. The pubic symphysis shows stage 1 according to Nemeskeri (1960) which corresponds to a mean age of 31 years.

When removing the bones the writer found in the south-eastern corner of the grave chamber a small heap of bones consisting of fragments of a skull including some teeth, fragments of humerus and ulna and some small burnt pieces of skull, ribs and long bones. The author was informed by the site supervisor, that these bones belong to another, overlapping grave and not to the individual buried in grave 111-B. This could also be confirmed by the anthropological analysis and differences in colour and structure of the surface of the bones.

Grave 114

This grave contained skeletal remains of an individual lying in flexed

position facing north. Although the skull was badly crushed by earth pressure, it was still possible to determine the age and sex of the individual. The remains belong to a female more than 60 years of age (see section 7). The sex determination on the basis of the skull is in accordance with the gracility of the post-cranial skeleton and the ill-marked muscular ridges. Near the bones of the upper limbs were found burnt remains of another individual, especially two cervical vertebrae and an incisor of the permanent teeth.

The urn in the north-western corner of the grave chamber did not contain any (burnt or unburnt) human remains. But another pot of the grave furniture revealed small pieces of burnt human bones. Two small fragments of the calvarium with sutures, a piece of the zygomatic arch, a fragment of a humerus (14 inches in length), and some other bone pieces which could not be identified. It was not possible to determine the age and sex and to decide whether the burnt remains found at different places of the grave belong to one individual.

Grave 117

Among the pottery of the grave furniture some long bones and small skull pieces of one individual were scattered all over the floor of the grave chamber. The lower part of a femur shaft broken in several pieces was found in a bigger pot. The well marked linea aspera is the only sign that the individual may be of male sex. The age was not determinable. Nevertheless it can be stated that the individual was at least adult.

Grave 119

Close to the north-western wall of the grave chamber were found slightly burnt pieces of skull and fragments of long bones of two individuals. Portions of the frontal bones and the orbits clearly show opposite sex characters, thus leading to the conclusion that a male and a female were buried here. The teeth of a relatively well preserved lower jaw, not heavily worn off, indicate an age of about 25-30 years. As the mandible is comparatively massive in structure it is highly probable that it belongs to the male. The age of the female could not be determined exactly, but the individual was at least adult because all epiphyseal lines as far as preserved seem to have already fused.

In the south-eastern corner of the grave chamber were found many

pieces of pottery including one urn, which contained slightly burnt bones mainly of the post-cranial skeleton belonging to the above described individuals.

Grave 122

Cremated remains of several individuals were found in different urns. One urn contained equally burnt and heavily calcined bones of two individuals. The number of individuals buried in this urn could be determined by two petrous portions of the temporals of the right and left side and other remains.

Corresponding bone pieces of both individuals show remarkable differences in thickness (though equally burnt) and suggest that the remains are those of a male and a female. All epiphyseal lines seem to be fused. The alveoli of a fragment of the mandible show that the 3rd molar had erupted. Therefore it can be concluded that both individuals were at least adult. A second urn revealed further burnt remains. Contrary to urn no. 1 the bones were not equally burnt. Some bones were calcined, others only slightly charred, indicating the lesser amount of heat of the funeral pyre. Analytical study of these remains showed that this urn contained the bones of only one individual. The massiveness of the bones, the well developed superciliary ridges, the rounded upper margin of the orbits, the presence of the third molar and the fused epiphyseal lines indicate that the remains are those of a male adult.

In another urn were found cremated remains of a 4th individual. Concerning the stage of cremation, they show similarities to the remains of urn no. 2 as they were also unequally burnt. The bones are comparatively gracile; a fragment of the slightly cremated frontal bone shows an extraordinarily sharp upper margin of the orbits, thus belonging probably to a female. The epiphyses of a slightly burnt fragment of a humerus had already united, nevertheless the epiphyseal line was partially still visible. Therefore it may be deduced that the individual was about 20 years of age.

Grave 123

Most of the bones of the two individuals buried in this grave were found in a very disturbed order. Only the lower legs of one individual were lying in natural position suggesting originally a burial in flexed position probably facing south. Only tiny pieces were preserved from the skulls. As

the bones of the post-cranial skeleton, especially the pelvic bones, were very fragmentary too, the age and sex are very difficult to determine. Yet the bones of the lower extremities found lying in natural position are massive with well developed muscle markings, whereas the corresponding bones of the other individual are comparatively gracile. This is the only sign that in the grave were buried a male and a female individual. From the fact, that all epiphyses are already fused, it can be concluded that both individuals were at least adult.

Grave 124

This grave exposed the skeletal remains of one individual. The burial position was not quite clear. At least parts of the post-cranial skeleton were probably disturbed. However the bones of the lower extremities, the lower jaw and the broken skull were lying in natural position facing north. Although most of the characteristic parts of the skeleton for sex determination are missing the thin cranial bones, the gracile lower jaw and the gracile long bones suggest a female. As the teeth are not very much worn off and only one third molar of the lower jaw had erupted, an age of approximately 21 years can be assessed.

Grave 125

Near the western wall of the grave chamber were found a few pieces of human skull and two teeth accompanied with bone fragments of the post-cranial skeleton (humerus, ulna and femur). It is evident that no burial in natural flexed position took place. Owing to the scantiness of the remains the age and sex diagnosis is very difficult. Nevertheless, the massiveness of the bones and the attrition of the teeth suggest a male of a higher age group. The opposite (eastern) corner of the grave was occupied by animal bones, belonging to a horse, a stag, and a smaller ruminant, possibly a goat or sheep (see Section "Zoological remains"). More than half of one of the long animal bones was found inserted between the stone courses of the southern wall of the grave chamber.

Grave 132

In this grave skeletal remains of a child were found in a very fragile condition. The body was placed in flexed position facing north. A fragment of the mandible clearly shows that the child died at an age of changing the deciduous teeth. A permanent canine and the second pre-molar had already erupted, indicating an age of about 11 years. This age determina-

tion accords well with the approximate length of the long bones and the sitting height measured in situ.

Grave 133

In this grave were found only tiny pieces of skull and a fragment of humerus together with some deciduous teeth without roots. It seems that they had not erupted yet and thus belong to an infant less than one year of age. Owing to the scantiness of the find it is impossible to tell exactly the burial position. Nevertheless the way the small bone pieces were found suggests that the body was placed in flexed position facing north. Sex was indeterminable.

Grave 134

Skeletal remains of two individuals were found in a heaped position together with pottery in the eastern half of the grave chamber, whereas the western part was practically empty. The fashion in which the bones were lying shows that no standard inhumation took place. The calvarium of one skull was relatively well preserved, whereas the facial skeleton and the mandible were missing. It belongs to a female of about 25-30 years of age (see section 7). The sex determination based on characters of the skull is in agreement with the gracility of the post-cranial skeleton belonging to this skull.

On the left parietal of the skull a slight deepening can be seen (see Fig. 42, Pl. LXVIII) caused by an injury which was totally healed when the death occurred. Only fragments were found from the second skull. As the characteristic parts are missing, sex and age determination is very difficult. Only the well marked muscular attachment areas and the massiveness of a fragment of the mandible suggest a male. As the alveoli of the molars are closed due to the loss of these teeth during life time, a higher age group (senile) can be assessed.

Grave 136

According to the nature of inhumation, this was the unique burial⁹ of the entire cemetery because the skeleton was found lying in an extended position. The burial showed no signs of ritual inhumation, as the skeleton was not found placed in the prevailing style of grave chambers and also devoid of any kind of pottery. The bones were at an advanced stage of

fragility. From the skull bones only the mandible was relatively well preserved. Its massiveness suggests a male individual of approximately 25-30 years of age based on the attrition of the teeth.

Grave 137

Skeletal remains of two individuals mixed with some animal bones were scattered all over the grave chamber punctuated by pottery. There are no signs that one of the individuals was lying in a standard burial position. From the striking differences of size and massiveness of the fragmentary skulls, the teeth, the post-cranial skeleton and the development of the muscle markings one can conclude that in the grave were buried a male and a female. The teeth of the male individual are heavily worn off. The attrition corresponds to an age of 50-60 years, whereas the teeth belonging to the female show only little signs of attrition indicating an age of about 20 years.

The animal bones belong to probably a male sheep, a hare and a young ruminant, not yet specifically determined of the size between a sheep and a stag (see section "Zoological remains").

Grave 138

Skeletal remains of two individuals were found in this grave. The way the bones were lying more or less corresponds to the manner seen in the previously described grave no. 123. In the western part of the grave chamber the bones were found highly disturbed whereas in the eastern half the lower extremity bones of one individual were lying in natural position suggesting the regular burial in a flexed position facing south. Only a few pieces were preserved from the skull including fragments of both lower jaws with postmortal loss of the teeth. As the characteristic parts of the skulls are missing sex determination was very difficult. The only criteria that the individual whose legs were found in natural position, was of male sex are the massiveness of the long bones and the large and well developed attachment areas of the muscles. Assessment of age of both individuals was not possible. Nevertheless it can be stated that they were grown up i.e. at least adults.

Grave 139

This grave revealed the post-cranial skeletons of two individuals but

only one skull of a male of about 30 to 35 years of age which was relatively well preserved (see section 7). The bones of the upper and lower extremities including the bones of the hands and the feet of one individual were found in natural position. From the direction in which the bones were lying one can deduce that the body originally must have been placed in flexed position facing north. The other bones of this individual were disturbed and lying in a jumbled manner mixed up with the bones of the second individual. It was, however, not possible to decide which of the post-cranial skeletons belongs to the skull and to determine the sex and the exact age of the second individual. Nevertheless it can be stated that it was at least an adult.

Grave 140

The grave exposed skeletal remains of a child in a very advanced stage of decomposition lying in flexed position. Only small pieces of the skull, some fragments of ribs, vertebrae and humerus were preserved. As the upper and lower jaw and all teeth are missing exact age determination was not possible. Yet the size and the thickness of the bones correspond to those of a child of about 7 years of age. It is interesting to note the variation in the orientation of the child's body. In all graves with burials in flexed position, described earlier, the orientation of the body was from west to east (i.e. the skull was lying in the western part of the grave chamber, and the post-cranial skeleton in the eastern half). In this case the orientation was from east to west (skull in the east facing north).

Grave 142

In this grave three individuals were buried. The nearly complete and relatively well preserved skeletons including the skulls of two of these individuals were lying in highly jumbled manner in the north-western part of the grave chamber, whereas the opposite corner was practically empty. The skulls which were useful for anthropological analysis belong to a male (142 a) of about 30 to 40 years of age and a female (142 b) of approximately the same age group (see section 7). Most of the bones of the third individual were found at a deeper level of about 1 foot. Only some bones including the fragmentary skull which could not be restored were mixed up with the bones of the other two individuals in the superficial level. Except the upper extremities, the skull, and the pelvic region, which were slightly disturbed, all other bones of the skeleton, especially the total vertebral column, the ribs and the lower extremities were found lying in natu-

ral position and leave no doubt, that originally a burial in flexed posture facing south took place. The massiveness of the long bones, typical male sex characters of the pelvis and a relatively large diameter of the caput femoris suggest that the individual was probably of male sex. The age at death was about 20-25 years, assessed by the fact that all epiphyseal lines of the long bones have fused and the teeth show only a little sign of attrition.

Grave 144

This grave revealed skeletal remains of one individual lying highly disturbed. The skull was found in the western part of the grave together with one femur, while the fragmentary lower jaw was lying in the opposite corner of the grave chamber near the second femur. The only sign, that originally a natural burial took place, can be seen from the position of tibia and fibula of both legs, lying parallel side by side according to their anatomical position. Except the facial skeleton the skull was relatively well preserved and useful for anthropological analysis (see section 7). It belongs to a female of approximately 20-25 years of age. The age diagnosis based on the skull accords with the extreme gracility of the long bones.

Tiny fragments of skull, mandible and long bones suggest, that in the grave a second individual was buried. A fragment of the lower jaw shows a milk molar without root, which seems to have not erupted yet. Its developmental stage corresponds to an age of approximately 6 months to a year, which accords with the general size and thickness of the bone fragments.

Grave 146

The western part of this grave without stone lining was occupied by a few pieces of skull, some fragments of ribs and humerus of a child. The bones were at a high degree of decay. From the position of these scanty remains it can be deduced that the body was lying in flexed position facing north. As far as from the fragments of the upper and lower jaw can be judged, all deciduous teeth had erupted. A second incisor of the permanent dentition, visible at a fracture of the mandible, shows a crown and neck but no root. Its developmental stage corresponds to an age of 5-6 years.

Grave 148

Skeletal remains of one individual lying in usual flexed position

facing north were found from this grave. The skull was fragmentary and broken, the facial skeleton missing. The skull bones are moderately thick, a fragment of the frontal bone shows a sharp upper margin of the orbit; the glabella and the superciliary arches are not very much developed, the bones of the post-cranial skeleton are gracile with weak muscle markings, thus belonging to a female individual. Age at death was about 30-35 years assessed by the arrangement of preserved sagittal suture and the wear pattern of the teeth.

Grave 149

Human skeletal remains and animal bones were found in this grave in an extremely disturbed order. Skull fragments of two individuals could be distinguished by corresponding parts of the occipital bones and two fragmentary mandibles. One of the lower jaws was lying with the rami close to the western wall of the grave chamber resting on a small piece of long bone. It is highly probable that it was placed there deliberately and intentionally. Close to it was found the mandible of an animal. The second lower jaw was discovered together with pieces of ribs in a pot (Reg. No. 94). The fragments of one of these skulls are very massive, the mastoid process large, the external occipital protuberance, the glabellar and superciliary region well developed thus belonging to a male. The sex of the second skull is questionable, as all characteristic parts for sex determination are missing or insignificant. In both cases the arrangement of the sutures could not be exactly judged. Yet the closed alveoli of the molars and premolars of both lower jaws suggest a higher age group of more than 60 years (senile). Contrary to the two skulls, only the fragmentary post-cranial skeleton of one individual was found in the grave. It probably belongs to the male skull. The developmental stage of the pubic symphysis confirms the age determination based on the lower jaw. It shows stage 5 according to Nemeskeri, which corresponds to a mean age of 69 years.

In a pot (Reg. No. 89) were found burnt and semi-burnt remains of a third individual whose age and sex was not exactly determinable. Nevertheless it can be stated that the individual was at least adult. The possibility, that the urn contained the burnt post-cranial skeleton of the second individual may be excluded, as also burnt remains of a skull were found. The animal bones belong to an old female sheep, approximately 10 years of age (see Section "Zoological remains").

Grave 151

Remains of one individual were found in this grave. The skull was badly broken and at an advanced stage of decomposition. It was found in the western part of the grave placed on its right side and facing south, whereas the long bones were found side by side, mostly parallel to the long axis of the grave chamber. On the top of these bones was placed the mandible. It is evident that no natural burial took place. In addition, the size of the grave would have been too small to bury a grown up individual even in flexed or crouched position. This burial type shows similarities to that of Grave No. 191, in which the bones were placed in a corresponding manner. The characteristic parts of the skeleton for sex determination are missing. But the massiveness of the long bones, the well developed muscular attachment areas, the heavily built fragment of the mandible and the big size of the teeth suggest a male individual. The attrition of the heavily worn off teeth corresponds to an age of approximately 50-60 years.

Grave 153

From this grave were revealed only tiny pieces of skull, mandible, long bones and some deciduous teeth without roots, which belong to an infant below 1 year of age. Due to the scantiness of the find nothing can be said concerning the burial position.

Grave 157

In this grave were found skeletal remains of one individual lying in flexed position facing north. The vertebral column was unusually curved. However owing to the bad state of preservation of the vertebrae it was not possible to decide whether this deviated position was caused by an abnormal burial position or by pathological deformation of the vertebral column. The facial part of the skull was relatively well preserved and was useful for anthropological analysis (see section 7). It belongs to a female of about 30-35 years of age. The sex diagnosis is supported by the gracility of the post-cranial skeleton and the ill-marked attachment areas of the muscles.

Grave 158

This small pit without any grave furniture contained only a few tiny pieces of burnt bones. The fragments are too small and insignificant to

say anything concerning the sex and age of the individual. Only the small size of the grave suggests the burial of an infant.

Grave 159

Only fragments of a skull, some rootless deciduous teeth and small fragments of the post-cranial skeleton were found in this grave. They belong to an infant below one year of age. The sex could not be determined. It seems that the body was placed in semi-flexed position probably facing south.

Grave 160

In this grave were found skeletal remains of one individual lying in fixed position facing north. The bones were in a bad stage of preservation; neither the skull nor the long bones were complete. All bones were extremely gracile. A second molar of the permanent teeth seems to have just erupted as it shows no sign of dental attrition. From this it may be assessed that the individual was of juvenile age (between 14 and 20 years) and possibly female. A better limitation of age on the basis of the epiphyseal union was not possible.

Grave 162

From this pit skeletal remains of three individuals were recovered. Most of the bones were lying in a very disordered position entangled with each other and punctuated by pottery. Like the animal bones of grave No. 125 two human femura were found inserted between the stones of the wall of the grave chamber. A deeper level (about 6 inches) at the eastern side of the grave chamber revealed the lower extremities of one individual lying in natural flexed position, thus the body must have been placed originally in flexed position facing south. From the massiveness of the bones and the well marked muscular attachment areas it can be deduced that they belong to a male.

The fragmentary skulls of the three individuals and two mandibles were found at different spots of the grave. The best preserved skull shows typically male sex characters and a totally fused sagittal suture, indicating an age of more than 60 years. This age determination is supported by the lower jaw, showing already closed alveoli of the molars and premolars due to the loss of these teeth during lifetime. The fragments of the second

skull are of typical female sex character and those of an individual of about 20-25 years of age, deduced from the fact that all sutures are still open, the teeth of the mandible are not very much worn off and the third molar had erupted.

The fragments of the frontal bone were only found from the third skull. The extremely well developed glabella and superciliary arch, the rounded upper margin of the orbits and other characters leave no doubt that it was the skull of a male, which most probably belongs to the postcranial skeleton originally lying in natural position. The age was not exactly determinable, but the individual was at least mature.

Grave 165

Disturbed and scattered all over the grave chamber, the skeletal remains of two individuals were found. One of the mandibles was lying in a pot. Undoubtedly no burial took place in usual flexed position. Both skulls were so well preserved that they were useful for anthropological analysis (see section 7). They belong to a male of approximately 50-60 years of age (165a) and a female of an age between 20 and 30 years. The sex determination based on the skulls is in accordance with the postcranial skeletons showing opposite sex characters.

Grave 173 A

Almost in the centre of an irregular circle of stones was found another big stone, around which were scattered skeletal remains of one individual. Beside a fragment of the skull were revealed fragments of all long bones (2 femura, 2 tibiae, 2 humeri, 2 radii and 2 ulnae and 1 phalange). But no remains of vertebral column, ribs, pelvis and scapula were found. Only a fragment of the parietal was preserved from the skull, partially lying in a bowl-on-stand. As the characteristic parts of the skull are missing an exact age and sex determination was impossible. But the moderate thickness of the skull bones, the well marked parietal protuberance and parts of the sagittal and lambdoid suture, which had not undergone synostosis yet, suggest an adult female below 30 years of age.

Grave 173 B

Skeletal remains of two individuals were scattered all over the floor of the grave chamber, underneath grave No. 173 A. Most of the bones were lying in a very disturbed order. However it seems that at least humerus,

radius, ulna and probably one of the skulls as well were lying in natural flexed position facing north. The skulls were well preserved and could be used for anthropological analysis(see section 7).

One of the skulls (173 B a) belongs to a male of 40-50 years of age whereas the other one was that of a female of a slightly younger age group, about 30-35 years (173 Bb).

Grave 176

This grave revealed skeletal remains of two individuals. One of them was lying in the southern part of the grave chamber in regular flexed position facing north. The fragmentary skull and the lower jaw are extremely massive, the glabella well developed, the mastoids large thus suggesting a male. The synostosis of the cranial sutures could not be judged, due to the fragmentary condition of the skull. Yet the attrition of the teeth which are very much worn off, indicate an age of approximately 40-50 years.

The bones of the second individual were found lying disturbed near the northern wall of the grave chamber. Yet the position of some bones, like some vertebrae and bones of the upper arms suggest, that this individual was also buried originally in natural fashion probably facing north. The fragments of the postcranial skeleton and the skull differ characteristically from those of the above individual. They are extremely gracile and thus undoubtedly belong to a female. The wear pattern of the teeth corresponds to an age of approximately 35-40 years.

Grave 177

Skeletal remains of one individual were lying scattered all over the floor of the grave chamber. The skull was found almost in the centre of the grave; Its right occipital, temporal and basal part are heavily distorted by earth-pressure. The facial skeleton and parts of the frontal and temporal bones are missing and fractured (see section 7). It is interesting to note that inside the skull was found a fragment of a rib of about 4 inches in length. From this it can be concluded that the skull was already fractured when the burial of the bones took place. The skeleton belongs to a male of about 35-40 years of age.

Grave 180

From this grave were revealed skeletal remains of at least two indivi-

duals. Most of the bones were in a bad state of preservation, and lying in a haphazard manner. Only the bones of the lower extremities including the feet bones and radius and ulna of one individual were lying in natural position in the southern part of the grave chamber indicating originally a burial in flexed position facing north. As the bones including the skull fragments belonging to this individual are extremely gracile and thin, it can be assumed that it was a female. The wear pattern of the teeth corresponds to an age of approximately 30-35 years.

Most of the remains of the other individual were found lying in the north-western part of the grave. They are comparatively massive in structure and thus probably belong to a male. As the teeth are badly worn off, an approximate age of 40-50 can be assessed. In the same part of the grave were found tiny pieces of bones, especially of skull, which were extremely thin and do not belong to the above individual. Yet it was not possible to say whether these scanty bone fragments belong to the female or to a third individual (possibly a juvenile).

Grave 182

From this grave were found the postcranial skeleton of an individual lying in natural position, whereas the skull was missing. The bones of the postcranial skeleton are still noticeable and are relatively well preserved. Hence it is very difficult to think of the skull's total decomposition. The position of the long bones indicates a burial in flexed position facing south. As the characteristic parts of the skeleton for age and sex determination are missing, nothing can be said about the age and the sex of the individual buried in this grave, except that it was at least adult.

Grave 183

Skeletal remains of two individuals were found in this grave. One of them was lying in natural flexed position facing south. The skull is very fragmentary and the characteristic parts for sex determination are missing. But the extremely massive long bones with well marked muscular attachment areas leave no doubt that it was a male. On the basis of the wear pattern of the teeth, an age of approximately 30-35 years can be assessed. The fragments of the second individual lying in disorderly position close to the southern wall of the chamber are comparatively gracile and suggest a female. The attrition of the teeth corresponds to an age of approximately 25-30 years. The south-eastern corner of the grave was occupied by a

bowl-on-stand, on the rim of which were found side by side vertebrae of a small animal. They were determined by a zoologist as the tail vertebrae of a snake. (See chapter "Zoological remains").

Grave 184

In this small stone-lined pit of the size of a small child's grave, was found an urn containing only slightly charred bones of the post-cranial skeleton of one individual. The mouth of the urn was covered by placing the skull on it. The facial and the right parietal part of the skull were charred, whereas the other parts showed no or only little signs of burning. It was placed on the mouth of the urn in a fashion that it was supported and fixed by horizontally and vertically placed long bone piece (see Fig. 111 Pl. LXXXIV b). The skull is relatively small in size (length diameter about 175), the nuchal crest, the mastoid processes, the glabella and the superciliary arch are only moderately developed and the upper margin of the orbits is extremely sharp. All sutures seem to be still open, the teeth are not badly worn off, suggesting a female of approximately 20-25 years of age at the time of death.

Grave 185

The grave revealed skeletal remains of an individual at a high degree of decomposition. In the south-western part of the grave were found a few fragments of the skull and bones of the upper extremities whereas in the opposite part of the grave chamber were lying the long bones of the lower legs in a crossed manner. It was impossible to decide whether a burial in traditional flexed position took place or not. All bones are relatively gracile, which is the only sign that the individual might have been a female. The age was not exactly determinable, but at least adult can be predicted.

Grave 186

Here were found the remains of two skulls separated by a pot and one axis vertebra. One of the skulls, which was relatively well preserved, was resting on its base facing west (186a). It belongs to a female of approximately 25-30 years of age (see section 7). The skull shows a fracture in its frontal part. Yet it could not be decided whether this fracture was caused ante mortem, immediately post mortem or by the excavating labourers. The presence of the axis vertebra — the only representative of the postcranial skeleton — suggests that the skull probably was buried at a

stage, when the first cervical vertebra was attached to the skull with organic material. Even then this contradicts the fact that the lower jaw was missing.

The second individual was only represented by a very massive fragment of the frontal bone of the skull. The upper margin of the orbit is rounded, the superciliary arch and the glabella are well developed and the sinus frontalis extremely large and extended thus indicating a male of adult age group.

Grave 189

The grave contained the skeleton of a child lying in flexed position facing north. The exact age could be determined on the basis of the right half of the lower jaw which was well preserved. The milk incisors had fallen out, the corresponding teeth of the permanent dentition and the 1st permanent molar are still inside the jaw but immediately before eruption, indicating age of 5-6 years.

Grave 190

This grave differed from most of the other graves of the cemetery, as its shape was oval and devoid of a stone lining. It contained the skeleton of one individual lying in natural flexed position facing south. All bones including the broken and fragmentary skull are extremely massive in structure. For example the diameter of the head of the femur and the circumference of the femur are 61 mm and 96 mm respectively thus exceeding all other measured bones of the cemetery. The individual was undoubtedly male, the wear pattern of the teeth corresponds to an age of approximately 30-35 years.

Grave 191

In this grave were found long bones and the skull of one individual. The size of the grave is too small for a regular burial even in flexed position. Some of the long bones were lying crossed, others parallel to the long axis of the chamber. On top of the bones placed in crossed manner, the skull was resting on its base and facing towards east. The mandible was found near the southern wall. Except the long bones (femur, tibia, fibula, humerus etc.) no traces could be found of the other bones of the postcranial skeleton (pelvis, ribs, vertebrae etc.) It is not likely, that these bones

have totally decomposed. Therefore it can be assumed, that only the long bones and the skull were buried. The burial system corresponds to that of grave 151.

The sex of the individual is questionable, as some sex characters of the skull and the postcranial skeleton tend to male, while others are in female direction. As small portions of the sagittal suture have already fused an age of approximately 30-35 years can be assessed. This accords with the wear pattern of the teeth.

Grave 192

From this grave were found skeletal remains of one individual being placed in regular flexed position facing north. The left hand was found lying inside a copper vessel. The right half of the skull is relatively well preserved, whereas the left side, the side on which the skull was resting is decomposed, fractured and compressed. It belongs to a female of approximately 30-35 years of age (see section 7).

Grave 194

In this grave were found skeletal remains of one individual in a very fragmentary condition. Even then it can be said that the individual was lying in flexed position facing south. As the characteristic parts of the skeleton for sexing are missing and the preserved bone fragments are of medium size and thickness, it is questionable to which sex this individual belongs. The attrition of some molars suggest the age of approximately 50-60 years. Below the thoracic region of the body at a slightly lower level were found some burnt skull pieces of a second individual. Its age and sex, however could not be determined, due to the scantiness of the remains. Yet the individual seems to be at least adult.

Grave 196

From this grave were excavated the skulls of two children together with some long bones. One of the skulls was found in the north-western corner of the chamber resting on its basal part and facing towards east. Some deciduous teeth without roots which had not erupted yet, indicate an age of about six months. The other skull was resting on its left parietal part and facing north. All deciduous teeth had erupted and show signs of attrition, corresponding to an age of approximately six years. The post-

cranial skeletal remains which belong to this skull were found in a slightly disturbed order in the eastern part of the grave. Yet it seems likely that originally they were lying in natural flexed position and were probably disturbed at a later time, possibly in connection with the reopening of the grave to provide space for the burial of the second individual. Both skulls were very fragile and near to complete decaying.

Grave 197

Skeletal remains of two individuals were found in different levels of the grave. At the uppermost level the complete skeleton including the skull of one individual was lying scattered among a lot of pottery, mostly in the western part of the grave chamber. The skull was relatively well preserved and useful for anthropological analysis (197 a). It is that of a female of approximately 20 years of age. The sex determination based on the skull is in accordance with the gracility of the long bones and the weakly developed muscle markings. The skeleton of the second individual was found at a level of about 10 inches deeper. Contrary to the former individual the bones were lying in natural flexed position facing south. Only the bones of the upper extremities were slightly disturbed, which is supported by the fact, that one humerus and one ulna of this individual were found mixed up with the bones of the first mentioned individual at the higher level. Only a fragment of the right parietal and the mandible were preserved from the skull, whereas the bones of the post-cranial skeleton were at a very good state of preservation. The long bones and the mandible are relatively massive, the muscular attachment areas well marked, the chin is prominent, indicating that the individual was probably a male. The wear pattern of the teeth corresponds to the age of about 25-30 years.

Grave 198

Within an irregular oval grave chamber without stone lining were found the skull of a child and some tiny fragments of the postcranial skeleton. The position of these bones suggests a burial in flexed position facing north. Contrary to the postcranial skeleton the skull is relatively well preserved. It is the only skull of a child found in the whole cemetery, which is nearly complete (see Section 7). All milk teeth had erupted, except the canines and the second milk molars which have just started to erupt, indicating an age of 18 months. Sex was not determinable.

B. SITE No. 2

Grave 201

This grave was occupied by an urn, which contained semi-burnt and charred human remains. Two individuals could be distinguished by corresponding fragments of the frontal bone. One fragment which is extremely massive in structure, shows an extraordinarily rounded upper margin of the orbits and a large sinus frontalis whereas the other fragment is relatively gracile. From this it may be deduced that in the urn were buried a male and a female individual. Most of the sutures, as far as preserved, were still open, suggesting a younger age group. Yet it can be said that both individuals were at least adult. Although two individuals were buried in this urn, the quantity of bone material, especially that of the postcranial skeletons, is relatively small. For the reason it seems possible that the urn did not contain the whole burnt remains of the two individuals.

Grave 202

From this grave skeletal remains of one individual lying in semiflexed position were exhumed. Yet the orientation of the body differed from most of the burials of the same type. The body was oriented from east to west, i.e. the skull was lying in the eastern part of the grave chamber and facing south whereas the postcranial remains were found in the western part. The skeleton including the skull was at a high degree of decay, and fragmentary. However the gracility of the long bones, the ill-marked muscular attachment areas and the extremely sharp upper margin of the orbits suggest a female individual. From the other characteristic parts of the skeleton useful for age and sex determination were not preserved.

Grave 204

The grave revealed the skeleton of one individual lying in flexed position facing south and oriented in the same fashion as the remains of grave No. 202 i.e. from east to west. There was also another deviation from the burials of the same type. In this case the left lower arm was extended and placed over the inflexed lower extremities, while the right arm was bent and lying in traditional manner in front of the face. Most of the characteristic parts of the skeleton for age determination are missing. Yet the moderate thickness of the skull bones and a fragment of the mandible as well as the gracility of the long bones and the weak development of muscle markings suggest a female individual. All sutures of the skull seem to be still open indicating the age of approximately 20-25 years. This age determination also agrees with the wear pattern of the teeth.

Grave No. 209

Here were found the skeletal remains of one individual lying in traditional flexed position facing south. The skull was the best preserved one from site No. 2 and belongs to a female (see section 7). As all cranial sutures are open the age of approximately 20-25 can be assessed.

Grave 210

Extremely fragile and fragmentary remains of several individuals were heaped up in the western part of the grave chamber whereas the opposite part was occupied by pottery. The fragmentary skulls were found near the western wall of the chamber, while the remains of the postcranial skeletons, especially the long bones, were mostly lying parallel to the northern wall. Below this heap of bones the skeleton of one individual was found in natural flexed position facing north. The gracility of the long bones and of the fragmentary skull as well as the sharp upper margin of the orbits indicate a female individual.

On the whole at least 5 individuals were buried in this grave, confirmed by the same number of corresponding fragments of the frontal bone and 9 femura. Beside the mentioned female at least two of the remaining four skeletons could be determined as male. The skull bones of these individuals are extremely robust and thick with round upper margins of the orbits and extremely well developed glabella and superciliary arches. The sex of the other individuals could not be determined. It was also impossible to assess the age of most of the individuals due to the absence of the sutures and the teeth. Only the approximate age of one male individual could be determined by the wear pattern of the teeth as 35-40 years. Yet it can be stated that the other individuals were at least adults as all epiphyseal lines of the long bones had already fused.

Grave No. 212

Skeletal remains of one individual were found in this grave lying in flexed position facing north. The badly broken skull, whose skull cap could be restored is very interesting as it shows a trephinning of round-oval shape at the bregma region (see Fig. 110 Pl. LXXXIVa and Section 8). Although the characteristic parts of the skeleton for sex determination are not preserved the extreme gracility of all bones leaves no doubt that it was a female within the age limit of 30-35 years, assessed by the fact that a portion of the sagittal suture had already undergone synostosis.

Grave 217

The grave revealed the skeleton of one individual lying in crouched position facing south. The bones were in a very fragmentary condition. The characteristic portions of the skeleton for age and sex determination were missing. Yet it can be said that the individual was at least an adult.

The north-eastern corner of the grave chamber was occupied by an urn, lying at a slightly deeper level than the remains of the above mentioned individual. It contained mostly heavily burnt bones of three individuals, recognized by corresponding bone fragments. At least one of the individuals was of juvenile age. Different long bones (tibia, femur and humerus) clearly show, that the epiphyseal lines had not fused at the time of death, whereas the epiphyses of the other individual had totally fused indicating a higher age group. The bone fragments of one of these individuals are relatively massive and show well marked muscular attachment areas and thus suggest a male. However nothing can be said concerning the sex of the other two individuals.

Grave 218

The visage urn, found in this grave contained equally burnt and heavily calcined remains of at least two individuals distinguished by corresponding fragments of two lower jaws. As all epiphyseal lines had been already fused and the third molars of both fragments of the lower jaw had erupted an age of at least adult can be assessed. The sex determination, however, was difficult. The only sign that in the urn might have been buried a male and a female individual is the different size and thickness of corresponding bone fragments.

Grave 220 a

This small grave revealed tiny pieces of skull, long bones and one rootless milk molar, which probably had not erupted yet, indicating an age of below one year. Due to the scantiness of the remains nothing can be said about the burial position.

Grave 220 b

Close to the eastern wall of the above described grave, another grave of similar size was found, devoid of any bone material. Yet it is highly

probable that in this grave also a child or infant was buried, whose bones, however, had totally decomposed.

Grave 223

Skeletal remains of one individual lying in traditional flexed position facing north were found in this grave. The skull was fragmentary, the lower jaw missing. Yet the relatively sharp upper margin of the orbits, the moderate thickness of the bones, the weakly developed muscle markings and the extremely wide angle of the sciatic notch of the hip bone suggest a female individual. As the characteristic parts of the skull were missing, age determination was only possible on the basis of the spongy tissue of the proximal end of the femur showing stage 1 according to Nemeskeri et al. (1960) which corresponds to a mean age of 31 years.

In front of the regular burial close to the northern wall of the grave chamber the remains of another individual were found lying in much disordered manner mixed up with the bones of the upper extremities of the first described individual. They belong to a child of approximately 7 years of age, which could be determined exactly by the eruption of the permanent teeth.

Grave 228

One of the corners of this grave was occupied by the postcranial skeleton of one individual, the long bones of which were lying mostly in crossed manner. The skull being at a bad state of preservation was found in the opposite corner facing upwards. Near the western wall some teeth which belong to the probably decomposed lower jaw were revealed resting on a stone. It seems likely that these remains were placed in this fashion deliberately. Due to the fragmentary condition of the skull and the other parts of the skeleton, an exact sex determination was not possible. The seemingly well developed glabella and the big size of the teeth are the only signs that the individual might have been a male. As the sagittal suture had totally fused and the teeth are heavily worn off an age of about 40-50 can be assessed.

Grave 237

This grave revealed an urn, which contained burnt, semi-burnt and charred bones of one individual. An exact sex and age determination was very difficult. Anyhow the diameter of the caput femoris, though burnt,

ranges within the male variation. As all epiphyseal lines are closed and all cranial sutures seem to be open an age of approximately 20-30 years can be assessed.

Grave 240

In this grave skeletal remains of two individuals were found. The relatively well preserved bones of the lower extremities of one individual were lying in natural position thus indicating a burial in usual flexed position facing north. The other parts of the skeleton including the skull were represented only by tiny fragments and some teeth, the attrition of which corresponds to an age of approximately 40-45 years. Sex determination was not possible. The remains of the second individual were burnt and mostly found scattered at a slightly deeper level among the bones of the first mentioned individual. Sex and age determination was not possible yet it can be said that the individual was at least adult.

Grave 241

In this grave were found skeletal remains of one individual lying in regular flexed position facing south. The skull was fragmentary and broken. The glabella and the superciliary arches were well developed the upper margin of the orbits rounded, the mastoid processus large and thus indicating a male. The sex determination is supported by the massiveness of the long bones the well developed muscle markings and the large diameter of the caput femuris which clearly falls within the male variation. All sutures, as far as preserved, are still open; only a small piece of the sagittal suture has commenced to fuse. Thus an age of about 30-35 years can be assessed.

Grave 242

This grave was occupied by the skeleton of one individual lying in regular flexed position facing south. The bones including the skull were very fragmentary, the characteristic parts for sex determination missing. The attrition of the molars found in this grave corresponds to an age group of about 30-35 years.

Grave 244

The grave revealed skeletal remains of a child lying in regular flexed position facing south. The upper and lower jaw of the fragmentary skull

clearly show, that the first molar of the permanent teeth had erupted, and the 1st permanent incisor had just started to erupt thus indicating an age of approximately 8 years. Nothing can be said concerning the sex of this individual.

Grave 245

In this small grave chamber was found only pottery but no bone material. Like grave No. 220 b it can be assumed that originally in this grave was buried a child or infant, whose bones, however, are totally decomposed.

Grave 247

This grave provided with a stone floor revealed mostly long bones of the lower extremities of two individuals, while the other parts of the skeletons were represented only by tiny bone fragments and some teeth. Concerning the burial position nothing can be said exactly. Yet it seems possible that at least the bones of the lower extremities of one individual were lying in natural position in a flexed manner.

As the femura and tibiae of both individuals extremely differed in size, massiveness and the development of the muscle markings a male and a female can be suggested. The attrition of the teeth found in this grave corresponds to an age of about 25-30 years. It was not possible to say, to which of the individuals they were belonging. However it can be stated, that both individuals were at least adult.

Grave 248 A.

In this grave only a few pieces of the skull, the long bones and some teeth were found. From the position of these scanty remains it can be deduced that the body was placed in flexed position facing north. All deciduous teeth seemed to have erupted. From the permanent teeth found some molars without roots, corresponding to a developmental stage of about 4-5 years.

Grave 248 B.

This grave was situated close to the eastern wall of the above grave and revealed similar remains as grave 248 A. Beside the seemingly erupted deciduous teeth were also found some rootless molars of the second denti-

tion probably at a slightly lower stage of development. From this it may be deduced that the individual was approximately 4 years of age.

Grave 250

Skeletal remains of two children were found in this grave. One of them was lying in flexed position facing north. Although the skull was fragmentary and totally compressed by earth pressure the age determination was possible. A small fragment of the upper jaw clearly shows that the first incisor of the permanent teeth had just started to erupt indicating the age of approximately 7-8 years.

In front of this individual, close to the northern wall of the grave chamber very fragmentary remains of a second child were found in highly disturbed position. An exact age determination of this individual was not possible as the upper and lower jaws were totally decomposed. Yet it seems that its age group was similar to that of the above individual, as the long bones of both children are similar in size and thickness.

Grave 251

The urn found in the western part of the grave contained mostly slightly burnt remains of three individuals, distinguished by corresponding fragments of the upper and lower jaw. One of them was a child, whose deciduous teeth had erupted. The size and thickness of the lower jaw correspond to an age of about 3 years. The second individual was of juvenile age group. Except the third molar all permanent teeth had erupted indicating the age limit between 15 and 21 years. As the size of the lower jaw is relatively small, it may be deduced that the age of this individual corresponds more to the lower limit of this age group. Though of a small size the mandible is massive in structure suggesting a male individual. The third individual was grown up as all permanent teeth including the third molars had already erupted. The gracility of the lower jaw and the postcranial bones indicate an adult female.

Grave 253

In this small grave tiny fragments of the skull, long bones and some deciduous teeth without roots, were found. Two petrous portions of the same side different in size and shape indicate that in this grave two individuals were buried. According to the teeth one of them was an infant below 1 year of

age, whereas the other individual was of a slightly higher age group (2-3 years). Due to the scantiness of the bone material nothing can be said concerning the burial position.

Grave 254

The western part of the grave chamber was found packed with a heap of bones (skull fragments and bones of postcranial skeletons) of several individuals lying in a very disturbed and disordered position. The opposite (eastern) part of the grave was absolutely empty or only occupied by pottery. At least 5 individuals could be identified, mostly on the basis of skull fragments. Most of them were found close to the western and northern wall of the grave chamber at different spots (designed from a—d), whereas the bones of the postcranial skeletons were lying in the centre of the grave. The fragmentary skulls (a) and (b) were lying near the western wall of the grave and belong to grown up individuals. They show, as far as preserved, opposite sex characters thus indicating a male and a female. This diagnosis is also supported by evident sex differences of the lower jaws and the long bones. An exact age diagnosis was not possible as the sutures are not preserved and the teeth are missing or broken. Yet the lower jaws of both individuals clearly show closed alveoli of the molars due to the loss of these teeth during life and thus a higher (senile) age group can be assessed. The skull fragments (c) and (d) were situated close to the northern wall and belong to children. Fragments of the upper and lower jaw were preserved from the skull (c). Beside the milk molars the first molar of the permanent teeth had already erupted indicating an age of approximately 7 years. Skull (d) was only represented by fragments of the brain-case. As no teeth were preserved the assessment of age was very difficult. But compared with skull (c) corresponding fragments of the frontal bone and the orbits show only slight differences in size and thickness. Thus we can say, that skull (d) belonged to the same or a slightly younger age group than skull (c). It is interesting to note that the upper margins of the orbits of both individuals show remarkable differences. The upper margin of the orbits of skull (c) is relatively rounded, whereas that of skull (d) is extremely sharp. The sex determination of children is very difficult due to the moderate marked sexual traits. In this case it is probable that the skulls (c) and (d) belong to a male and female individual. The fragmentary skull No. (e) was found opposite to (a) and (b) in the eastern part of the grave chamber together with fragments of the long bones of an infant. Besides deciduous teeth a permanent molar was found without root. Its developmental stage corresponds to an age of approximately 2-3 years. No sign was traced to assume if any of these in-

dividuals was placed originally in traditional flexed burial fashion.

Grave 256

In eastern part of the grave which was probably divided by a short line of stones from the western part which contains only pottery, the skeletal remains of at least 4 individuals were found. The burial system shows similarities to that of grave No.254. Fragments of four skulls and four mandibles were found at different spots near the walls of the grave chamber, whereas the postcranial remains were lying one on another to a height of nearly one foot in the centre. The long bones were placed almost parallel to the long axis of the grave. The best preserved skull was found in the north-eastern corner lying over a stone as if deliberately placed there. The massiveness of the bones, the robust and prominent chin, the still open sagittal suture and the wear pattern of the teeth suggest a male of approximately 20-30 years of age. The remains of the second skull found in the south-eastern corner shows also male sex characters. The attrition of the teeth suggest a slightly older age than the above individual (approximately 30-35 years). Most likely a fragment of the frontal bone shows signs of trephining.

The fragments of the other two skulls found near the southern and northern wall of the grave chamber belong to female individuals. One of them was of younger age. The attrition of the teeth corresponds to an age of approximately 20-25 years. The second female must have been of a higher age group (senile) as the alveoli of the molars were already closed due to the loss of the teeth during lifetime. However an exact age determination was not possible as no skull fragments with sutures were preserved and the teeth were missing. Same as in the case of grave 254 it can be assumed that no natural burial took place.

Grave 262

The grave revealed a burial of one individual placed in crouched position facing north. The skull was badly broken and very fragmentary. Most of the characteristic parts for sex and age determination were missing. Yet the gracility of the lower jaw and the long bones, the weakly developed muscle markings and the extremely sharp upper margin of the orbits suggest a female. The molars are very much worn off and correspond to an age approximately 50-60 years.

Grave 265

The western part of the grave was occupied by the fragmentary skull and some long bones of one individual. Most of these long bones were placed parallel to the long axis of the grave chamber. It is evident that no burial in natural flexed position took place. The upper margin of the orbit is relatively sharp, the mastoid processes small, the occipital protuberance very weakly developed, the postcranial bones thin and gracile, thus indicating a female individual. The basiphenoid suture had already fused suggesting a grown up individual. Yet an exact age diagnosis was not possible as the teeth are missing and the cranial sutures are only partially preserved. However, a younger age group (20-30 years) can be assessed as none of these sutures had undergone synostosis.

Grave 270

From this grave were exhumed skeletal remains of one individual lying in traditional flexed position facing south. Although most of the characteristic parts of the skeleton for sex determination are missing, the well developed supraorbital ridges, the large and extended sinus frontalis and the massiveness of the long bones suggest a male. All teeth and most of the cranial sutures are missing. Therefore the assessment of the age at the time of death is very difficult. As, however most of the preserved sutures have undergone synostosis a higher age group can be assumed. This accords with the structure of the well preserved pubic symphysis showing stage 4 according to Nemeskeri which corresponds to a mean age of 58 years.

*SECTION — 5**SOME NOTES ON THE FUNERARY RITES AT TIMARGARHA*

As the description of the graves in the previous section indicates three main types of burial customs are to be distinguished⁶:

- 1) Inflexed burials, where the individuals were lying with bent arms and legs on one side and mostly oriented from west to east or north-west to south-east,
- 2) Cremated burials, where the burnt remains were mostly found in urns,
- 3) Fractional or partial burials, where only the bones or parts of the skeleton were buried after the decomposition of the flesh as a result of the exposure of the dead body in the open field or at other places.

According to Dani (1966) these three main types of burial customs are related to three different cultures and periods, as will be discussed in detail in a later section.

Moreover, the anthropological analysis of the skeletal material, especially the study of the skeletons *in situ* has shown many details and variations of these main types of funerary rites, which may also be interesting from an archaeological point of view.

One of the striking features is the fact, that these three main burial types in its purest form could be traced only in a relatively small number of graves, whereas most of the burials containing more than one individual revealed a mixing of two basic types.

The inflexed burials of adults (concerning the non-adults see later) in their typical form was found only in the following graves 103, 148, 157, 190, 192, 203, 212, 241, 242, 262, and 270. The graves 202, 204, 111B and 182 belong to the same type but they differ from the previous one in orientation or in the fact, that only parts of the body were buried in inflexed position.

The greatest number of inflexed burials were mixed with the third burial type, i.e. fractional or partial burials. As in many of these graves the skeletons lying in inflexed position, were partially disturbed (for example in graves 123, 138, 139, 142, 144, 162, 180, 196, 197) the priority of the inflexed burials can be concluded.

The chronological sequence of burial of the individuals found in this mixed type of burials can be reconstructed as follows: Originally a burial in natural flexed position took place in these graves. At a later time the grave was reopened which led to a partial disturbance of the inflexed burial. As most of the skeletons were disarticulated in its upper part whereas the lower portion was found in anatomical position, it can be concluded that the graves were opened on the western end where in most of the cases the upper part of the skeleton was lying. After the reopening of the graves, the bones of probably the exposed individuals (i.e. the second individual) were buried mostly by throwing the remains in the pit without care as can be deduced from the position of the remains. Regarding the time difference between the two burials we can only say from an anthropological point of view that the second burial took place at the time when the flesh of the inflexed burial was decomposed. From the forensic medicine we know that the body decomposes within 2-10 years, which varies according to climate and soil composition. The other possibility can be that

the second burial resulted after a long gap of time, so that the graves with inflexed burials of period I, were used again in period III. The discovery of the graves might have been no problem due to the stone lining and covering of the chambers with big stone slabs, which made it easy to find the graves even after hundreds of years. This assumption is supported by the archaeological finds. For example in grave 142 beside a fractional burial was found a skeleton in natural inflexed position at a lower level. Parts of an iron snaffle of a horse in the grave undoubtedly related to Period III according to Dani. Hence we can interpret that the inflexed burial took place earlier than the fractional burial which is typical for the last cultural period (see section "Discussion and Conclusion").

Again it seems that not all graves where burials in flexed position were found along with disarticulated bones, can be considered as mixture of the above described burial type I and II i.e. a combination of an inflexed and a fractional burial. Contrary to most of the other graves the inflexed burials were totally undisturbed in these graves. It seems that in these cases the other individuals were buried earlier in natural position and in course of the later burials the bones were pushed to the side to provide space for the new burial. This assumption is supported by the fact that care had been taken in removing the bones to the side.

This assumption is again supported by the first radiocarbon dates from grave 101 which seems to belong to this burial type. As already mentioned in the introductory section the inflexed burial in this grave yielded an absolute age of 3380 years while the age of the disarticulated bones in the same grave was determined as 2805 years, indicating a time difference of nearly 600 years. This result would be in favour of a fractional burial after a long gap of time. A firm solution of this assumption is possible when this time gap is confirmed by further radiocarbon analysis.

Such graves, where an inflexed burial was mixed with cremated remains, were comparatively small in number. In its purest form we find this combination in grave 217⁷ which revealed an urn containing burnt remains of two individuals besides an undisturbed skeleton in natural inflexed position. It is difficult to determine with the help of anthropological finds whether the burials took place at the same or at different time periods. The undisturbed position of the inflexed burial does not speak against the earlier burial of the burnt remains. The urn was found in a corner of the grave chamber which did not contain any other human remains. Therefore the reopening of the grave in this part without disturbance of

the inflexed burial can be imagined. Yet this question may better be decided from an archaeological point of view. (See description of the grave, P. 100).

However, it is difficult to explain those graves where burnt remains without urn were found beside an undisturbed inflexed burial. The cremated remains were quantitatively not enough to represent one individual.

In case of the inflexed burials, a relationship between burial position and sex, already suggested by the archaeological finds, is further confirmed by anthropological analysis. As far as sex diagnosis was possible with anthropological methods it has shown that the female individuals were lying on the left side and facing north as conditioned by the west-east orientation of the body, while the males were lying on the right side facing south. This is also valid for the graves 111 B and 182 though only the lower part of the body or a body probably without head was buried.

In this connection the two graves 202 and 204 were of special interest. These two burials differentiate themselves from other inflexed burials as the bodies were placed inversely in east-west direction (head in the east). The two skeletons determined as female were lying like other females on the left side but facing south like males owing to the reverse orientation of the body. Therefore we can conclude that the facing of the body during the burial according to the sex was in favour of the side of the body than the cardinal direction.

Except those graves where this rule could not be confirmed due to the bad state of preservation of the bones, there are only a few graves which are in contradiction to the above rule (grave 176, 209). The number of cremated burials in their purest form is comparatively small. All burnt bones were kept in urns with the exception of grave 119 where like the inflexed burials with burnt remains, parts of the cremated bones were scattered on the floor. Most of the urns contained remains of more than one individual. In some urns burnt bones of children of juvenile individual were found beside the remains of grown up individuals of both sexes. The degree of burning of the bones varies from strongly burnt to slightly burnt or slightly charred, thus indicating a different type of the funeral pyre. In case of grave 184 most of the bones were only slightly charred. The cranium placed on the mouth of the urn, was nearly totally preserved and only the facial part showed traces of burning (see Fig. 111). The lesser degree of burning and the irregularly distributed burning traces resemble the burning me-

thod as occasionally practised during the same time in Syr-Darya Delta. There the dead was not burnt on a pack of wood but the body was wrapped with a straw mat or with reed. This was lighted resulting in an irregular roasting and burning of the body (compare Jettmar 1967). Numerically the fractional and partial burials in their purest form were approximately equally represented as the typical inflexed burials. To the burial type, in which no bones were found in articulated position, belong the graves 109, 117, 125, 137, 151, 165, 173 a, 177, 186, 191 and 228. In most cases these graves give the impression that the bones were thrown without care in the grave chamber after decomposition of the body. However some other graves show a certain intentional care regarding the arrangement of the bones.

This is true concerning the graves 151 and 191 where a certain order was necessary due to the small size of the grave. But the position of the lower jaw in grave 149 and the crossed manner of the long bones in grave 228 also suggest a certain amount of intention involved in accommodating the bones. The same may be true in case of the graves 254 and 256. In these graves remains of several individuals were found. The skulls or fragments of the skulls were lying close to the walls of the chamber, whereas the long bones and the remaining bones of the postcranial skeleton were heaped with more or less care in the centre of the grave. In grave 256 a skull was lying on a raised stone platform, perhaps also a lower jaw in grave 228³.

It is still open to question whether these graves with many individuals belong to family graves or not. Anthropology is in position to explain this problem with the help of morphological comparisons. However, in case of our material this analysis was not possible due to the fragmentary condition of the skeletons. Only one anthropological find is in favour of accepting a family or a clan burial. In grave 256 four fragmentary lower jaws were found exhibiting an extreme wide angle of the ascendant ramus as it was not found in case of any other skull of the cemetery. Although a little is known regarding the heredity and the genetical condition of this feature, we may assume that this character is typical of a particular family or clan. On the basis of the sex and age comparison in same graves we are also able to suggest family graves, particularly in those graves where two adults of different sex are buried along with the remains of children.

All the graves containing animal bones along with human remains belong to the fractional burial type (grave 109, 125, 137, 149, 183). The position of the animal bones, for example the animal skull in grave 109, suggests an

intentional burial of such bones. Very strange is the fact that in grave 125 two long animal bones were inserted approximately 6-7 inches in between the wall stones of the grave. The same was true of two human femura in grave 162.

The animal bones had been confirmed by a zoologist as belonging to the following animals: Horse, goat, sheep, stag, hare and snake (see also section "Zoological remains"). It seems likely that the burial of the bones of these animals besides human remains was of ritual meaning, which may be true specially in the case of the snake tail found on the rim of a votive vessel in grave 183.

In the graves 109 and 125 only a few human skeletal remains were found, which do not represent all the bones of an individual. It is unlikely to think that the rest of the remains have decomposed, as the available material is in a good state of preservation. Therefore in such cases a partial burial may be assumed. The burial of incomplete skeletons could also be confirmed in some other graves of the fractional burial type. In grave 186 only two skulls without postcranial skeleton were found, whereas grave 104 only revealed a skull and the bones of upper extremities but no remains of the lower part of the body. Grave 191 contained only the skull and the long bones of one individual whereas the bones of the remaining skeleton were missing. Grave 139 revealed two postcranial skeletons but only one skull. Whether one skull of grave 186 belongs to one of these skeletons or not is very difficult to say.

Contrary to adults, inflexed position was the most common burial type in case of children. As has been observed in the case of the adults, the children were also lying on right or left side suggesting a relationship between sex and facing too. However, this could not be confirmed as the exact sex determination of non-adults is very difficult. Most of the children graves contained only one individual. Remains belonging to more than one child or infant were only found in Grave 107, 196, 253 and 254. In case of the last grave nothing could be said regarding the burial position due to the scanty remains. The inflexed burial in grave 107 pertaining to a 7 year old child along with the remains of two other infants, was completely undisturbed. Therefore the same burial custom as in grave 101 can be suggested i.e. a secondary inflexed burial, where the remains of the earlier buried individuals were put aside to provide space for the new burial. Contrary to this in grave 196 the partially disturbed skeleton found together with the remains of a second infant in disarticulated position suggests the possibility

of reopening the grave for a fractional burial. Children remains found in grave 254 along with the skeletons of two adult individuals in haphazard manner may also be considered as fractional burials of children. Theoretically, however, it is possible to imagine that the children were originally buried in natural position and the bones were later disturbed by a fractional burial of the adults. It is also difficult to explain the burial type of grave 144 where very scanty remains of an infant were found with the disturbed skeleton of a young woman.

Burnt burials of children or juveniles could be traced only in association with adults, as all burnt remains of children were found in urns also containing the remains of adult individuals. Therefore it seems quite possible that the inflexed burial (see above pp. 76ff. and 103ff. for the children graves — editor) of a single individual was the prevailing burial type in the case of children and other burial customs were practised only in association with the burial of adults. At the same time when this chapter was finished the work of Stacul on the archaeological results of the excavation of pre-Buddhist cemetery at Swat was published as mentioned in the introductory section. The work of Stacul confirms the findings at Timargarha and above all the typology of the funerary rites with the exception of the relationship between sex and facing in case of inflexed burials. However there are certain differences regarding the interpretation of the finds. Yet the present circumstances do not allow to analyse these different interpretations here. The same is true of the differences in interpretation between Stacul and Dani, especially concerning the chronological sequence of the prevailing burial type.

SECTION — 6

SOME DEMOGRAPHIC NOTES ON TIMARGARHA POPULATION

According to the palaeodemographic pilot study of Acsadi and Nemeskeri (1957) on the population of a mediaeval cemetery of Hungary, a full demographic analysis and biological reconstruction of prehistoric populations, which also include estimation of the population number in different time periods, is only possible if two basic conditions are fulfilled:

- 1) The anthropological series under investigation should be complete (i.e. it comprises the whole material of the cemetery), or at least the extent of the completeness should be known, and

- 2) the chronological sequence and the duration of the use of the cemetery should be properly known.

In case of our material these two requirements are not met. The excavated area does not represent the whole cemetery and even the extension of the graveyard is not known. Secondly we do not know the exact duration for which the cemetery was used.

However Acsadi and Nemeskeri are of the opinion, that part series, especially when no selection of the skeletons took place (e.g. if not only the well preserved adult individuals were selected for analysis) are also of great significance for the biological reconstruction of prehistoric populations and are of great value from an archaeological, general-anthropological and palaeo-anthropological point of view. As our material corresponds to these restricted conditions, an approximate analysis of the demographic structure of Timargarha population is possible. Tab. 1 shows the site, sex and age distribution of all skeletons excavated at Timargarha. As the individual number in the particular age group is too small for consideration of both sites separately, the palaeodemographic analysis had to be based on the material handled together.

Out of 137 skeletons which could be salvaged from both sites, the age of 103 individuals was determined within the age variation of 5 to 10 years. In 34 cases, however, it was only possible to say, that the individuals were at least adults. The sex of 96 individuals could be determined out of 104 adults. The same is true of 2 out of 3 juveniles (age group 15-19 years). In some cases it was possible to determine the approximate age but not the sex. Such individuals are noted in Tab. 1 as? Children and infants are not shown sex wise as the sex was not properly determined.

The sex proportion of the individuals whose sex could be determined is 46 males to 42 females. From these figures result a sex ratio of 1000 males to 913 females. This number shows a slight shortage of the females, which is in accordance with the general biological sex proportion. If we consider the proportion of non-adults to adults we find a percentage of 24.09 non-adults to 75.91% adults (Tab. 1). As compared with other prehistoric populations the frequency of non-adults is relatively low (see Hausler 1966). The same is true of the percentage of infants who died below 1 year of age, being 8.03%. Concerning prehistoric populations generally a higher mortality rate is assumed, which is considered to be confirmed by the mortality of infants by present day tribal populations, living under si-

milar living conditions as prehistoric populations. For example Angel found for ancient Greek populations of Middle Bronze Age a mortality of infants below 1 year being 34.9% and for the classical Greek period a percentage of 29.9 (compare Angel in Howells 1960). The low percentage of infants below 1 year in case of our material may be caused partially by the fact, that some graves of which the bones could not be salvaged (see section 2) belong to children. Yet, even if we include these graves (which according to the report of the site supervisor are of small number), we do not get such a high percentage as generally assumed and assessed by Angel. There are also no signs that some of the children were buried in other parts or outside the cemetery, which would diminish the percentage of infants too. (compare Schwidetzky 1965, Hausler 1966). On the other hand certain new investigations have reported on prehistoric populations also showing relatively low mortality rates for children. Acsadi and Nemeskeri found for series of different time periods from Hungary a frequency of mortality for infants which never increased more than 10-20%. The same is true of North American prehistoric populations, where the death rate for infants below 1 year varies from 6% to 19.5% (compare Brabender 1965). Yet it would lead too far to discuss here these special problems in detail.

If we consider the age group 1-7 years, we find relatively a high mortality rate of 10.95% which exceeds the present day mortality for this group. This percentage fits well with the finds concerning other prehistoric populations e.g. the series from Hungary and North America (compare Acsadi and Nemeskeri 1957, Brabender 1965). According to Acsadi and Nemeskeri the high mortality in the age group 1-7 years signifies the bad living conditions and exogenelethal factors. On the other hand the comparatively low death rate of infants below 1 year indicates that the endogenic causes of death were relatively low. After the decrease in mortality in the age group 8-19 years there is a remarkable increase within the age group 20-30 years, where the mortality curve shows its peak, when both sexes are handled together.

Detailed informations concerning the death conditions in the particular adult age group, especially the distribution of the mortality of both sexes are recorded in Tab. 2. Here only those individuals are taken into consideration, whose age and sex could be assessed. The distribution differences and peak positions among males and females are most remarkable. In case of males the mortality peak is reached in the age group 30-40 years. The peak is low, and the mortality is relatively well distributed among other age groups. Contrary to this in case of females the peak is already reached

in the age group 20-30 years, when the frequency is double than in the same age group for males. Consequently the death rate in the other age group is relatively low, as compared with males, with the exception of the senile age group, where the death rate is nearly the same for males and females. The high mortality of the females in the younger age groups and consequently the lower life expectancy, is also to be observed in other prehistoric populations and is generally considered as due to childhood mortality for younger females.

If we compare the mortality rate of adults in our material with other prehistoric populations the same decreasing trend is observed from adult to senile age group (tab. 3). However the percentage of mortality in the age group 20-40 is higher than in most of the other series considered for comparison². Yet it would lead us too far to discuss this and other special problems in this limited demographic analysis.

SECTION — 7

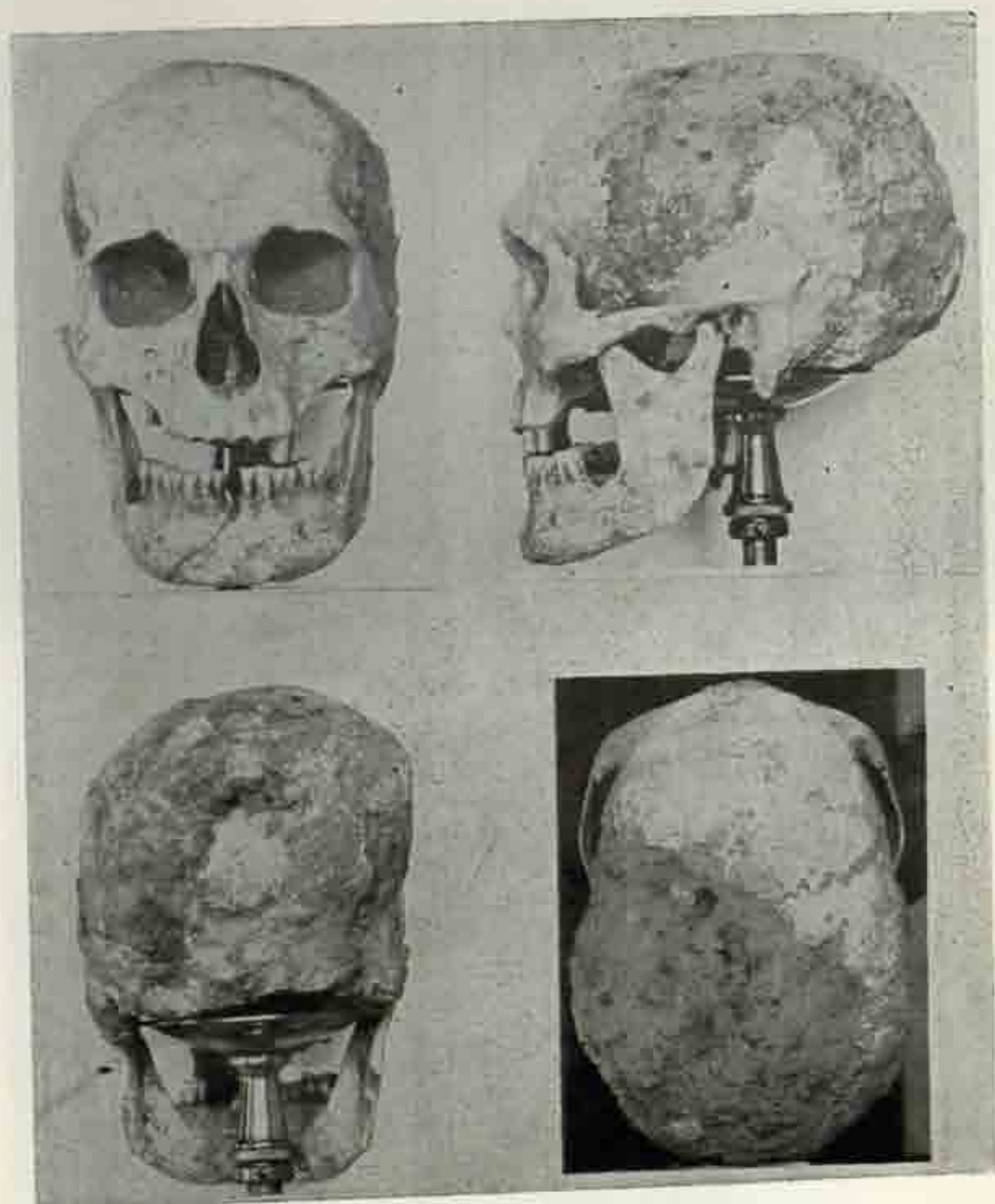
MORPHOLOGICAL AND METRICAL ANALYSIS OF THE SKELETAL MATERIAL

A. SKULLS

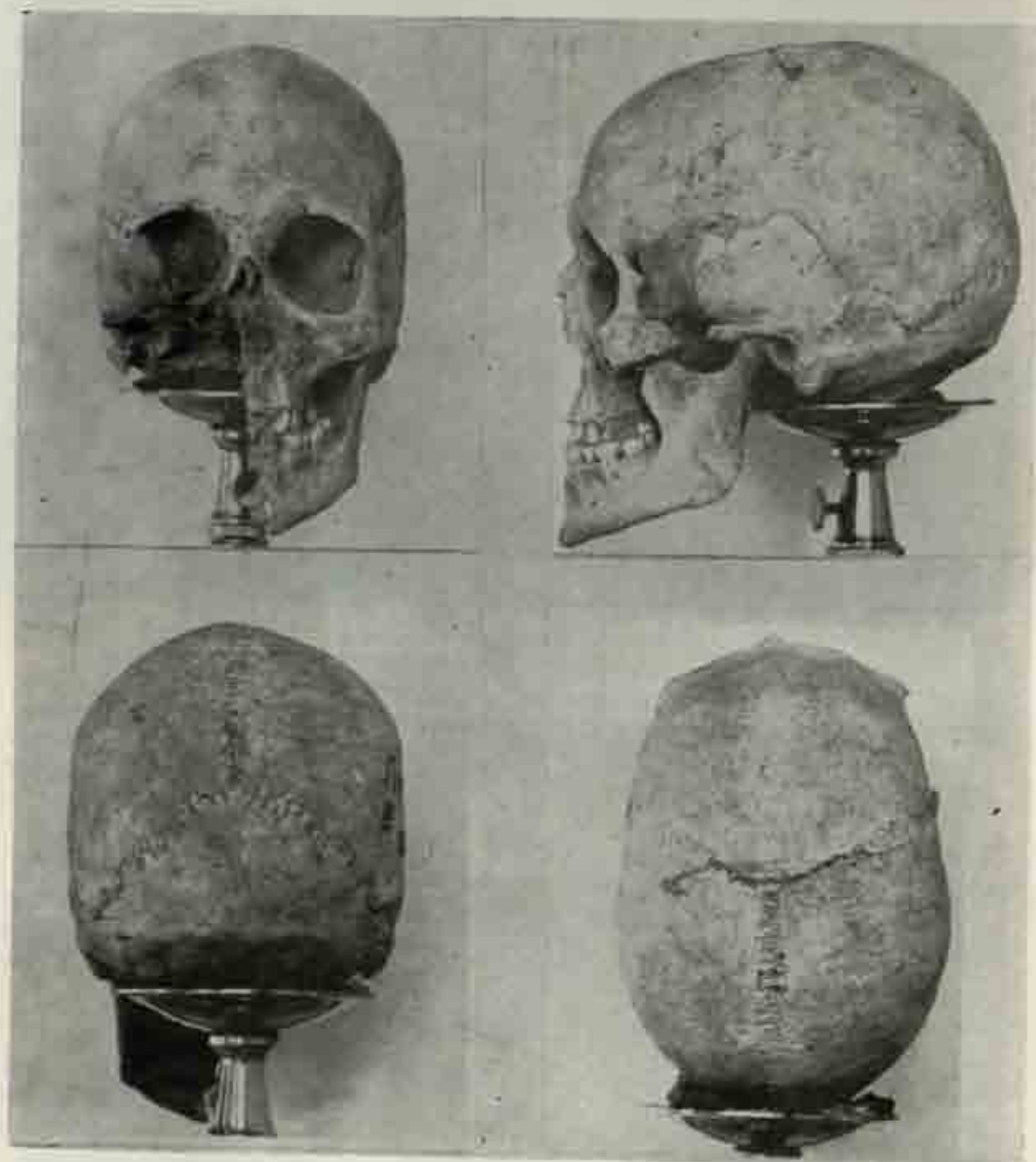
Altogether 25 skulls were so well preserved or could be restored to such an extent that an anthropological analysis was possible. As already mentioned in Section 2, in this number are included some skulls, which were salvaged during 1964 excavation.

A greater number of anthropometric measurements could be taken on 9 male and 11 female skulls, which are given in detail together with the main indices in the collective Tables A-C at the end of this work. The remaining 5 skulls were so badly damaged, compressed, or distorted that no (or only a small number of) useful measurements could be taken. On the other hand these skulls were complete enough for a descriptive analysis of the main morphological features. A small number of further skulls could also be partially restored, especially the skull cap. Yet these skulls were not complete enough for proper anthropological analysis.

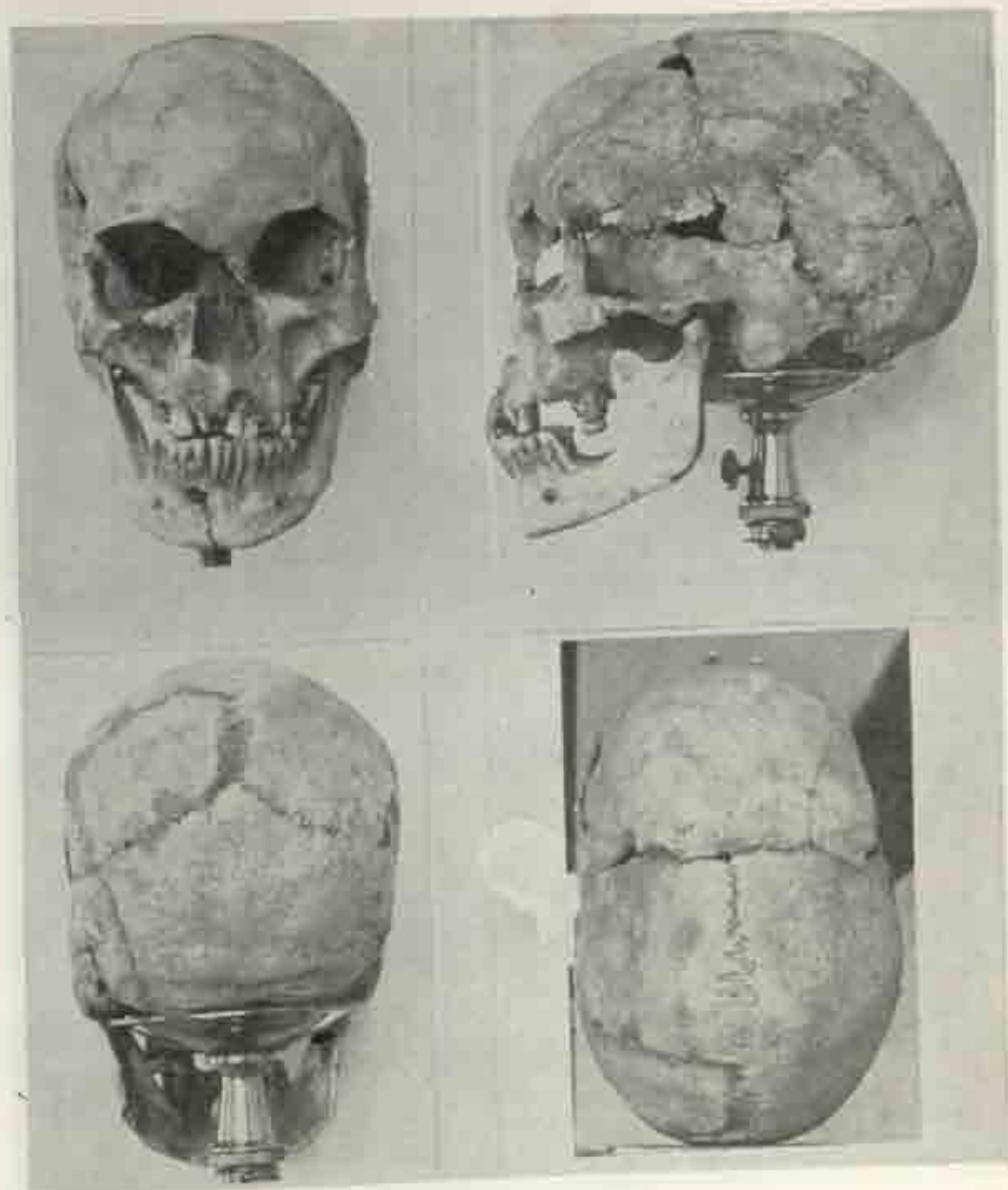
A short description of the main morphological characters and a typological classification of each skull are given in the following pages. It is supported as far as possible by the main cranial and facial measurements and indices and based on the methodological principles described in Section



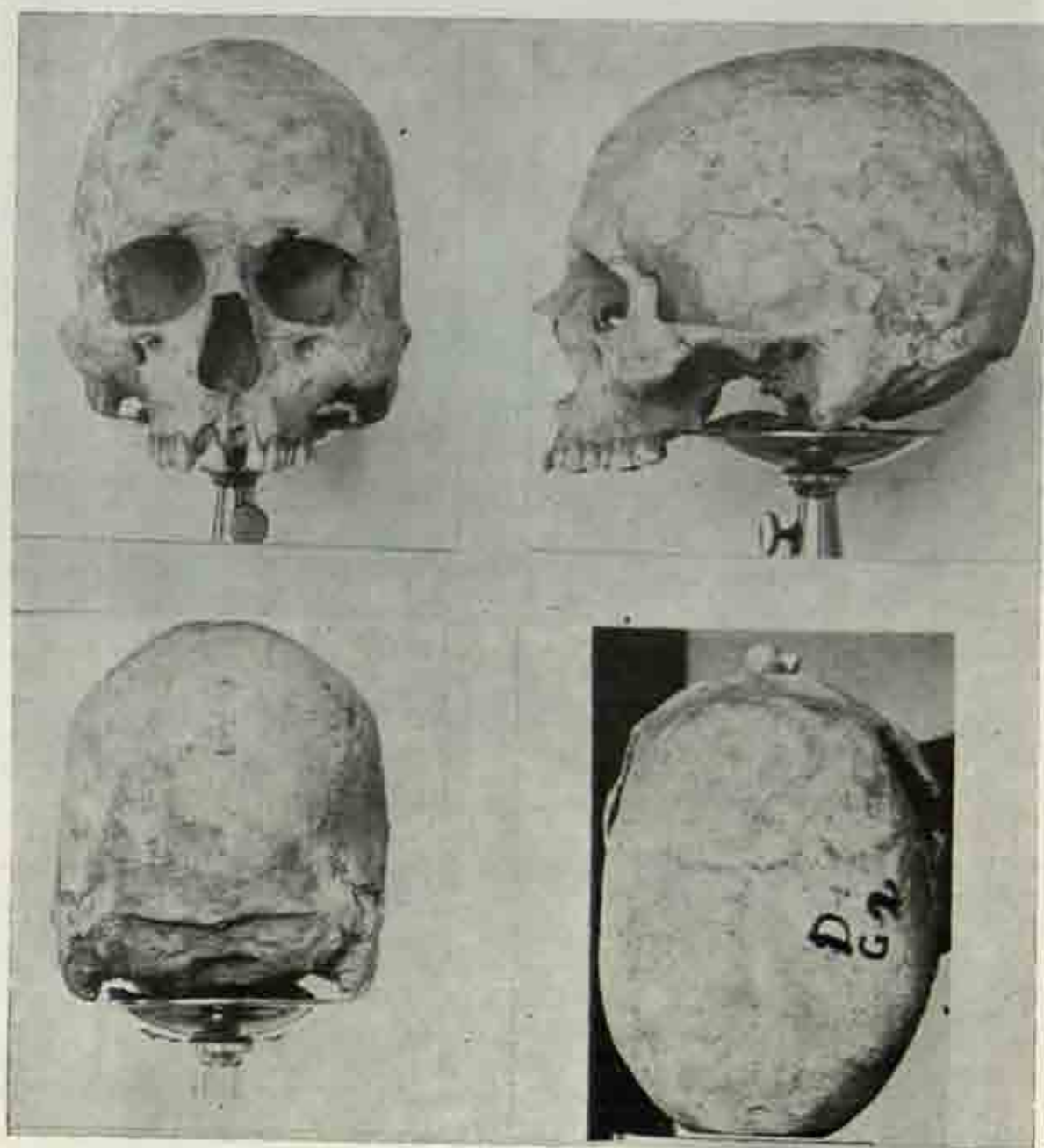
Pl. LVIII (*Figs. 1 - 4*) Skull No. 01



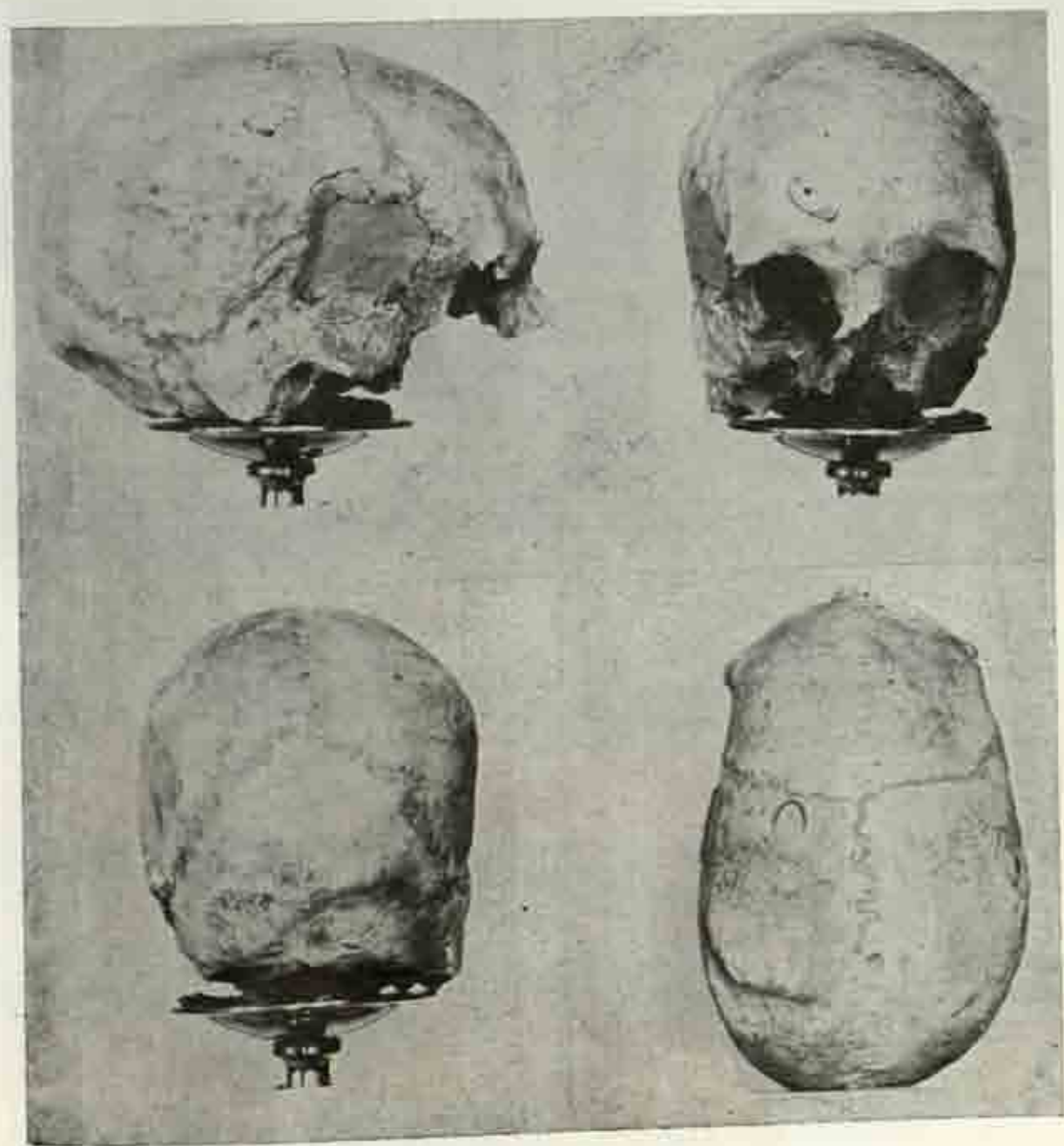
Pl. LIX (*Figs. 5-8*) Skull No. 02



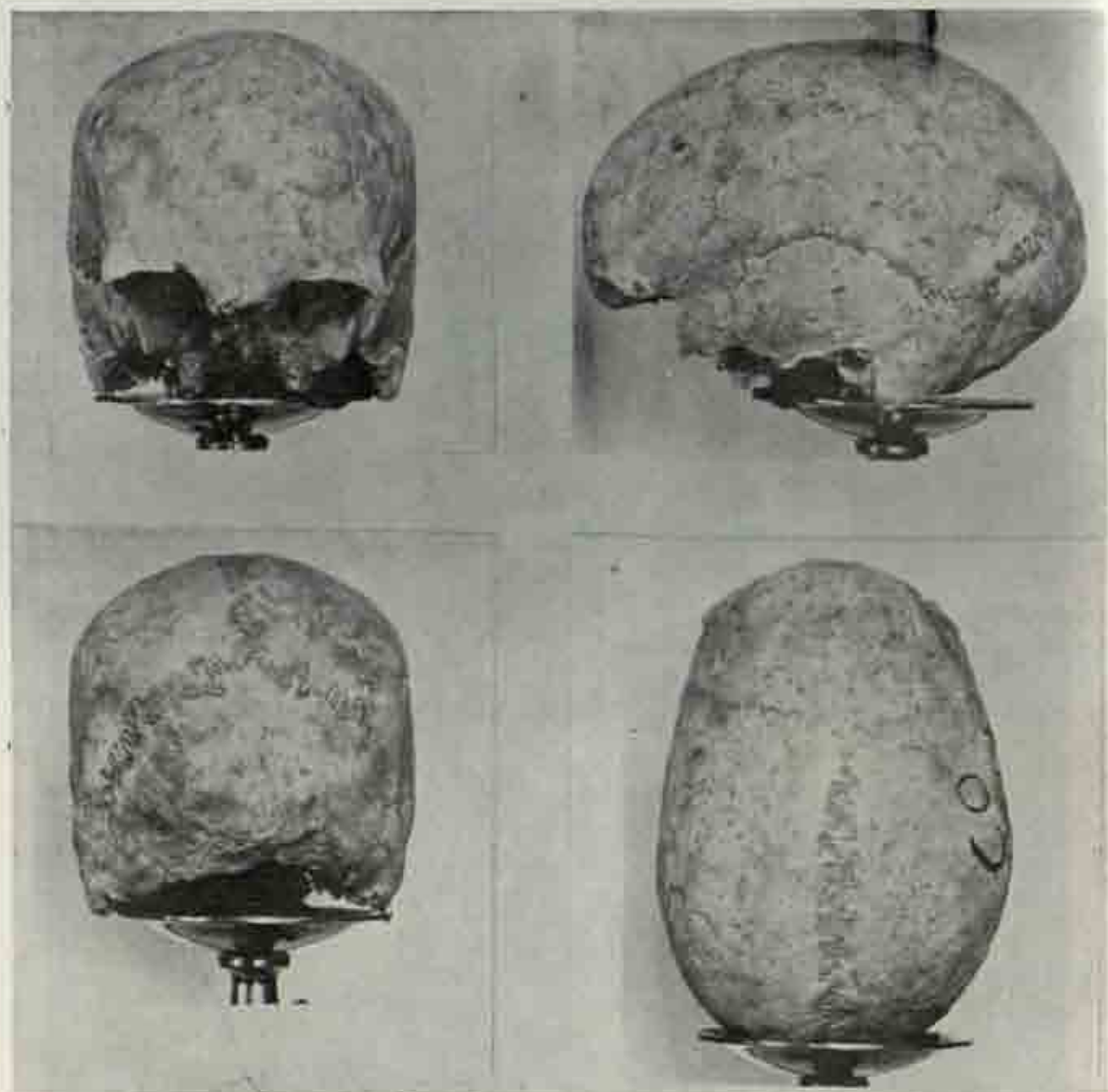
Pl. LX (Figs. 9-12) Skull No. 03



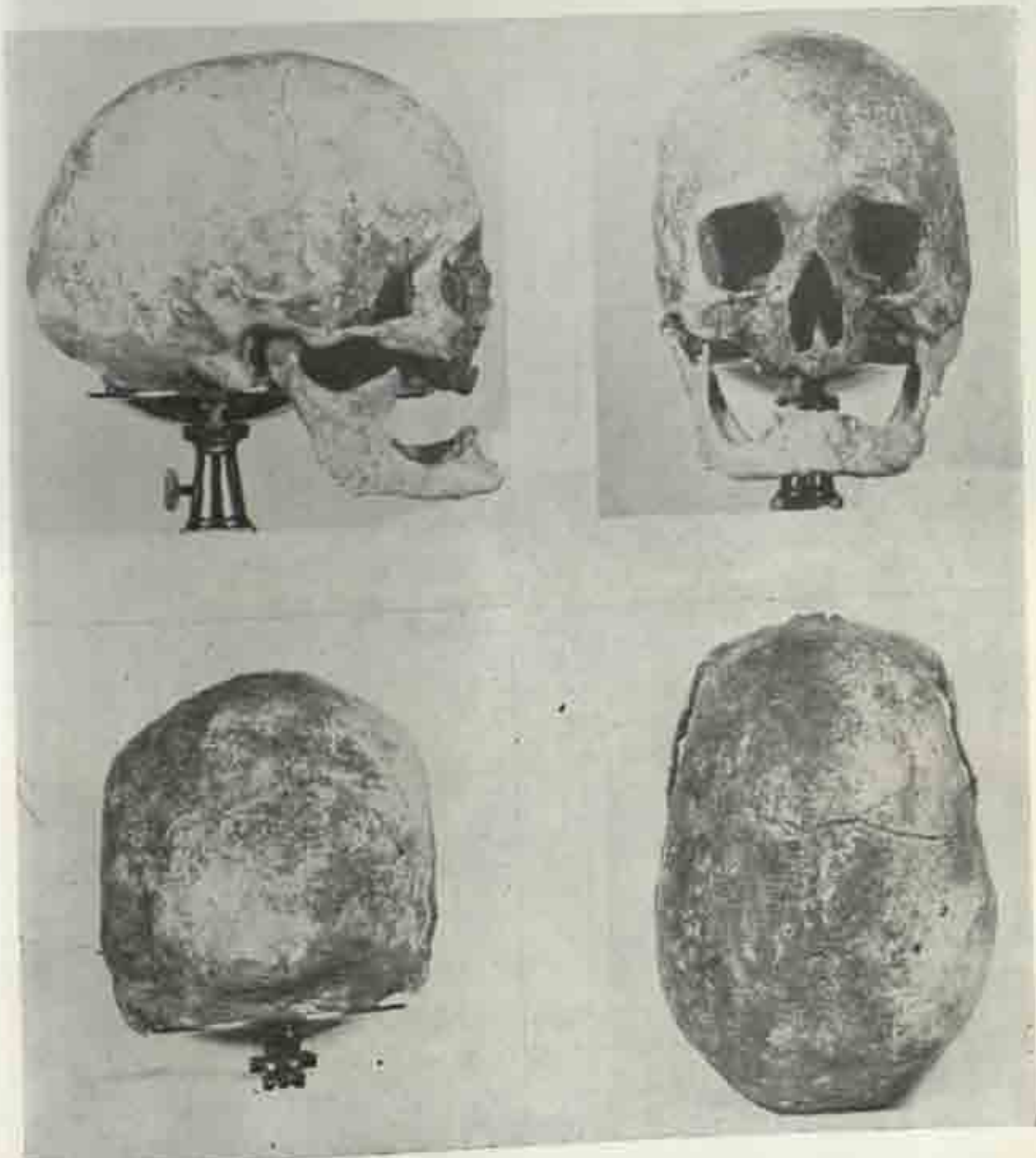
Pl. LXI (Figs. 13 - 16) Skull No. 04



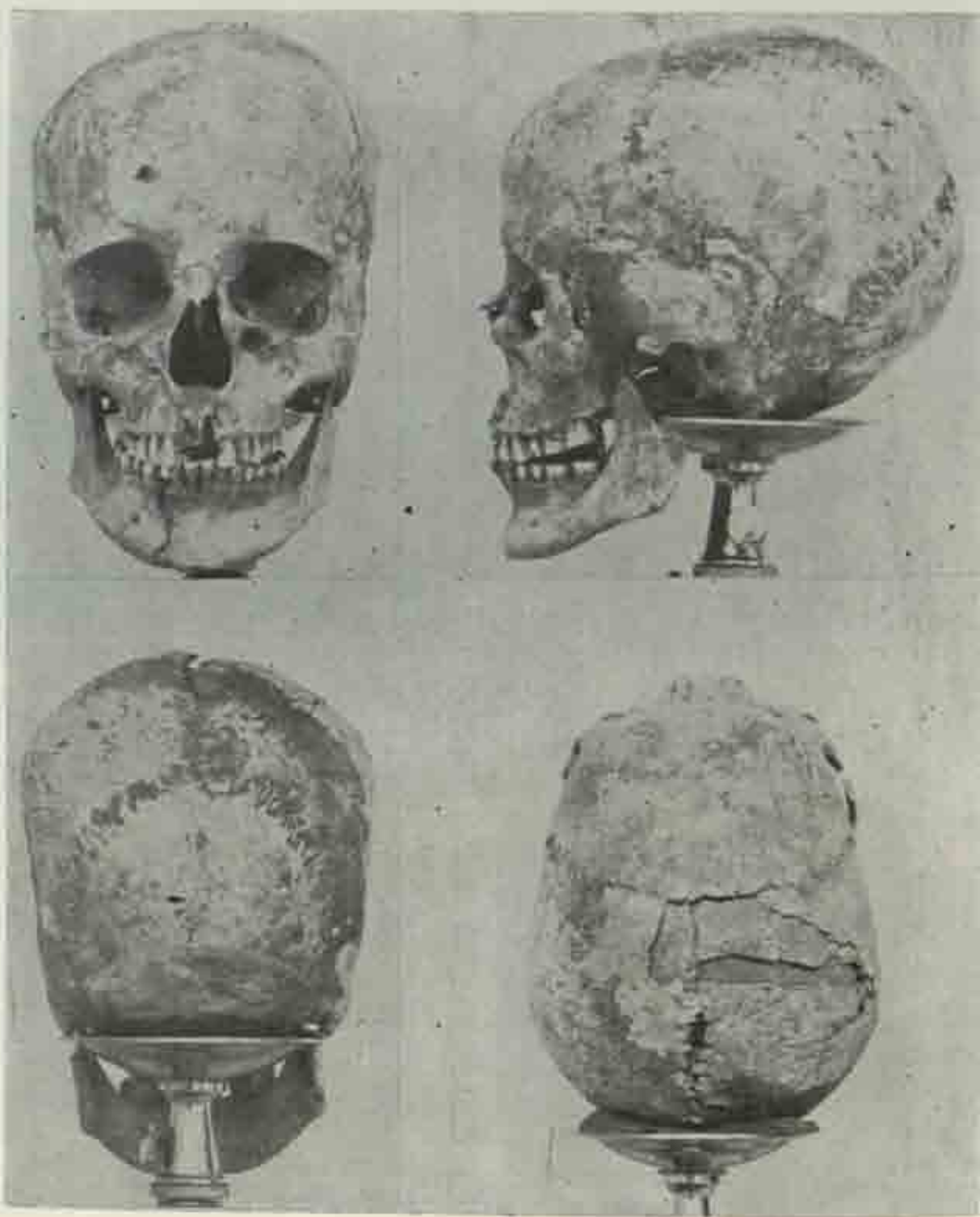
Pl. LXII (*Figs. 17-20*) Skull No. 05



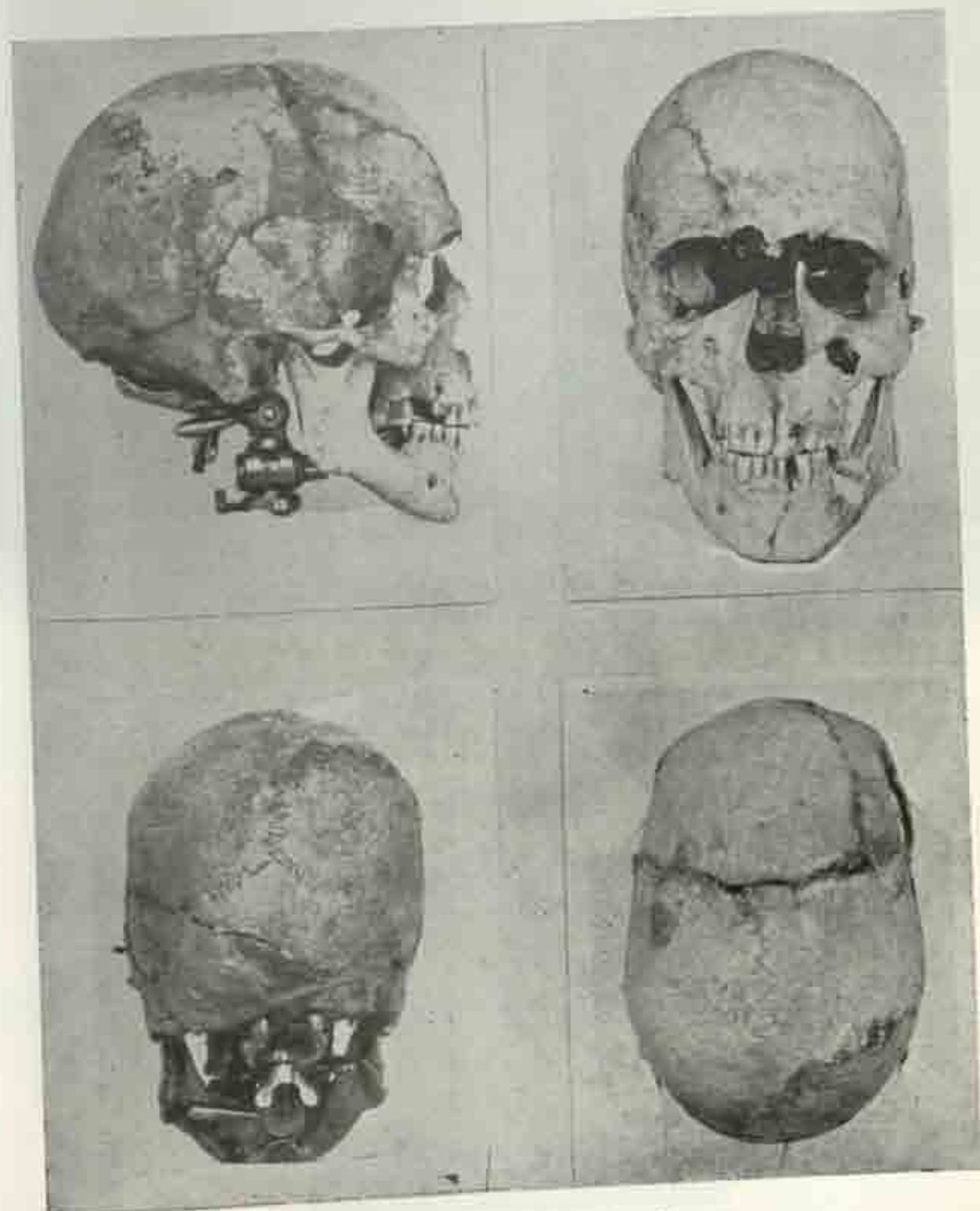
Pl. LXIII (*Figs. 21-24*) Skull No. 06



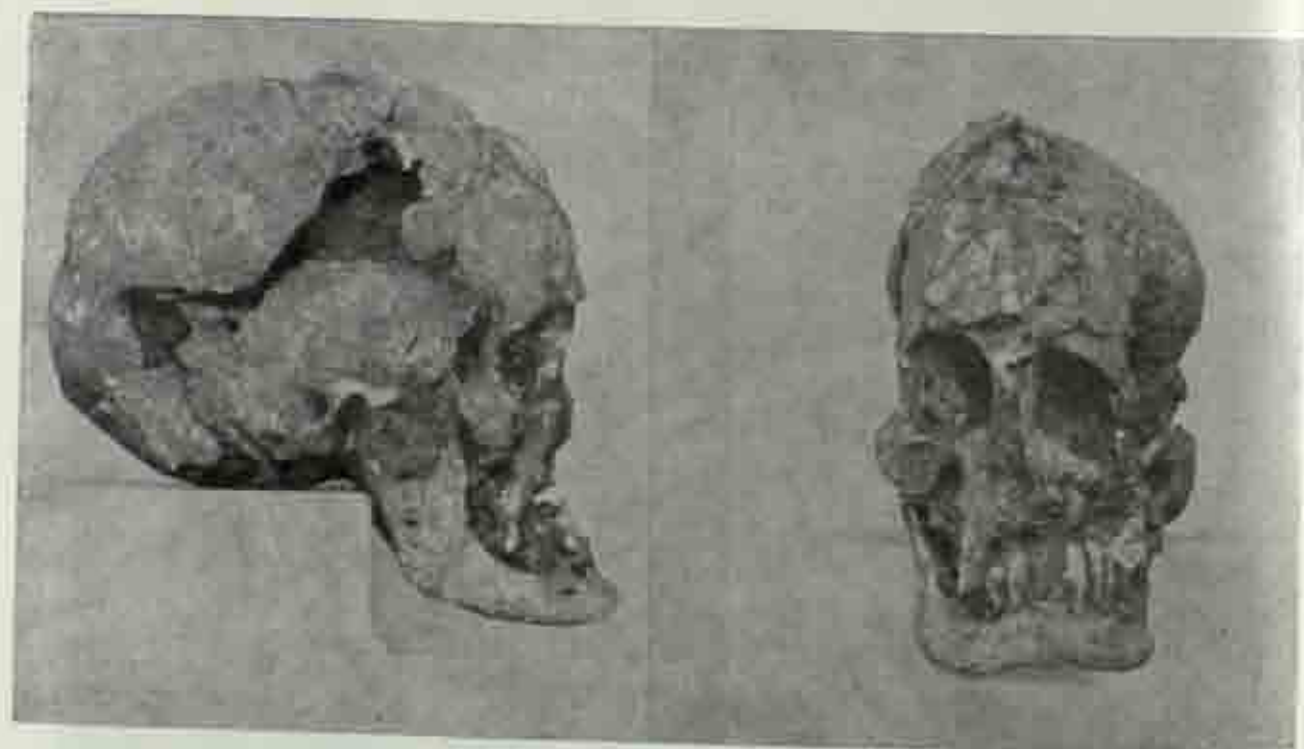
Pl. LXIV (Figs. 25-28) Skull 101a



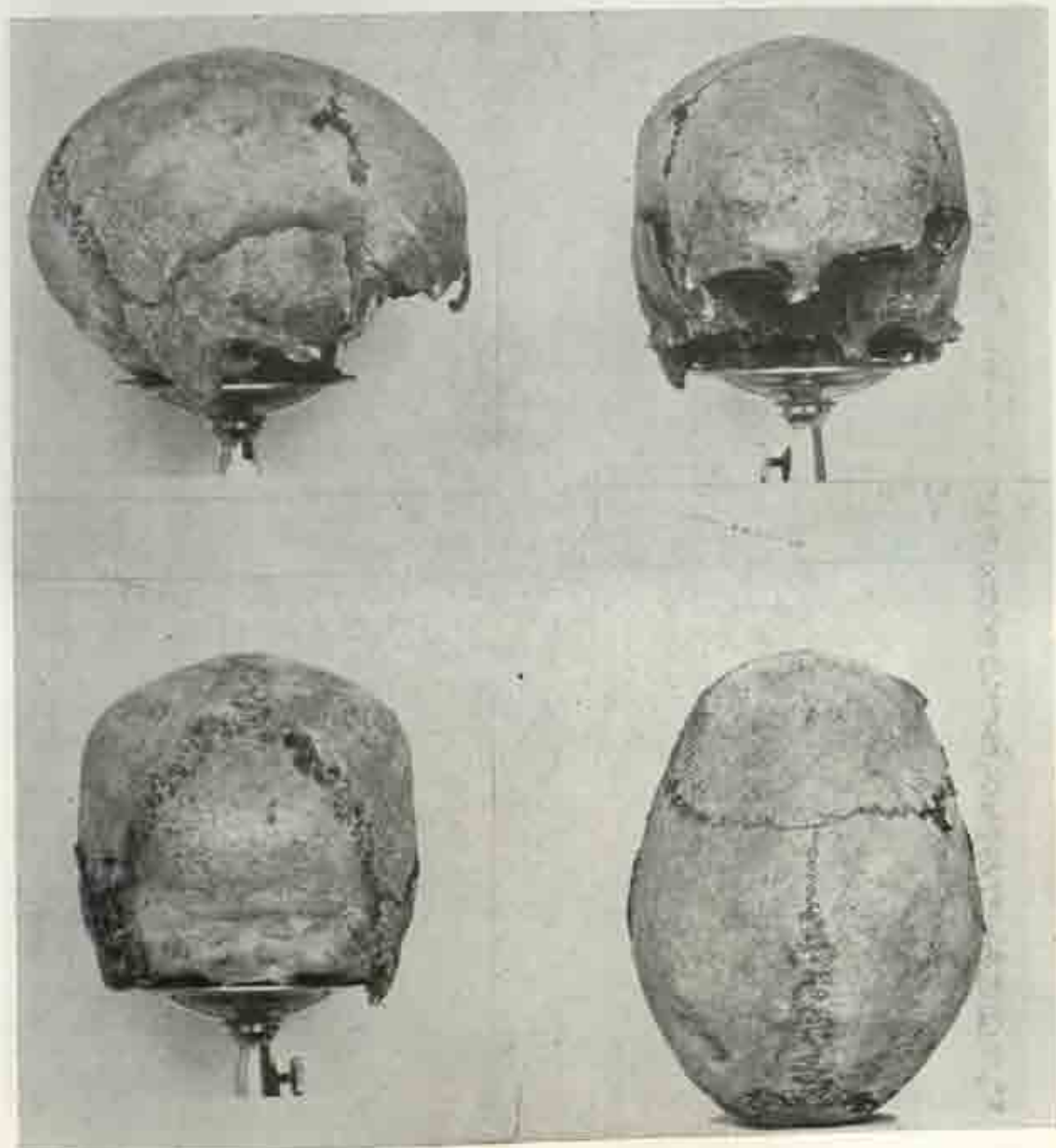
Pl. LXV (Figs. 29 - 32) Skull No.101 b



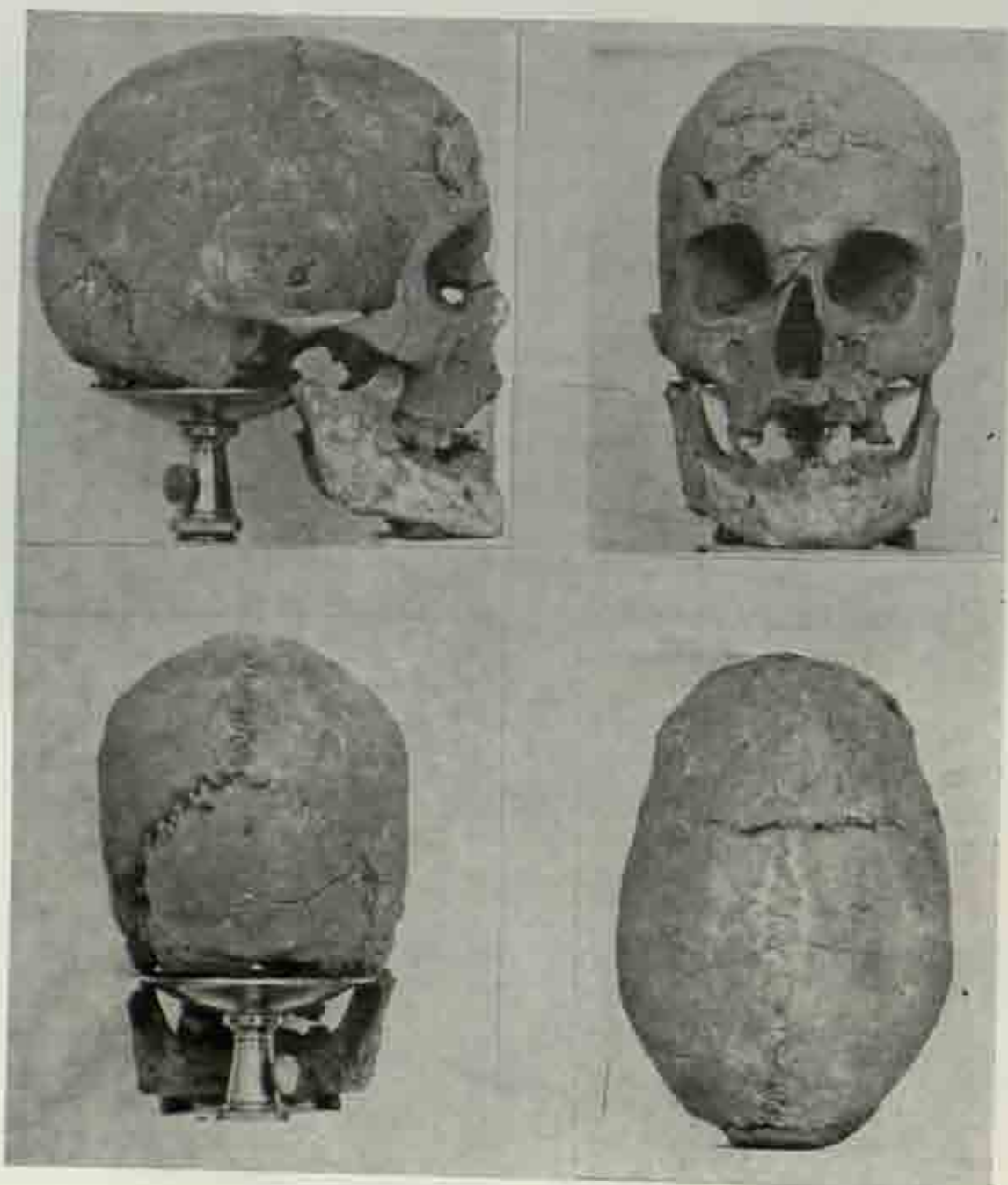
Pl. LXVI (Figs. 33-36) Skull 101 c



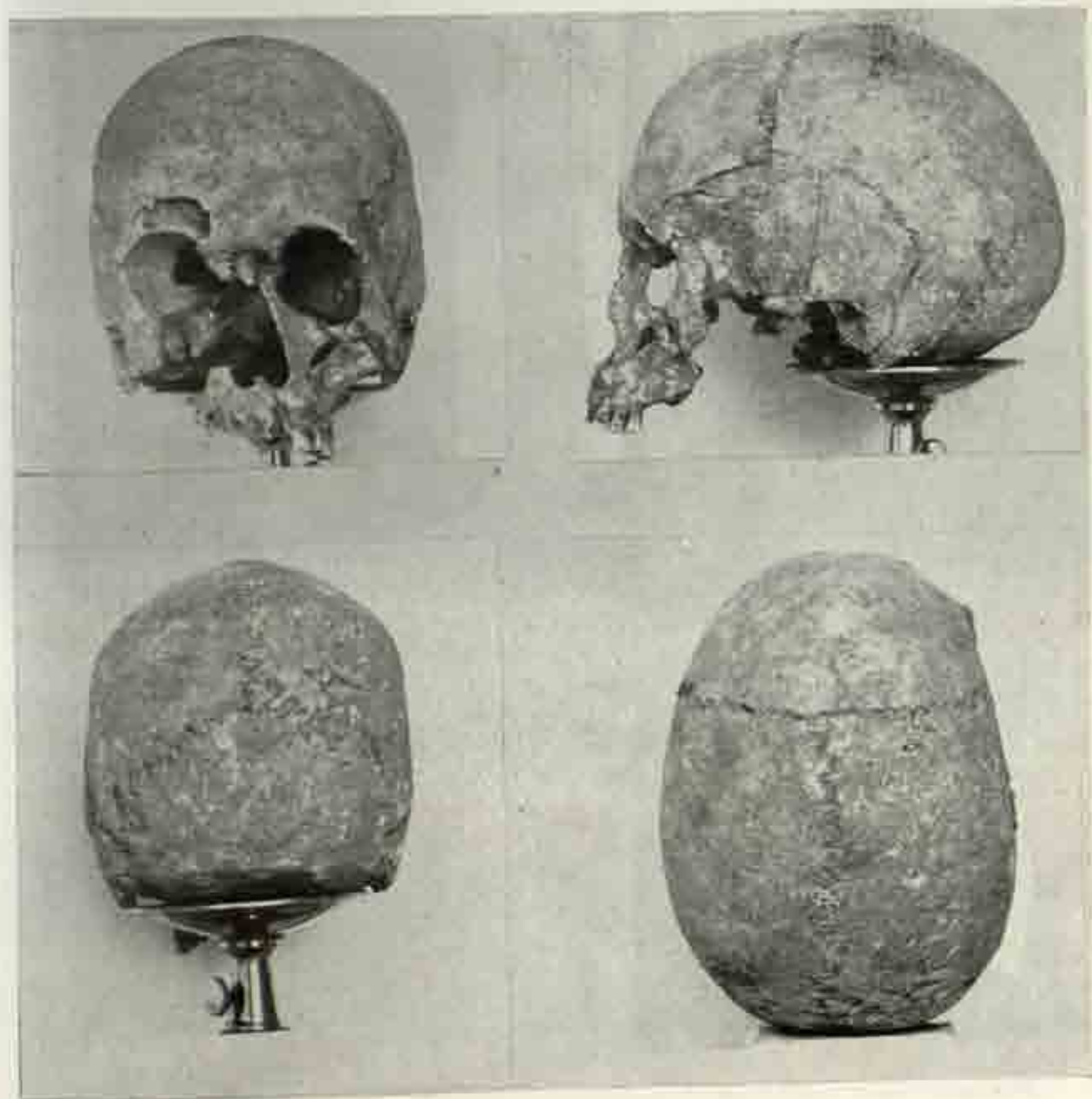
Pl. LXVII (*Figs. 37-39*) Skull No. 114



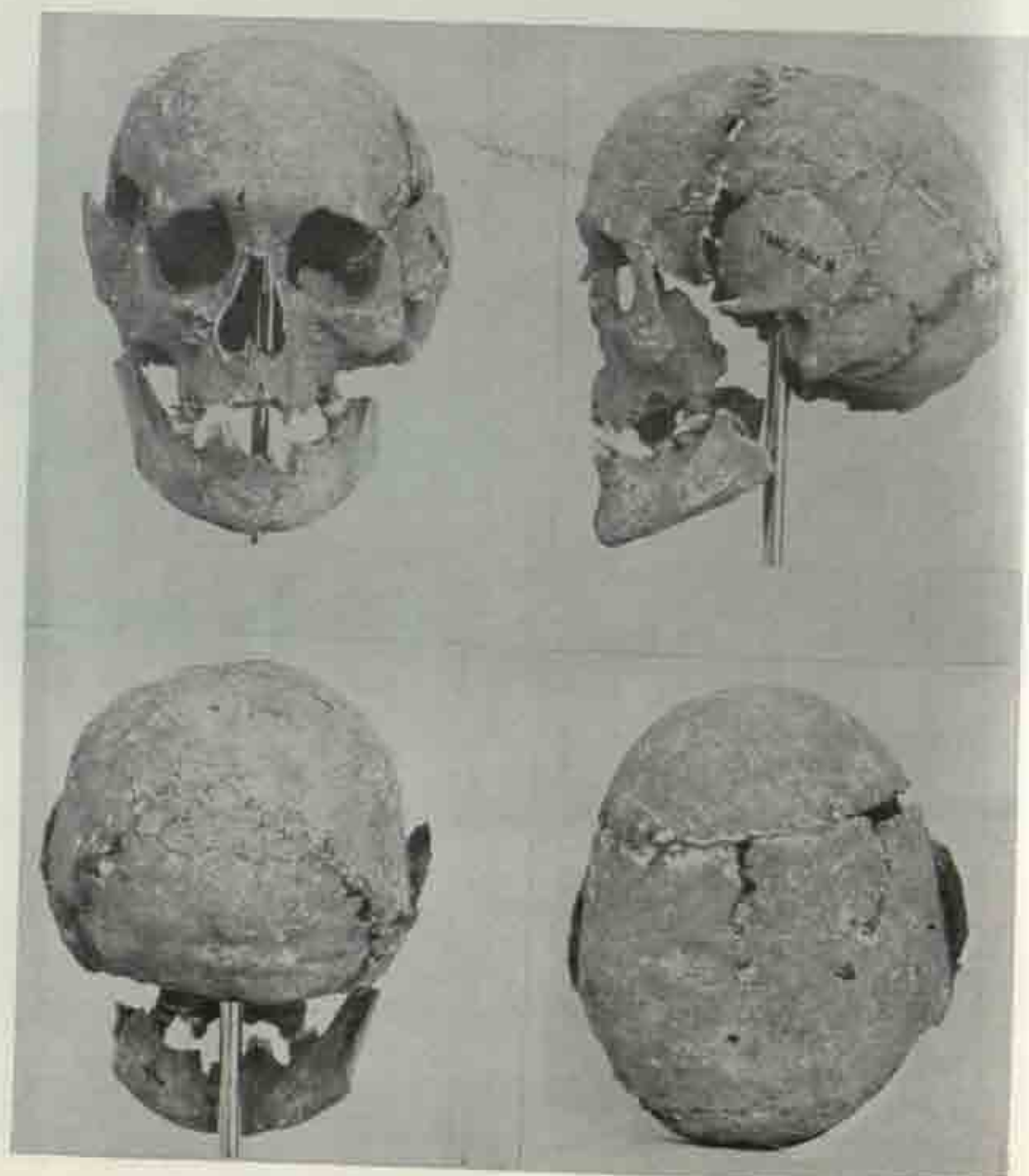
Pl. LXVIII (Figs. 40 - 43) Skull No.134 a



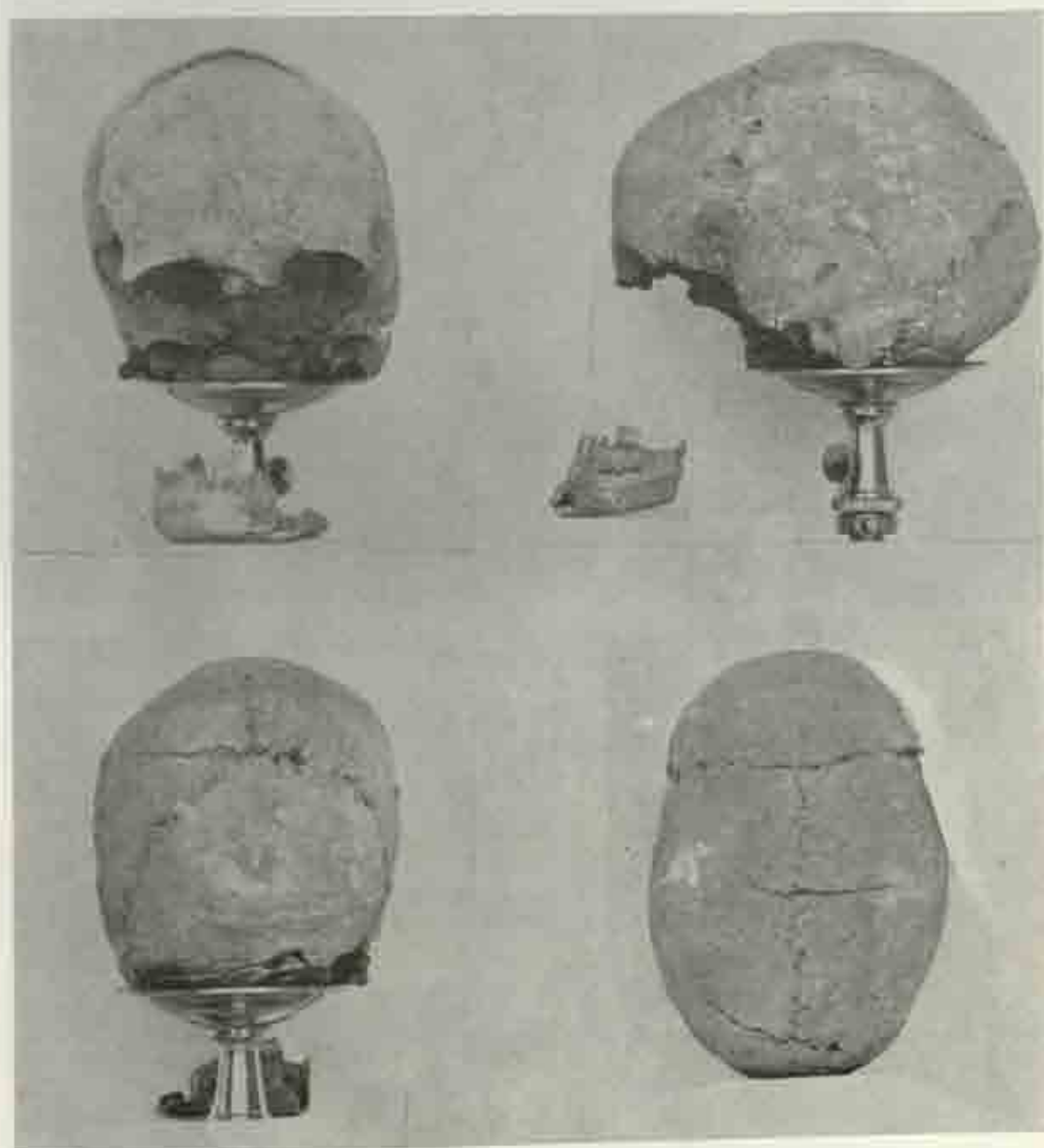
Pl. LXIX. (*Figs. 44-47*) Skull 139 a



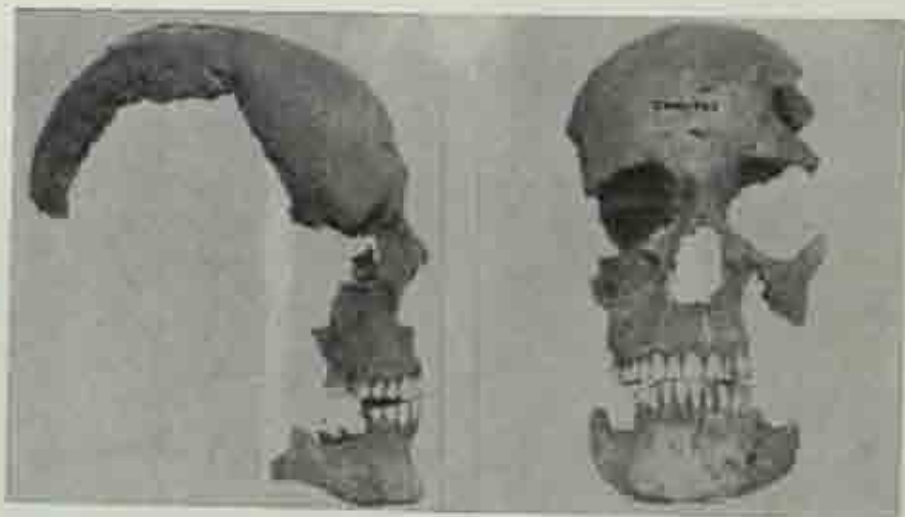
Pl. LXX (*Figs. 48-51*) Skull No.142 a



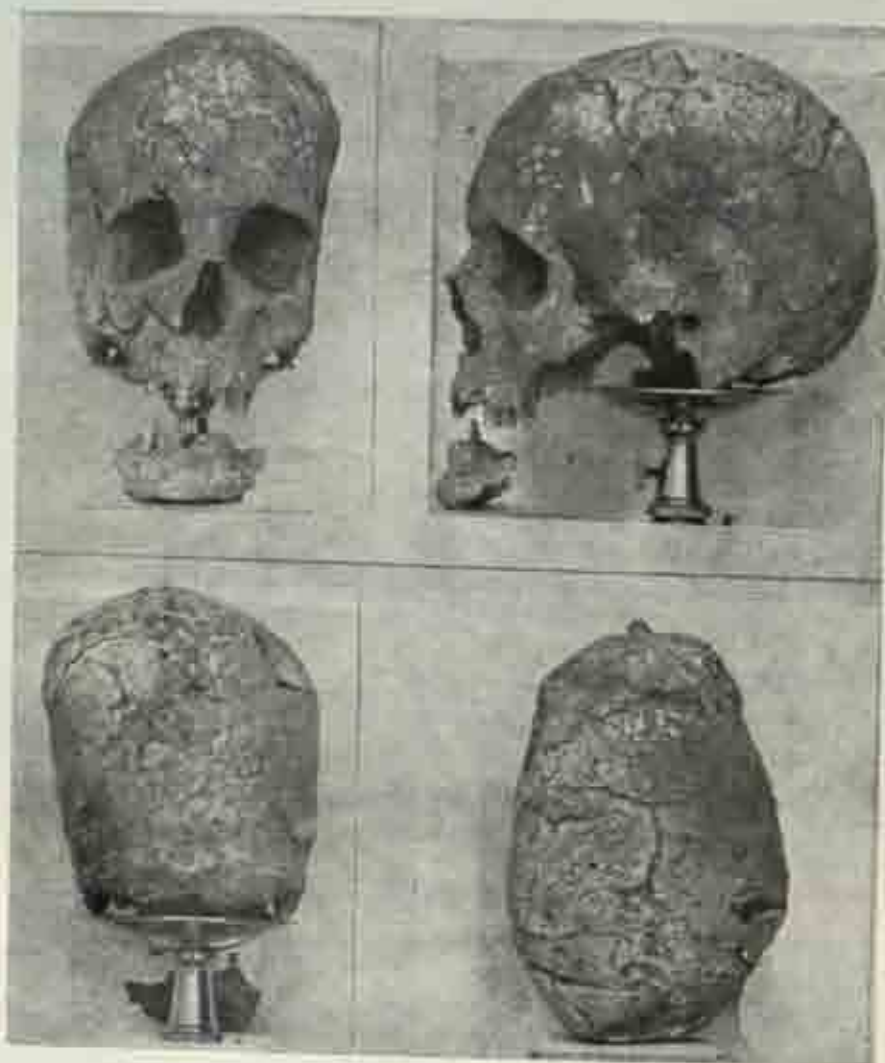
Pl. LXXI (*Figs. 52-55*) Skull 142 b



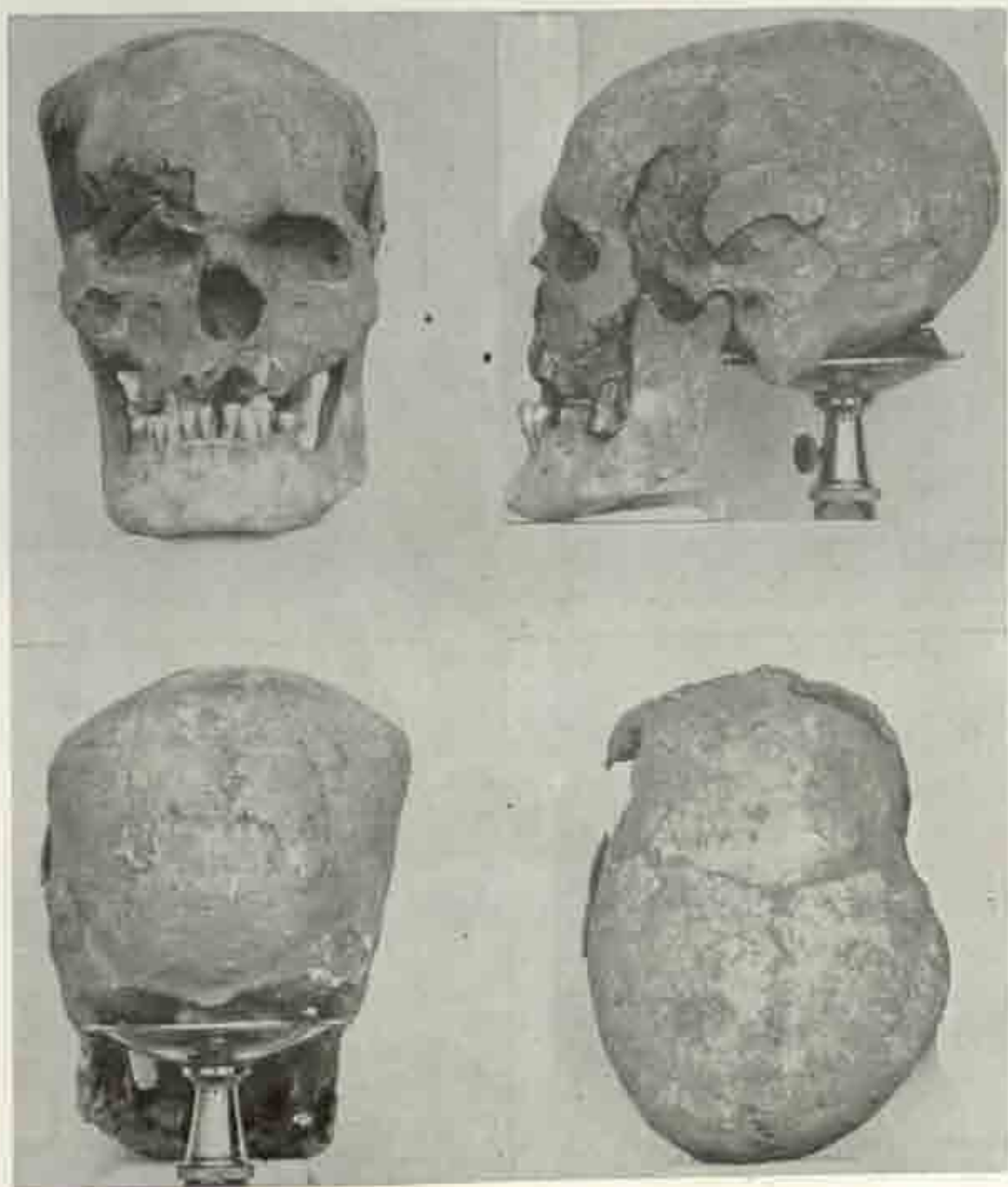
Pl. LXXII (*Figs. 56 - 59*) Skull No. 144



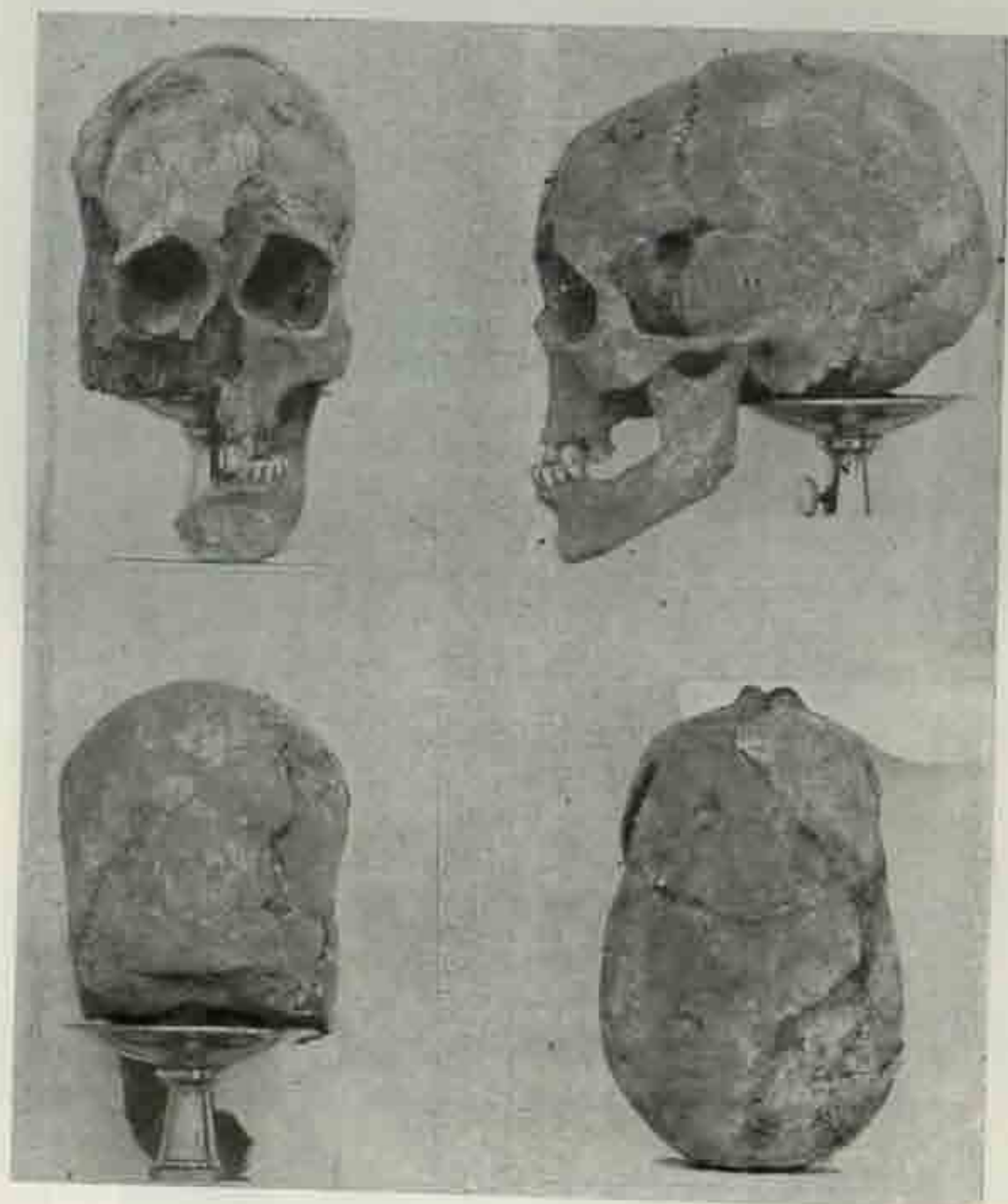
Pl. LXXIIIa (*Figs. 60 - 61*) Skull No. 157



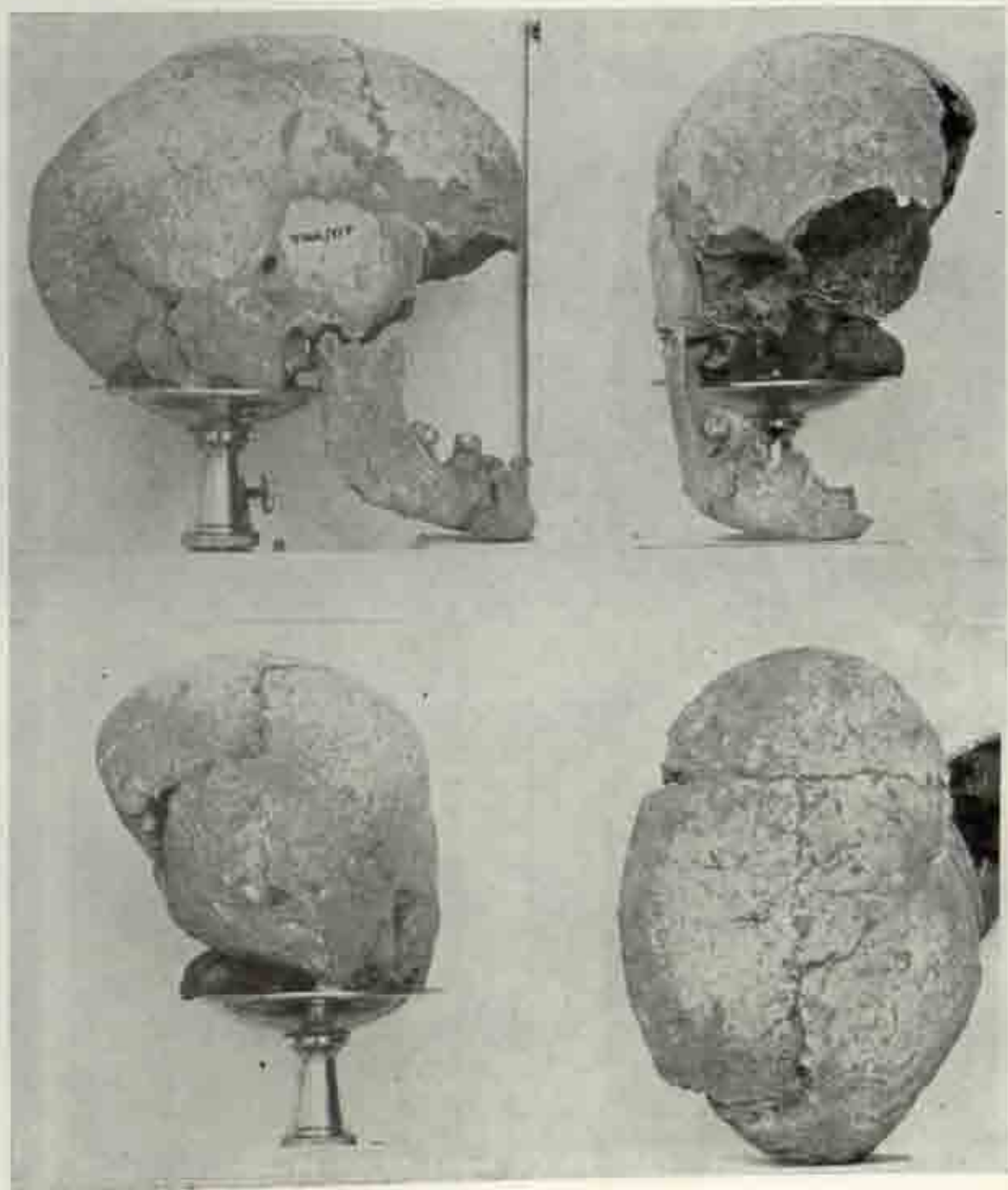
Pl. LXXIIIb (*Figs. 62 - 65*) Skull No. 165 a



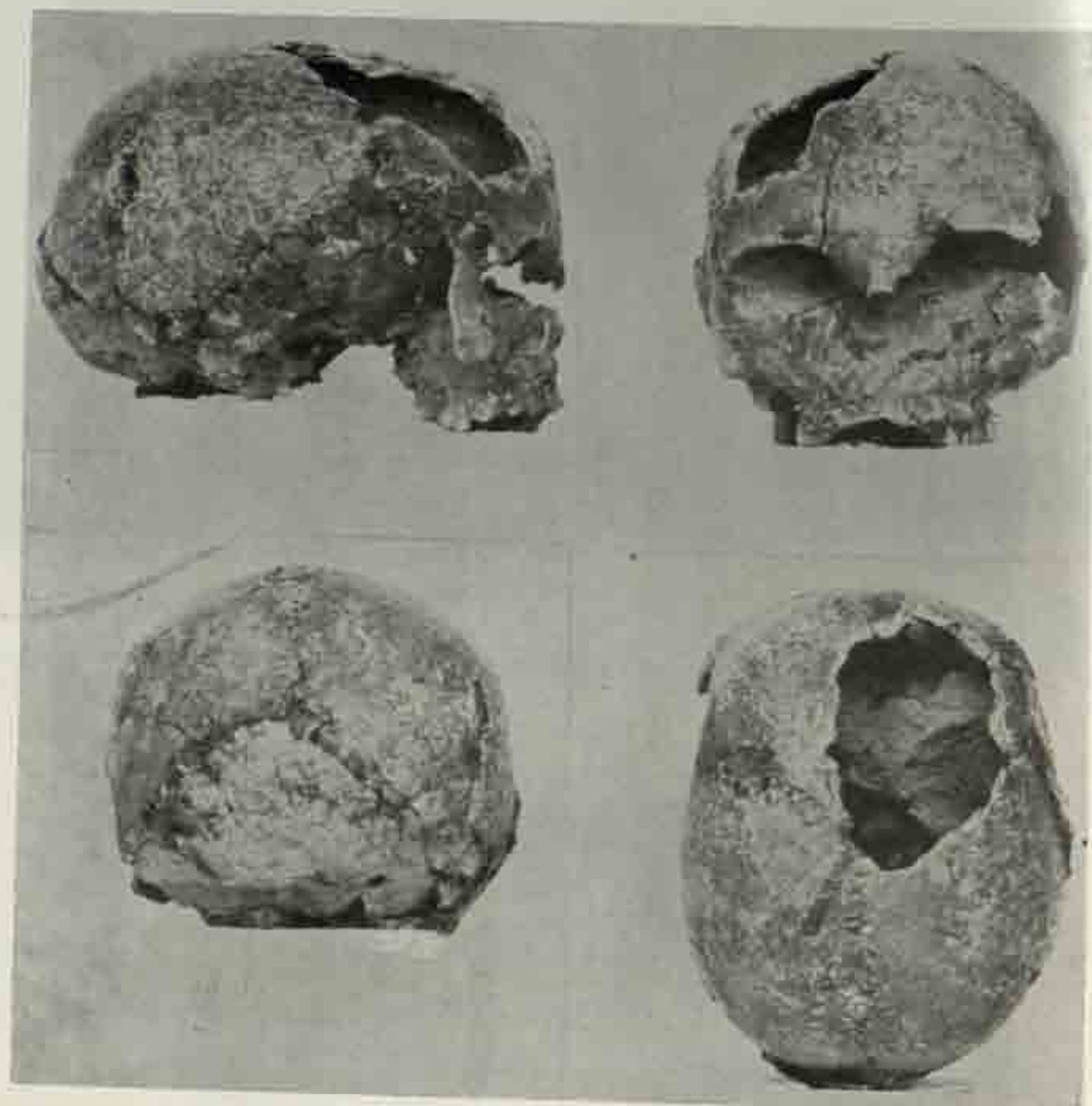
Pl. LXXIV (*Figs. 66 - 69*) Skull No. 173 B-a



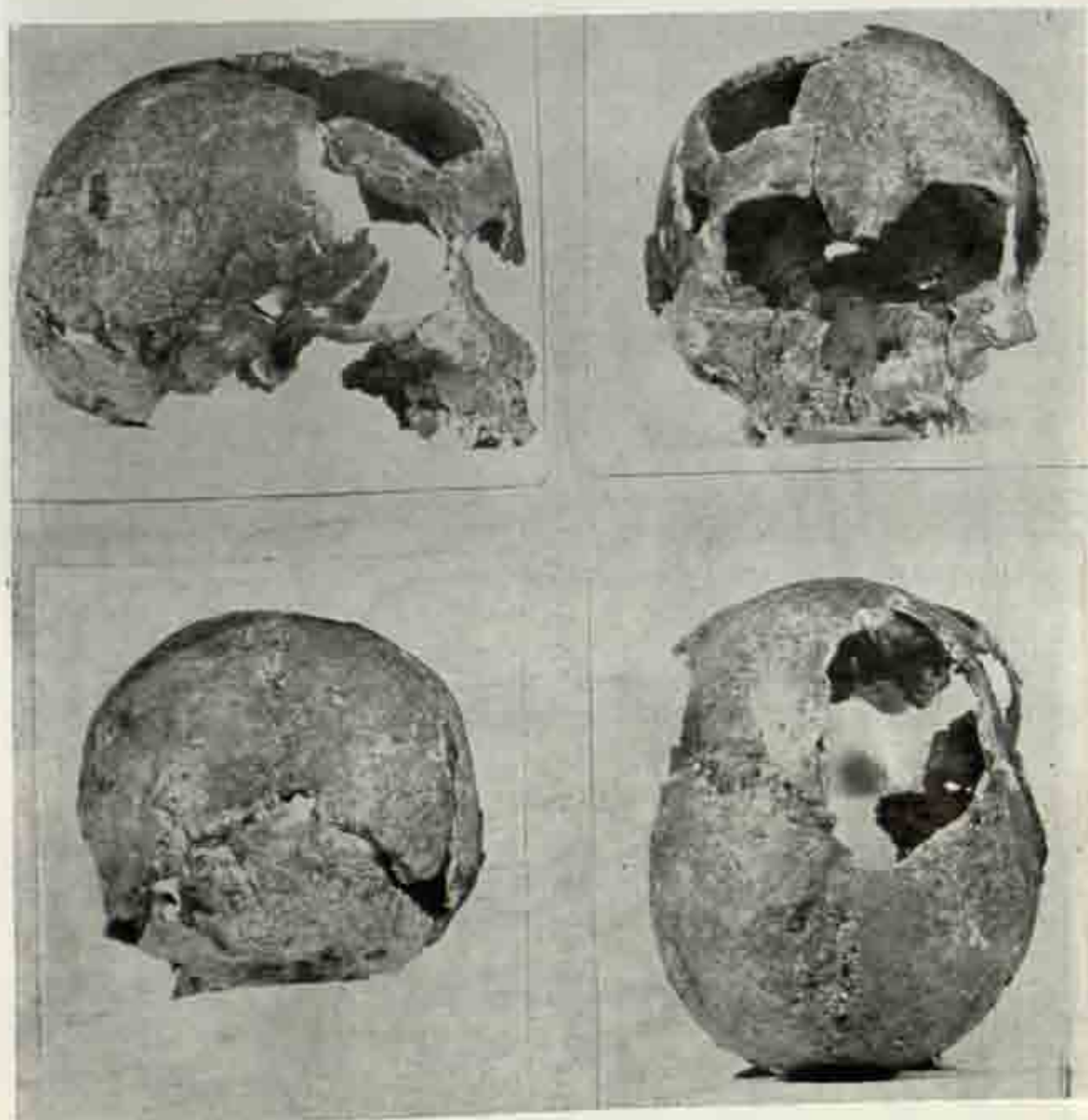
Pl. LXXV (*Figs. 70-73*) Skull No. 173 B-b



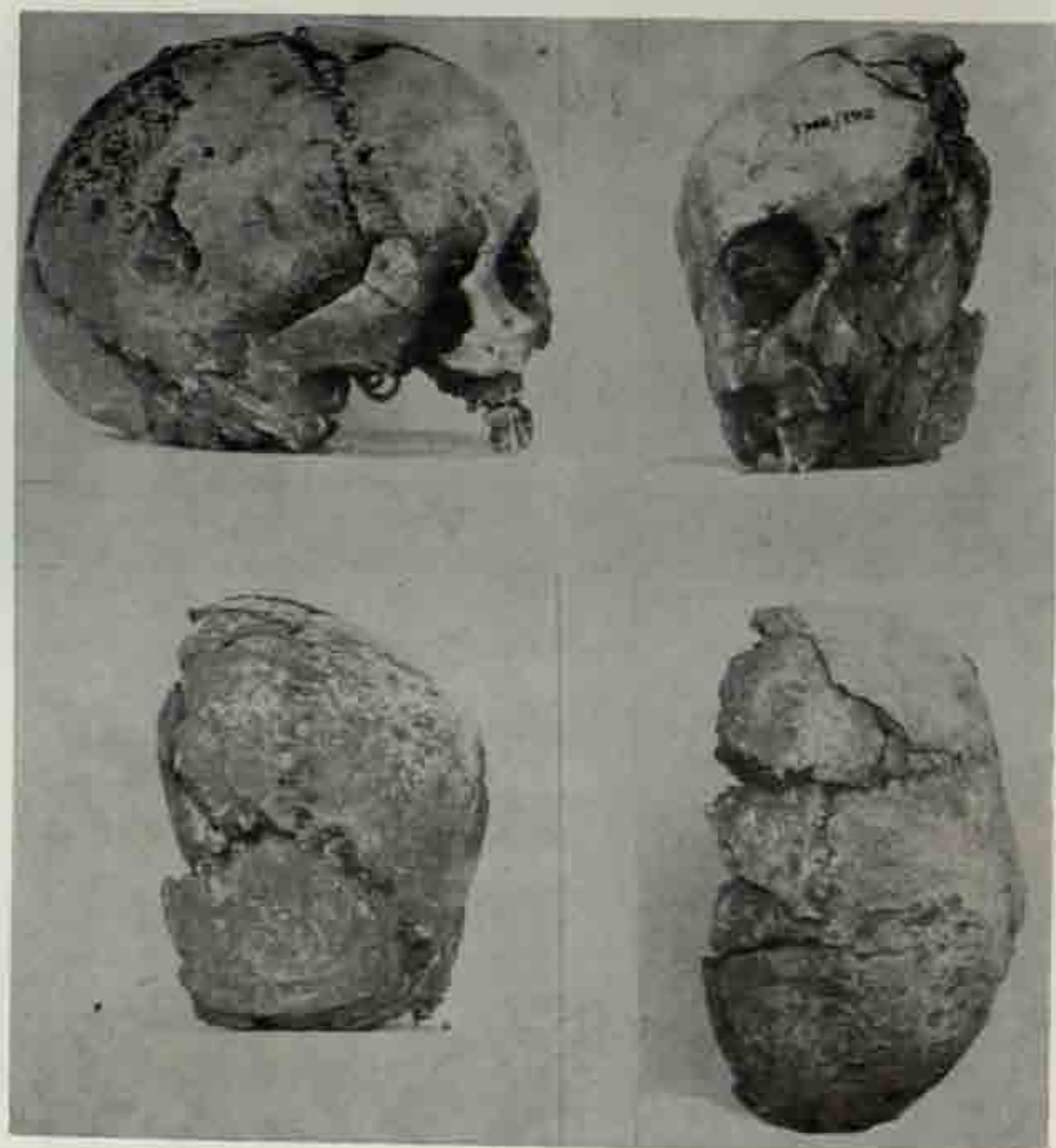
PL. LXXVI (Figs. 74-77) Skull No. 177



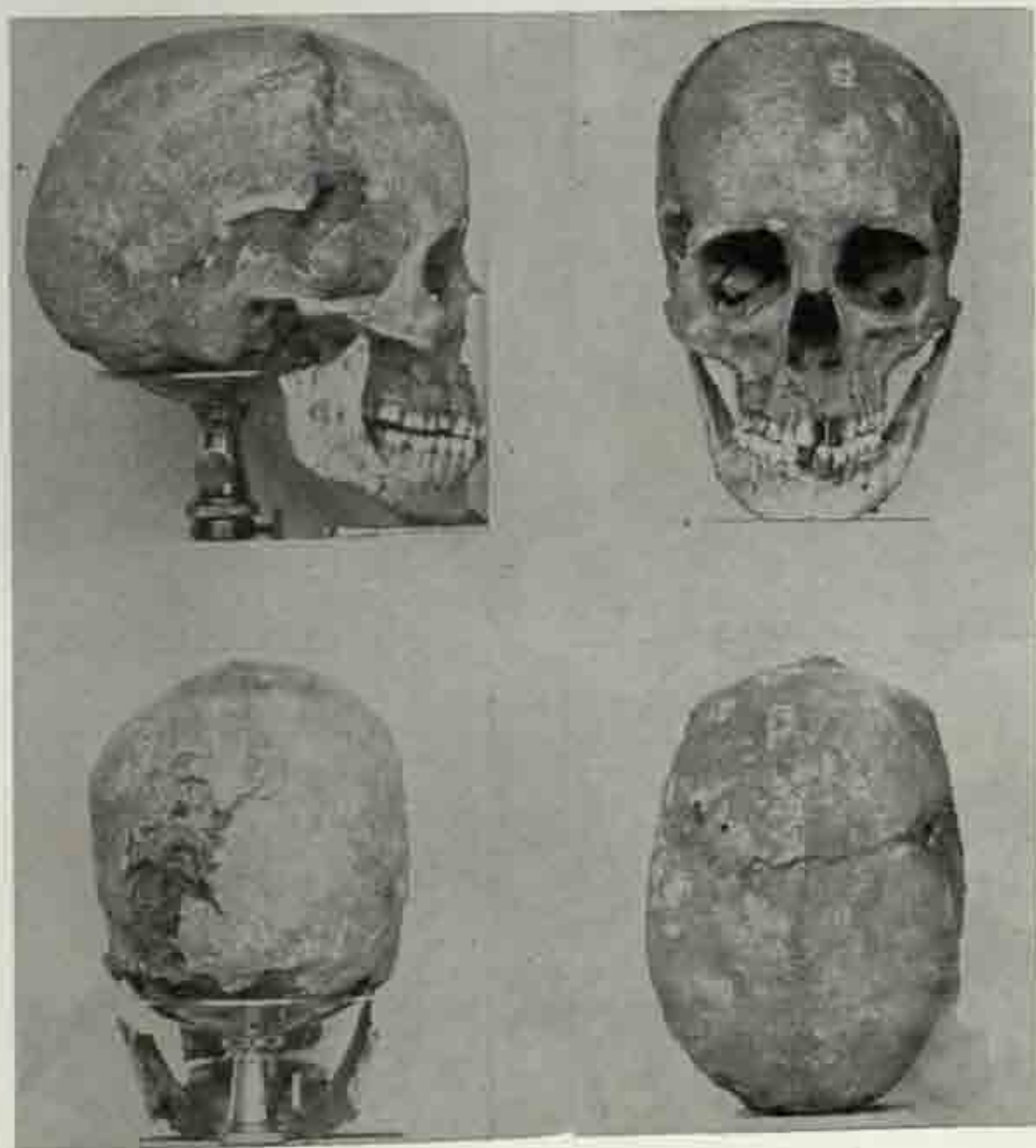
Pl. LXXVII (*Figs. 78 - 81*) Skull No. 186 a (before restoration)



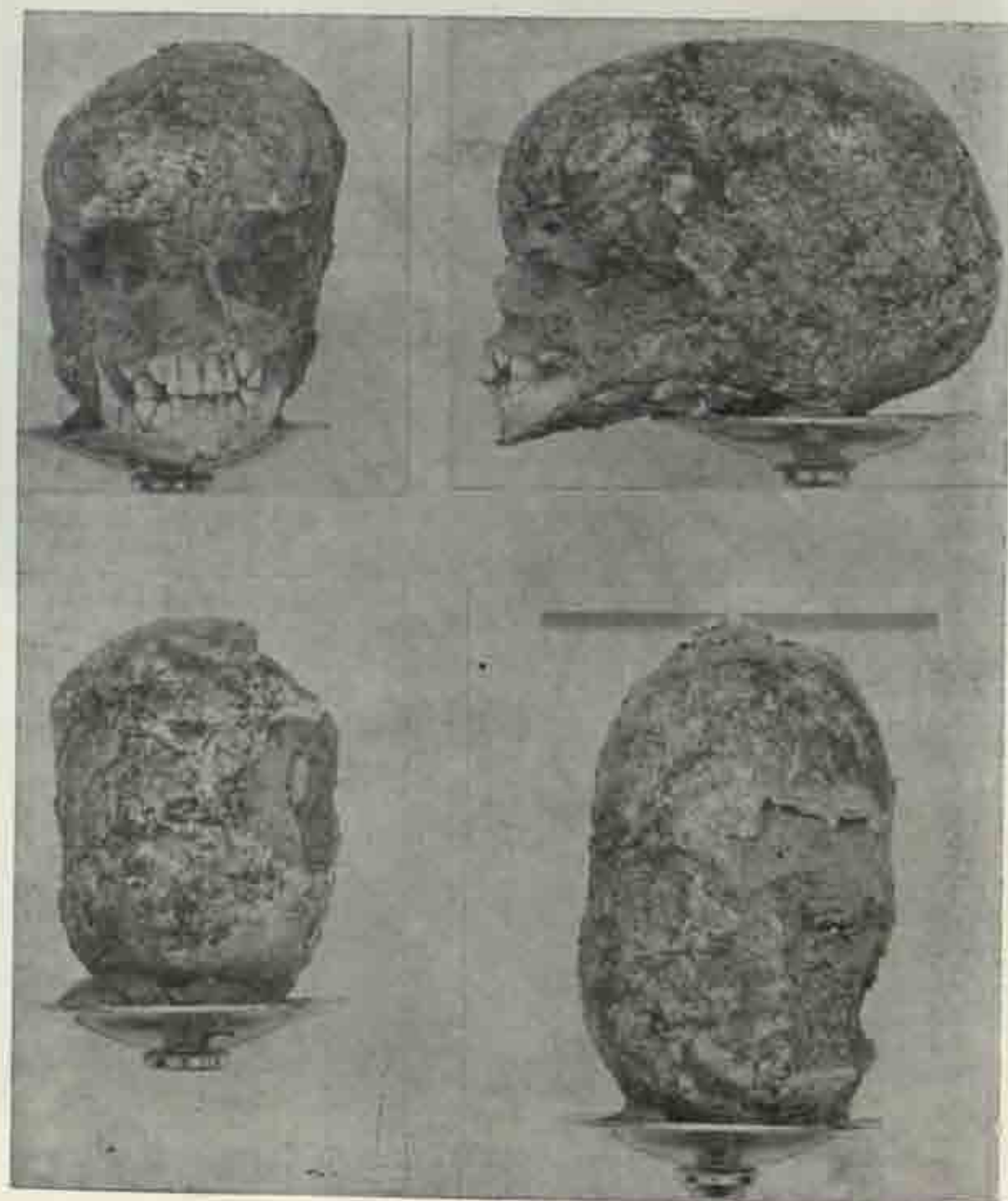
Pl. LXXVIII (*Figs. 82-85*) Skull No. 186 a (after restoration of the skull, damaged during transportation)



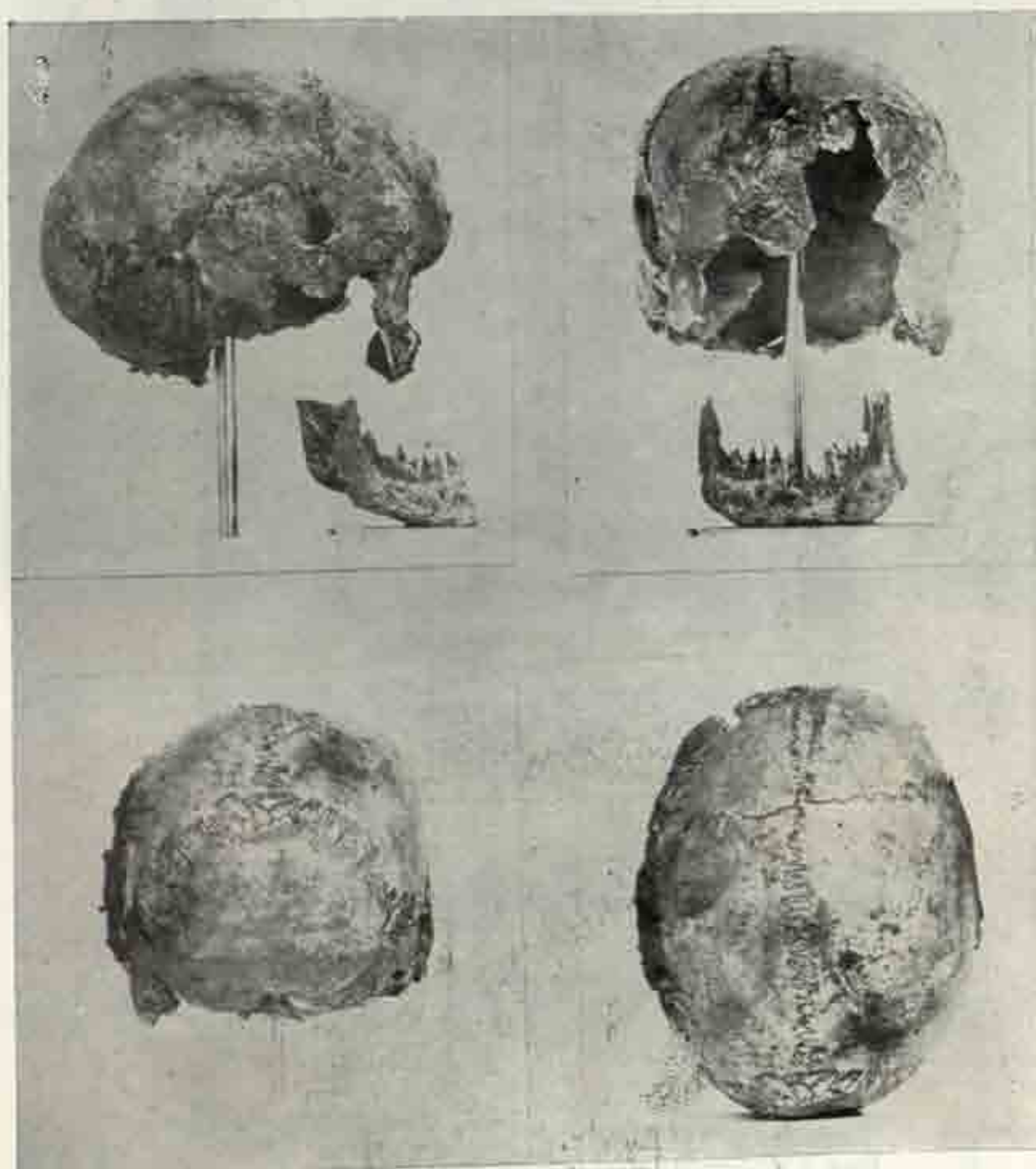
Pl. LXXIX (*Figs. 86-89*) Skull No. 192



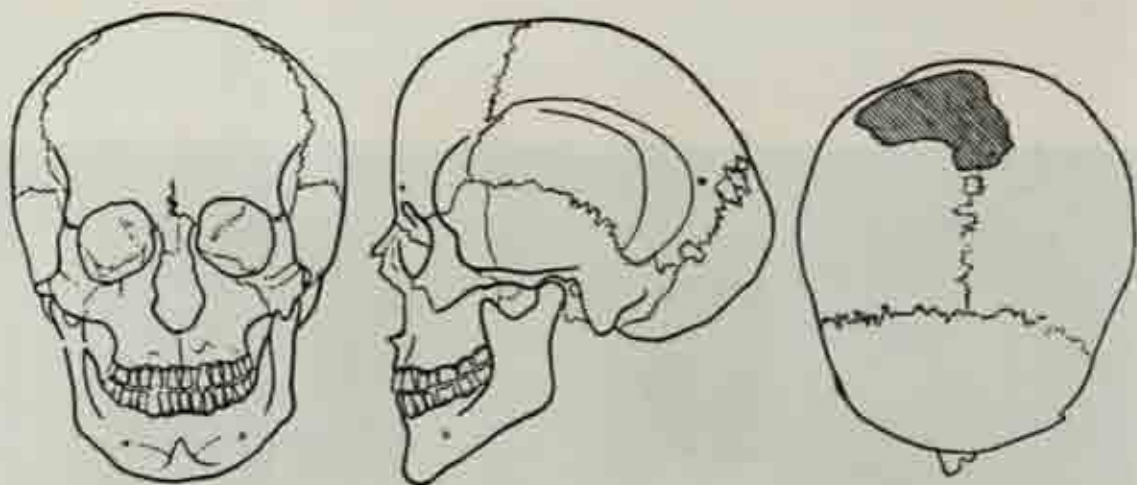
Pl. LXXX (*Figs. 90 - 93*) Skull No. 197 a



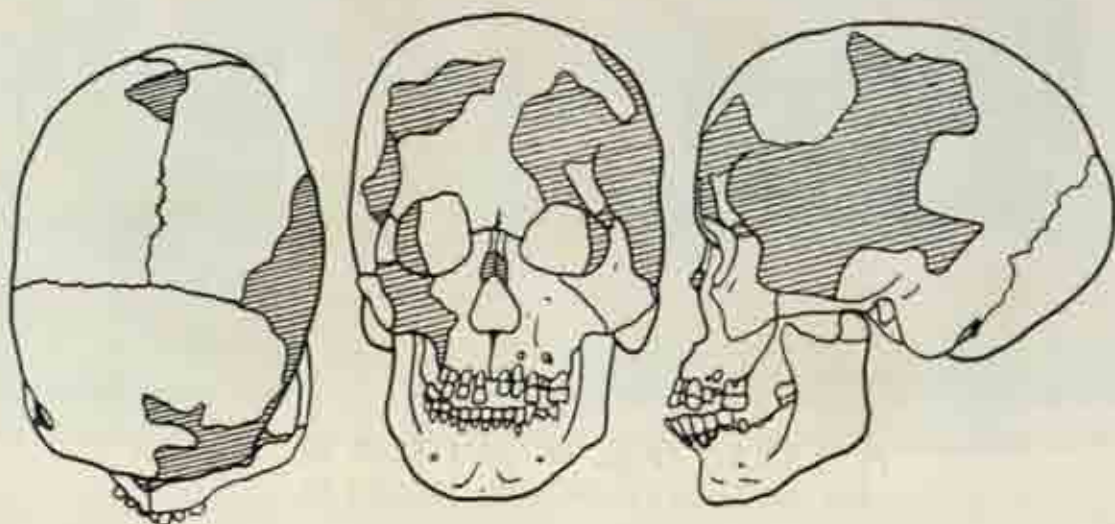
Pl. LXXXI (*Figs. 94-97*) Skull No. 198



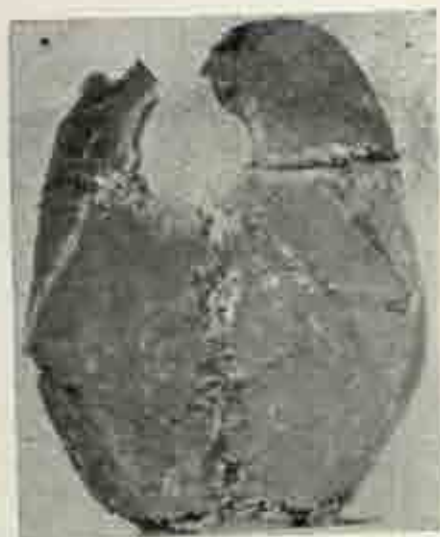
Pl. LXXXII (Figs. 98 - 101) Skull No. 209



Pl. LXXXIIIa (Figs. 102-104) Skull No. 56 from Kalaly-Gyr
(after Trofimova, 1959)



Pl. LXXXIIIb (Figs. 105-109) Skull No. 5 from Monzukly-Tepe
(after Trofimova 1964 a)



Pl. LXXXIVa (*Fig. 110*) Trephination of Skull No. 212



Pl. LXXXIVb (*Fig. 111*) Skull No. 184 resting on an urn

3. The sequence of the description of the skulls follows the serial number, which are identical with the numbers of the grave in which the skulls were found. When more than one skull of a single grave could be utilized for anthropological analysis they are further denoted by small letters, which correspond to those given in Section 4.

Skull No. 01 (Figs. 1-4 Pl. LVIII), (Grave No. 1 Trench B 1).

The extremely well developed supra-orbital ridges, the prominent glabella, the long and strong mastoid processus, the rounded upper margin of the orbits and the massiveness of the cranial bones clearly indicate a male individual. Parts of both parietals and the occipital bone are decomposed and eroded. Yet the shape of the skull can still be recognized by the earth filling of its inside. The arrangement of the sutures could not be determined, except a small portion of the coronal suture, which is still open and shows no evidence of beginning of fusion. From the fact that the 3rd molar of maxilla and mandible had not erupted yet, and the first and second molar show only little signs of attrition an age of about 20-25 years at the time of death, can be assessed.

Compared with the other measured male skulls of the cemetery the maximum cranial length and breadth are undoubtedly highest ($g-op = 196$, $eu-eu = 138$). The cephalic index, being 70.41, is dolichocranic, ranging close to the limit of the hyperdolichocranic class. In norma frontalis the forehead is low, the face broad and of medium height. The total facial index (89.21) and the upper facial index (52.25) are mesoprosopic and mesen respectively. The bizygomatic breadth, which is absolutely the greatest of all measured skulls, exceeds the maximum cranial breadth of the skull thus resulting a transversal cranifacial index of 100.22. The orbits are rectangular, relatively low and mesoconchic ($O.I. = 77.27$). This value lies close to the border of the chamaeconchic group. The nasal aperture is high and of medium breadth, the nasal index being 48.08 is distinctly mesorrhinic. In norma lateralis the extremely projecting superciliary arches and the well developed glabellar region are remarkable. The low forehead is retreating and passes into a faintly arched vertex and a moderately protruding occiput. The relatively low length-height and breadth-height indices ($L.H. index = 67.35$, $L.A.H. index = 58.16 = chamaecranic$ and $B.H. index = 95.65$, $B.A.H. index = 82.61 = metriocranic$) differentiate the skull from most of the other finds of the cemetery. The facial portion of the skull is orthognatic. The nasal bridge is not very prominent and projecting, the zygomatic bones are protruding, the canine

fossa flat thus giving the face a certain degree of horizontal and vertical flatness, which is supported by the measurements and indices of facial flatness (see Section 7, C).

The mandible is of extremely powerful built. Its measurements exceed those of all other lower jaws found at the cemetery. The chin is not very prominent, the corpus of the mandible is massive, the rami which rise nearly vertically are broad and high.

In *norma occipitalis* the side walls of the skull rise nearly vertically and pass into a slightly curved outline of the vertex. In *norma verticalis* the skull is *birsoideus* in outline after the classification system of Sergi with a strong post-orbital or temporal compression and strongly everted zygomatic arches.

The calculated cranial capacity (Lee's Naqada formula) is 1458 cc, which places the skull in the *aristencephalic* class. The typological classification is very difficult. On the whole the broad-faced, long and narrow-headed skull with relatively low orbits shows some archaic features, which, however, differ from those of the so-called "Protoaustraloid type" found in Mohenjodaro, Harappa and other sites of South and West Asia (see also Section on 'Discussion and Conclusion').

More similarities can be seen to the *Protoeuropoid* type which is found since the Neolithic in North-east Europe and North-West Asia (compare Ginzburg 1966). Yet the marked tendency of facial flatness suggests *Mongoloid* admixture. According to the new nomenclature (see Section 3.5) we may classify this skull as robust and flatfaced *Eurydolichomorph*.

Skull No. 02 (Figs. 5-8 Pl. LIX) (Grave No. 1, Trench L O)

The skull, whose right facial portion including the mandible are decomposed is that of an adult female. Its small size, the thin and delicate component bones, the weakly developed mastoids and the ill-marked glabella and superciliary region, the sharp upper margin of the orbits and the smooth contour of the skull are typical female sex characters. All the teeth including the wisdom teeth had erupted. Most of the sutures are still open, only a small portion of the sagittal suture give the appearance of having commenced to fuse, thus indicating an age of about 30-35 years which accords with the wear pattern of the teeth.

The skull, the length and breadth diameter of which are comparatively small (g-op 173, eu eu = 128) is distinctly dolichocranic (L.-B. index = 73.99). In *norma frontalis* the forehead is high and rounded; the frontal eminences are well marked. Though half of the facial skeleton is missing, the basic measurements and indices could be at least approximately determined. The face, medium in height but relatively narrow, is leptoprosopic and mesen; the total facial index and the upper facial index being 91.74 and 53.72 respectively. The nasal index could not be calculated. Yet the nasal aperture appears high and narrow. The orbits are high, rounded and hypsiconchic (O.I. = 87.18).

In *norma lateralis* the forehead is only slightly inclined and sweeps back in a smooth contoured regular curve to meet the rounded occiput. According to the length-height and breadth-height indices (L.-H. index 72.25, B.-H. index = 97.65) the skull is orthocranic and metriocranic, whereas the length-auricular height and breadth-auricular-height indices being 65.31 and 88.28, place the skull into the hypsicranic and akrocranic class.

As already mentioned, the glabellar region and the superciliary arches are inconspicuous or only slightly marked. The straight nasal bridge is medium, projecting and narrow, the nasal root low and shows a marked depression. The gracile lower jaw with a moderately developed chin has a relatively low but broad ascendant branch. In *norma occipitalis* the skull is of typical house shaped contour with well marked parietal eminences. *Norma verticalis* is ovoides in outline. The calculated cubic capacity of the skull is 1231 cc. i.e., euencephalic.

The smooth-contoured gracile, narrow-headed, and narrow-faced skull with high orbits can be considered to belong to the (gracile) Mediterranean type (gracile Leptodolichomorph).

Skull No. 03 (Figs. 9-12 Pl. LX) (Grave No. 1 Trench C O).

The skull was broken. Yet it was possible to restore it nearly completely. Only small portions of the frontal and temporal bones are missing. The skull is that of a male. The cranial bones are rather thick, the mastoid processus broad and massive, the nuchal crest well marked, the upper margins of the orbits rounder, and on the whole the skull is of relatively big size. The absence of a marked glabella and superciliary region which are also male characters, can be explained by the type to which the skull belongs (see below). Portions of the

sagittal and especially the coronal suture have already ossified or at least commenced to fuse suggesting an age more than 40 years. This accords with the heavily worn off teeth and the fact that the alveoli of the second and third molars of the mandible are closed by ossification owing to the loss of these teeth long before death, which also speaks for a higher age.

The skull is long and narrow ($g-op = 192$, $eu-eu = 130$). The cephalic index, being 67.71, puts it in the hyperdolichocephalic group. In *norma frontalis* the forehead is high and broad, the rounder orbits are mesoconchic ($O.I. = 78.75$). The broad and relatively low nasal aperture is distinctly hyperchamaerhinic ($N.I. = 59.52$). The face is low ($n-pr = 63$, $n-gn = 109$) but comparatively narrow ($zy-zy = 125$), thus resulting a total facial and upper facial index of 83.85 and 50.40, which place the face into the euryprosopic and mesen (but close to the euryen) class.

As striking feature of *norma lateralis* can be considered the high degree of alveolar prognathism. The facial profile angle being 77° distinctly ranges within the prognathic class. As already mentioned the glabellar region is inconspicuous, the nasal root seems not to be very depressed. The other characters of the nasal bones could not be determined, as they are broken off. The lower jaw is of medium size and thickness, the chin medium developed, the rami relatively high and broad.

The dental occlusion belongs to the edge-to-edge bite of the anterior teeth. The forehead is steep and only slightly receding and passes upwards and backwards in the smooth curve of the vertex and the slightly protruding occiput, which retreats sharply from the nuchal chrest. According to the L-H Index (68.23) the skull is chamaecranic, whereas the L-AH Index being 59.38, places it within the orthocranic class. Yet, the B-T index (100.77) and the B-AH Index (87.69) belong to the acrocranic class, which is due to the small maximum breadth of the skull. *Norma lateralis* shows nearly vertical arising lateral sidewalls, a typical house-shaped contour and a well marked nuchal chrest. The outline of *norma verticalis* is ovoides after the classification system of Sergi. The calculated cranial capacity is 1374 cc. or distinctly euencephalic. The main characters of the skull are the low face and low orbits, the high nasal index, the marked alveolar prognathism, the steep forehead and the moderately developed glabella and superciliary region, characters which are considered by v. Eickstedt as paedomorph (or infantile) primitive. Except the extreme dolichocephaly this combination of morphological features is characteristic for the Veddoïd racial type living today in Central and South In-

dia. Therefore we may classify this skull as belonging to the Veddiiform type¹⁰ or according to the new nomenclature as Paedoeurydolichomorph.

Skull No. 04 (Figs. 13-16 Pl. LXI.) (Grave No. 2 Trench B 1)

The skull is complete, except the mandible which is missing, and belongs to a male individual. On the whole it appears robust and rugged. The glabella and the superciliary arches are well marked, the upper margin of the orbits rounded, the mastoid processus large and massive and the nuchal chrest and the temporal line are extremely well developed. Portions of the sagittal, lambdoid and coronal suture have already ossified, indicating an age of about 40-45 years, which accords with the wear pattern of the teeth. Contrary to the rugged appearance of the skull the absolute dimensions are comparatively small ($g-op = 179$; $eu-eu = 126$). The cephalic index being 70.39 places it in the dolichocranic group, close to the limit of the hyperdolichocranic class.

In *norma frontalis* the forehead and the face appear low and broad; the bizygomatic breadth exceeds the greatest cranial breadth thus resulting a cranio-facial index of 102.24. The upper facial index, being 51.82, places the face in the mesen class. The orbits are low, rectangular and chamaeconchic ($O.I. = 72.09$); the nose is high narrow and leptorrhinic ($N.I. = 45.10$).

In *norma temporalis* the moderately high forehead recedes and slopes back posteriorly and merges with the rounded occiput, which sharply retreats from the well marked nuchal chrest. According to the length-height index (74.86) the skull directly ranges at the border of the orthocranic and hypsicranic group whereas the length-auricular height index (64.80) is distinctly hypsicranic. Both, the breadth-height (106.35) and the breadth-auricular height index (92.06) belong to the akrocranic class which is due to the small size of the breadth diameter. The facial skeleton shows in *norma lateralis* a low and depressed nasal root and a high, prominent and convex nasal bridge. The spina nasalis is well developed, the upper incisors of the maxilla are projecting forward. In *norma occipitalis* the skull is of typical house-shaped contour. The side walls rise vertically and join in a rounded curve. In *norma verticalis* the skull is sphenoides in outline and shows projecting zygomatic arches and the prominence of the nose. The calculated cranial capacity is 1294 c.c., i.e. oligencephalic.

The rugged-bony dolichocranic skull with relatively broad face and low orbits can be considered belonging to the Cromagnoid or Palaeoeuropoid type, which is represented at that time by the Andronovo type of North-east

sulting in a hyperdolichocranic index of 69.57, which ranks close to the limit of the dolichocranic class.

In *norma frontalis* the face appears relatively low, which is only partially caused by the high degree of atrophy of the alveolar processes. Therefore the measurement of the facial height and the estimation of the facial indices was not possible. The orbits are rectangular; the orbital index being 85.00 directly ranges between the limits of meso- and hypsiconchic. The piriform aperture is high and narrow. The nasal index ($= 46.96$) ranges between the limits of lept- and mesorrhiny. The gonial angles of the lower jaw appear to be relatively broad and everted.

In *norma lateralis* the moderately high forehead recedes and passes in a well arched curve of the vertex and a relatively strong protruding occiput (*occiput en chignon*). The vault of the skull is low (basion-bregma height 128 mm; the auricular height 114 mm). According to the length-height index (69.57) and the length-auricular height index (61.95) the skull is chamaecranic and orthocranic, whereas the breadth-height index (100.0) and the breadth-auricular height index (89.06) place it in the akro- and metriocranic class, which is due to the small breadth diameter of the skull.

In *norma lateralis* the facial part of the skull appears orthognathic, the nasal root is only slightly depressed, the nasal bridge which is not very prominent seems to be slightly concave. The chin is projecting, the ascendent ramus low and strongly inclined.

Norma occipitalis shows a typical house-shaped contour and relatively strongly marked parietal eminences. *Norma verticalis* is of an elongated pentagonoides shape. The calculated cubic capacity being 1307 cc. places the skull in the aristencephalic class. The long-headed skull with seemingly low face and broad and everted gonial angles can be typologically classified as Cromagnoid (Eurydolichomorph). This diagnosis is supported by the protruding occiput (*occiput en chignon*), which is generally considered as one of the characteristic features of this type. Yet the relatively high orbits also suggest Mediterranean admixture.

Skull 101 b (Figs. 29-32 Pl. LXV)

The skull is complete and in a good state of preservation. Only the condyles processes of the mandible are missing. It is typically female: small, smooth-contoured, gracile with weak supraorbital ridges, muscular

impressions and mastoids. The frontal and temporal eminences are well marked. The upper margin of the orbits is sharp. All sutures are still open, except the sphenobasilaris which had already fused. The 3rd molars of the maxilla had erupted (but were fallen out post mortem), whereas those of the mandible are still inside the jaw, thus indicating an age of about 20-25 years. The skull is extremely small in length and normal in breadth ($g-op = 166$, $eu-eu = 130$) and of a high cephalic index (78.31), which is distinctly mesocranic. Beside that of skull No. 186 it is the highest length-breadth index out of all the measured skulls of the cemetery. In *norma frontalis* the forehead is rounded, the face low and medium in breadth. According to the total facial index and the upper facial index (85.71 and 51.26 respectively) the face is mesoconchic and mesen, but close to the border of the euryprosopic and euryen clas. The orbits are rectangular, moderately high and mesoconchic (O.I. = 78.95); the nasal aperture low, medium in breadth and chamaerhinc (N.I. = 52.16).

In *norma lateralis* the forehead rises vertically and passes into a high but only slightly curved vertex and a well rounded occiput. The skull is distinctly hypsicranic (L.H. Index = 80.12, L.A.H. Index = 71.68) and acracranic (B.H. Index = 102.31, B.A.H. Index = 91.53). The striking feature of *norma lateralis* is the marked alveolar prognathism of the facial skeleton. The nasal root is only slightly depressed, the nasal bridge straight, short and moderately prominent. The corpus of the lower jaw is of medium height and thickness, the chin strongly projecting. *Norma lateralis* shows a typical house-shaped contour and slightly diverging side walls. As anatomical variation, a wormian bone may be mentioned at the confluence of lambdoid and sagittal suture. *Norma verticalis* is rhomboides in outline and shows the injury already described (see section 4 b, grave 101). The calculated cranial capacity is 1258 cc. or euencephalic. As main characters of this gracile and mesocephalic skull can be considered the marked alveolar prognathism, the low face and orbits, the broad nose and the extremely steep forehead. Concerning these features the skull shows similarities with the male skull No. 03 and likewise it can be typologically classified as Veddiform (Paedo-Eurydolichomorph).

Skull No. 101 c (Figs. 33-36 Pl. LXVI).

The skull is massive in structure and undoubtedly male. It was broken yet it was possible to restore it. Only small portions of the glabellar region, the nasal bones and parts of the left frontal and parietal are missing. Except a small portion of the sagittal suture, which has already fused, all

other sutures are still open, indicating an age of about 30-35 years. This age determination is in accordance with the wear pattern of the teeth. The skull is long, narrow ($g-op = 195$, $eu-eu = 131$) and distinctly hyperdolichocranic ($L-B$, index = 67.18).

In *norma frontalis* the forehead appears high and the face long. The total facial index being 93.23 places the face in the leptoprocophic class, whereas the upper facial index (54.89) directly ranges between the limit of mesen and lepten. The bizygomatic breadth exceeds the breadth diameter of the skull thus resulting in a craniofacial index of 101.53. The orbits are rounded, slightly inclined laterally downwards, and mesoconchic ($O.I. = 80.49$). The nasal aperture is relatively high, medium in breadth and leptorhine ($N.I. = 45.28$). In *norma frontalis* the mandible is massive in structure and high in its symphyseal part. The bigonial breadth is great, the gonial angles everted.

In *norma lateralis* the high forehead retreats and passes upwards into a high arched vertex. The occiput moderately protrudes and shows a sharp retreat at the well marked nuchal chrest. According to the length-auricular height index (63.07), the breadth-height and breadth-auricular height index 104.46 and 93.89 respectively, the skull is distinctly hypsicranic and akrocranic. Only the length-height index (70.26) places the skull in the orthocranic class, which is due to the great cranial length of the skull.

In *norma lateralis* the facial segment of the skull appears very massive with a slight tendency of prognathism and a robust lower jaw whose chin region has medium projection.

The ascendent ramus of the mandible is high and broad. *Norma occipitalis* shows vertically arising side walls, ill-marked parietal eminences and a well arched curve of the vertex. *Norma verticalis* is ovoides in outline.

The calculated cranial capacity is 1478 cc. or distinctly aristencephalic. On the whole the long-headed, long-faced and robust skull with high vault shows many features in common with skulls of Corded People of the European Neolithic, who are generally considered belonging to the Nordic type. Yet these types are also found in prehistoric series of Asia, for example in anthropological finds of Turkmenia. According to the new nomenclature we may classify this skull as robust Leptodolichomorph.

Skull No. 114 (Figs. 37-39 Pl. LXVII)

The skull is badly crushed from side to side, especially in the fronto-parietal region. The restoration was not possible. The skull bones are extremely thin, the upper margin of the orbits sharp, the mastoids small, the glabella and superciliary region seemingly ill-marked, suggesting a female individual. This is supported by the gracility of the postcranial skeleton. The lambdoid suture is still open, whereas most of the sagittal suture, as far as we can judge, have already ossified, indicating an age of over 60 years at the time of death (senile). This accords with the heavily worn off teeth, the closed alveoli of the molar due to the premortal loss of the teeth and the considerable degree of atrophy of the lower jaw.

As the whole skull is badly damaged and a restoration was not possible, anthropological measurements could not be taken. Nevertheless some characteristic features of the skull can be judged (especially in norma occipitalis) showing a relatively well preserved and only slightly deformed parietooccipital region. The face, the nose and the orbits appear to have originally been high and narrow. The forehead is high and only slightly inclined, the vertex and the occiput are highly arched, smooth-contoured and well rounded. It seems likely that the long- and narrow-headed and-faced skull with seemingly leptorrhinic nose and high orbits belongs to the Mediterranean type (Leptodolichomorph).

Skull No. 134 a (Figs. 40-43 Pl. LXVIII).

The skull, whose facial segment including the mandible is missing, is that of a female individual. The cranial bones are delicate, the upper margin of the orbits extremely sharp, the superciliary arches, the muscular markings and the mastoid processes are absent or weakly developed. On the whole the skull appears gracile and smooth-contoured. Except a small portion of the sagittal suture, which gives the appearance of having commenced to fuse, all sutures are open, indicating an age of about 25-30 years.

The skull is long and broad ($g-op = 186$, $eu-eu = 141$). The maximum cranial breadth is the greatest of all measured female skulls of the cemetery. The cranial index being 75.81 ranks in the mesocranic class but close to the border of dolichocrany. In norma lateralis the moderately high forehead rises nearly vertically and slopes back in a high and well rounded vertex and a slightly protruding occiput. The skull is distinctly hypsicranic and akrocranic; as the length-auricular height and breadth-auricular height is-

dex are 66.67 and 87.94 respectively.

In *norma occipitalis* the skull is of typical-house-shaped contour with well marked parietal eminences. *Norma verticalis* is pentagonoides in outline with a slight bulging at the parietal region. In this view a slight deepening can be seen at the left parietal near the lambdoid suture, caused by an injury, which is however totally healed (see also section 8).

The calculated cranial capacity is 1542 cc. i.e. distinctly aristencephalic. As the facial part of the skull is missing in size the cranial index and the mid-sagittal curve of the skull show striking similarities with that of skull No. 06. Therefore the same may be true concerning the typological classification.

Skull No. 139 a (Figs. 44-47 Pl. LXIX).

The skull is in a rather good state of preservation and nearly complete. The facial segment shows small but insignificant fractures, the *lamina externa* of the forehead is eroded and the condyles processes of the mandible are missing. The skull is that of a male individual. The upper margins of the orbits are rounded, the mastoid processes medium in length but extremely broad, the skull bones and the mandible are massive in structure. All sutures are still open except small portions of the sagittal suture which have commenced to fuse suggesting the age of about 30-35 years which accords with the wear pattern of the teeth.

The skull is long and moderate in breadth ($g-op = 190$, $eu-eu = 129$) and thus distinctly hyperdolichocephalic ($L-B$ index = 67.89).

In *norma frontalis*, the face is medium in length but narrow. The upper facial index being 54.69 lies at the border of the mesen and lepten class, whereas according to the total facial index (91.41), the face is leptoprosopic. Although the bizygomatic breadth is comparatively small, it is nearly as large as the maximus cranial breadth, thus resulting in a high transversal cranio-facial index of 99.22. The nose is extremely high, narrow and leptorrhinic. The nasal index being 38.46 is one of the lowest of all measured skulls of the cemetery. The orbits are nearly squarish in shape and extremely hypsiconchic. The orbital index of 97.74 is the highest of all skulls. Contrary to the high and narrow face the mandible appears broad; its gonial angles are strongly everted.

In *norma lateralis* the forehead is slightly inclined; the cranial vault

is well arched in the frontoparietal region and slopes backwards and downwards into a slightly protruding occiput. The skull is distinctly orthocranic; the length-height and the length-auricular height index 51.58 and 62.11, respectively, whereas the breadth-height index (105.54) and the breadth-auricular height index (91.47) place it in the akrocranic class. In lateral view, the facial skeleton appears orthognathic, the nasal root is low and depressed, the nasal bridge which is only partially preserved seems to be medium prominent and straight. The mandible is of powerful built, with a robust corpus and broad ascendent branches. The chin is massive and only moderately projecting. The contour in norma verticalis shows an elongated ovoides outline. The calculated cubic capacity is 1390 cc, or euencephalic. The general morphological characters described above, especially the long and narrow head and face and the extremely high orbits clearly place the skull in the Mediterranean (Leptodolichomorph) stock. Only the robust and broad mandible with everted gonial angles and the relatively high craniofacial index does not fit in this typo-diagnosis and suggests Cromagnoid admixture.

Skull No. 142 a (Figs. 48-51 Pl. LXX).

The skull is incomplete; both zygomatic arches, the mandible and portions of the right facial side are missing. Although some characters like the weak mastoid processes and the moderately developed muscular markings of the occiput tend in female direction, it seems likely that the skull belongs to a male individual. The skull bones are very massive, the size of the skull is comparatively big, the forehead recedes, the frontal eminences are ill-marked, the upper margin of the preserved left orbit is extremely rounded and the glabella strongly developed. The large extension of the sinus frontalis, visible at the fracture of the left side of the frontal bone, is also considered as male sex character. All sutures are open except a small portion of the sagittal suture, which has commenced to fuse indicating the age of about 30-40 years. Compared with other male skulls of the cemetery the skull is medium in length, relatively broad ($g-op = 189$, $eu-eu = 137$) but distinctly dolichocranic ($L-B$ Index = 72.49).

In norma frontalis the orbits are high, rounded and hypsiconchic. ($O.I. = 87.18$). Although parts of the lateral side walls of the nasal aperture are missing the nasal breadth could be measured. The nasal index being 41.51 places the high and narrow nose in the leptorrhinc class. Estimation of the facial indices was not possible as the zygomatic arches and the lower jaw are missing. Yet it seems that the face is of medium height and breadth.

In *norma lateralis* the forehead retreats and passes in a well rounded vertex and a slightly protruding occiput. The skull is orthocranic; the length height and length-auricular height indices are 72.49 and 60.85 respectively. According to the breadth-height index (100.00) the skull is acrocranic, whereas the breadth-auricular height index (83.94) places it in the metriocranic group. In *norma lateralis* the face appears orthognathic with a slight tendency of prognathism; the nasal root is low and depressed. The other characters of the nose could not be judged due to the missing of the nasal bones.

Norma lateralis shows a typical house-shaped contour. As anatomical variation a wormian bone may be mentioned at the confluence of the sagittal and lambdoid suture, which can be recognised in lateral view also. *Norma verticalis* is ovoides in outline according to the classification system of Sergi. The calculated cranial capacity is 1421 cc. and thus distinctly euencephalic. There is no doubt that the long and narrow-headed skull with high orbits and leptorrhine nose belongs to the Mediterranean (*Leptodolichomorph*) type.

Skull 142 b (Figs. 52-55 Pl. LXXI)

The skull was badly broken, especially in its facial part; yet it was possible to restore it nearly completely. Only the rami of the mandible are partially or totally missing. The skull shows a slight degree of distortion visible at the everted squamous parts of the temporals in *norma frontalis* and a slight bulging of the right parieto-temporal region in *norma verticalis*. It was not possible to correct this in the course of restoration. The sharp upper margins of the orbits, the weak mastoids, the ill marked muscle markings of the occiput, the small size of the thin cranial bones and the marked frontal eminences suggest a female. Only the strongly developed glabella is in favour of male sex. Most of the sagittal suture have undergone synostosis, while the other sutures seem to be still open. (The coronal suture could not be judged exactly, as the skull was broken in this area). The age of death can be assessed approximately 30-40 years, which corresponds to the wear pattern of the teeth.

The skull is medium in length and comparatively broad ($g-op = 183$, $eu-eu = 137$), but dolichocranic (L.-B. index 74.86). In *norma frontalis* the forehead appears high and rounded. The face is high, the upper facial and total facial height being 71 mm and 124 mm respectively are the highest values of all female skulls except those of skull 157. Unfortunately the facial indices could not be calculated as both zygomatic arches are broken off.

The orbits are high. The better preserved left one is rectangular in outline and hypsiconchic (O.I. = 85.37). The nasal aperture is high, medium in breadth and mesorrhinic (N.I. = 48.07).

In *norma frontalis* the high face is extremely orthognathic and slightly inclined inwards. The mandible is medium in size and thickness and the nasal root is strongly depressed. The major portion of the nasal bones are broken off and missing. Yet it seems that the nasal bridge was projecting and probably straight. The high forehead is relatively steep and passes upwards in a well arched curve up to the bregma, which is the highest point of the skull. From there the contour of the vertex sloped downwards to meet the protruding occiput after a considerable degree of lambdoid flattening. According to the length-auricular height index (63.39) the skull is hypsicranic, whereas the breadth-auricular height index (84.67) places it in the metriocranic class. The outline in *norma occipitalis* differs slightly from the typical house-shaped contour of most of the other skulls. The lateral walls are rounded and form a uniform curve with the well arched vertex, thus resulting in a rounded or oval shape of this *norma*. *Norma verticalis* is ovoides in outline with a tendency to spheroides contour.

The calculated cranial capacity is 1400 cc. or aristencephalic. The main characters of the skull described above especially the high and seemingly narrow face and the high orbits place the skull in the Mediterranean stock. Yet the skull is of special interest because it shows some features similar to a female skull (No. 56) found in an ossuary at Kalaly-Gyr in Choraszmian. The similarity extends especially to *norma lateralis* which shows a very typical outline (see Fig. 102-104 Pl. LXXXIIIa).

The facial segments of both skulls are extremely orthognathic, and pass upwards in a high and steep forehead upto the bregma which is the highest point of the skulls. From there the mid-sagittal curve of the skull slopes downwards and meets the protruding occiput after a lambdoid depression. It is interesting to note, that both skulls show wormian bones, especially in the lambdoid suture. Yet no conclusion should be drawn out of this fact. Skull No. 56 from Kalaly-Gyr is considered by Trofimova as prototype of the Transcaspiian type, a high faced sub-group of the Mediterraneans (*Leptodolichomorphs*).

Skull No. 144 (Fig. 56-59 Pl. LXXII).

The skull is incomplete. The whole facial segment, the cranial base,

the zygomatic arches and a portion of the temporal are missing. The lower jaw is fragmentary. The skull is typical female: The upper margins of the orbits are rounded, the forehead relatively steep, the frontal eminences well marked, the mastoids and the muscular attachment areas of the occiput weakly developed. All cranial sutures have not undergone synostosis. Thus the age of 20-25 years can be assessed.

The skull whose maximum cranial length is the greatest of all female skulls ($g-op = 189$, $eu-eu = 134$) is distinctly dolichocephalic (L.-B. Index = 70.89). In *norma lateralis* the forehead rises vertically and slopes back into a rather high vertex. The occiput is slightly protruding. The skull is metriocranic, the breadth-auricular height index being 83.21. The length-auricular height index lies on the border of orthocrany and hypicrany (62.96). *Norma occipitalis* shows slightly bulging lateral side walls joining the well arched curve of the vertex. *Norma verticalis* is birsoides in outline. The calculated cranial capacity is 1444 cc. or aristencephalic. The small fragment of the lower jaw is gracile in appearance and shows a medium projecting chin region. Like other cases in which only the calvarium is preserved the type-diagnosis is very difficult. As the mid-sagittal curve corresponds to those of the skulls No. 06 and No. 134, the same may be true concerning the typological classification.

Skull No. 157 (Figs. 60-61 PL LXXIII a)

The skull is in a bad state of preservation. Except the sagittal portions of the frontal, and the parietals the whole calvarium is decomposed. Contrary to this, the facial skeleton including the mandible are well preserved, although large portions of this region are missing too. The skull bones are thin, the upper margin of the orbits sharp, the teeth small, which are typical female sex characters. Though the marked glabella, the prominent chin and the rugged appearance of the skull are in favour of a male, the female sex of the individual, however, could be confirmed by the extreme gracility and the ill-marked muscle markings of the post cranial skeleton.

As a small portion of the sagittal suture has started ossification the age of about 30-35 years at the time of death can be assessed which accords with the wear pattern of the teeth.

Owing to the fragmentary condition of the skull-cap, the cephalic index could not be calculated. In *norma frontalis* the face appears high and narrow. The total facial height and the upper facial height being 125 mm 73

mm, exceed the same measurements of all other female skulls of the cemetery. As the bizygomatic breadth could not be measured, the estimation of the facial indices was not possible. The orbits, especially the better preserved and less deformed right one, seems to be of medium height. The nasal aperture is high, narrow, and distinctly leptorhinc ($N.I. = 41.51$).

In *norma lateralis* the face appears orthognathic. The nasal bridge which is depressed on its root is prominent and straight. The medium high corpus of the mandible shows a projecting symphyseal part. The other characters of the skull could be judged owing to the fragmentary condition.

On the whole the high-faced and also seemingly narrow-faced and narrow-headed and though female-relatively rugged skull with high and leptorhinc nose shows similarities to skulls of the Corded or Battle-axe People of the European Neolithic period, which are generally considered belonging to the Nordic type. According to the new nomenclature we may classify this skull as robust Leptodolichomorph. From this point of view the strongly developed glabellar region can be considered more as a type than sex character (see also skull No. 101 c).

Skull No. 165 a (Figs. 62-65 Pl. LXXIII b).

Except the fragmentary mandible and the missing zygomatic arches the skull is complete and in a fairly good state of preservation. The small fractures and the slight degree of distortion, visible especially in *norma occipitalis* and *verticalis*, are insignificant. The strongly developed mastoids, the rounded upper margins of the orbits, the shape of the forehead and other characters leave no doubt that it is a male skull. Due to the erosion of the skull bones the arrangement of the sutures is difficult to determine. Yet it seems that the sagittal suture had totally and the other sutures had partially fused, suggesting an age of about 50-60 years which accords with the heavily worn off teeth. The skull is of medium cranial length and breadth ($g-o = 189$, $eu-eu = 130$) and hyperdolichocranic ($L.B. Index = 68.78$). In *norma frontalis* the forehead and the face appear extremely high and narrow. The upper facial height being 78 mm is the greatest of all skull of the cemetery. As the bizygomatic breadth was undeterminable, the facial indices could not be estimated. The orbits are high nearly squarish and distinctly hypsiconchic ($O.I. = 87.50$). The piriforme aperture is extremely high and narrow. The nasal index of 35.09 is the lowest of all measured skulls.

In *norma lateralis* the extremely high vault of the skull is remarkable. The basion-bregma height (148 mm), the auricular-height (129 mm) and the length-height and breadth-height indices (L-H. Index = 78.31, L-AH. Index = 68.25, B-H. Index = 113.85, B-AH. Index = 99.23), which distinctly place the skull in the hypsi- and acrocranic class, surpass all other skulls of the cemetery. The face is orthognathic with a depressed nasal root and a high, prominent and aquiline nasal bridge. From the medium developed glabella the forehead retreats and passes into a high and well arched contour of the vertex and a rounded occiput. The fragment of the lower jaw is medium in height and the chin is moderately projecting. Though the skull is slightly distorted, it shows in *norma occipitalis* a well expressed house-shaped contour, with high side walls. *Norma verticalis* is elongated ovoides in outline. The calculated cranial capacity is 1488 cc. and thus distinctly aristenecephalic.

The long and narrow headed and faced skull with a high vault, and hypsiconchic orbits clearly belongs to the Mediterranean type. By the prominence and the aquiline of the nose it can be furthermore placed in its Khorasan or Iranid subgroup which may be called according to the new nomenclature as aquiline *Leptodolichomorph* (see also skull 05).

Skull 173 B - a (Figs. 66-69 Pl. LXXIV).

The skull is nearly complete. Only small portions of the right orbit, the frontotemporal region, the left zygomatic arch and the right ascendent ramus of the mandible are fractured or missing. The orbits, especially the right one is slightly compressed vertically. The massive skull with long and broad mastoids, a well developed nuchal crest, and rounded upper margins of the orbits is undoubtedly male. The sutural arrangement is not clearly to determine as parts of the sagittal and coronal sutures are eroded. Yet it seems that most of the sagittal suture had already fused, indicating the age of at least 40 years. This accords with the dental attrition. The fact that the alveoli of some molars of the lower jaw are closed owing to the loss of the teeth during life, suggests a higher age group too.

The skull is of medium length and comparatively broad and low (*g-op* = 191, *eu-eu* = 139) but distinctly dolichocranic (L-B. Index = 72.77) In *norma frontalis* the forehead and the face appear broad and low. The upper and the total facial index are 47.06 and 85.92 respectively, and thus the face is euryen, and mesoprosopic but close to the limit of the euryprosopic class. The orbits appear extremely low which is only partially caused by the

vertical compression. The orbital index, calculated from a corrected measurement of the orbital height is 66.66, and thus orbit is distinctly chamaeconchic. The nose is low and medium in breadth and chamaerhinic. (N.I. = 58.54). As already mentioned the lower jaw is extremely massive and high and the preserved left gonial angle is strongly everted. The striking features of norma lateralis are the massiveness of the lower facial segment, the strongly projecting chin, the nearly vertically arising and high ascendent ramus of the mandible, and the low and receding forehead, which passes in a low and flat curve of the vertex and a bulged but well rounded occiput. The nasal root is deeply depressed, the glabella well marked, the nasal bridge seems to be medium projecting and straight. The skull is distinctly chamaecranic and tapeinocranic. The length-height and breadth-height indices (L.-H. Index = 64.92, L.-AH. Index = 56.54, B.H. Index = 89.20, B.-AH. Index 77.69) are the lowest of all measured skulls of the cemetery except those of the skull No. 01. Norma occipitalis shows a slightly distorted house-shaped contour. Norma verticalis is birroides in outline, with bulging at the right parietal which is likely to be caused by the distortion post mortem. The calculated cranial capacity is 1382. cc. or euencephalic. The left side of the maxillary and the left zygomatic bone show a pathologic change which will be analysed in section 7. The long-and low-headed, broadfaced skull with low orbits and a massive lower jaw with everted gonial angles and high rami shows similarities to the Andronovo type and thus it can be classified as Cromagnoid or Palae-europoid (robust Eurydolichomorph).

Skull No. 173 B-b (Figs. 70-73 Pl. LXXV)

The skull is in a fairly good state of preservation. The right half of the lower facial segment is decomposed and the right frontal and temporal portion of the skull is slightly fractured and compressed. The skull is typically female: smooth-contoured, gracile, with sharp upper margins of the orbits and thin and delicate cranial bones, and ill-marked supra-orbital ridges. Most of the sagittal suture has already fused, while the other sutures are still open indicating the age of approximately 30-35.

The skull is extremely dolichocranic. The cranial index being 63.44, is the lowest of all skulls of the cemetery and results from a relatively great cranial length and an extremely small breadth diameter (g-op = 186, eu-eu = 118). As can be seen from the symmetrical contour of norma verticalis and norma occipitalis, the low breadth diameter of the skull is not caused by the lateral compression of the skull described above, which is limited to

the temporal region and does not extend to the parietal area. In *norma frontalis* the face appears high and extremely narrow. The facial and the nasal indices could not be estimated owing to the impossible task of measuring the bizygomatic and the nasal breadth. The better preserved left orbit is nearly square and thus distinctly hypsiconchic (O.I. = 86.84).

In *norma lateralis* the forehead is steep and passes upwards and downwards in an almost smooth and uniform curve. According to the length-height and length-auricular height index being 70.43 and 61.29 respectively, the skull is orthocranic, whereas the breadth-height index (111.02) and the breadth-auricular height index (96.61) place it in the acrocranic class. In lateral view the face shows a slight degree of alveolar prognathism and a protrusion of the lower jaw and teeth. The mandible is gracile in structure, the chin medium prominent. *Norma occipitalis* is of typical house-shaped contour with high and vertically arising lateral walls, marked parietal eminences, and a comparatively well developed nuchal crest. The contour of *norma verticalis* is elongated ovoides in outline. The calculated cranial capacity is 1231 cc. or euencephalic. According to the main characters described above, this skull can be typologically classified as gracile Mediterranean (gracil Leptodolichomorph).

Skull 177 (Figs. 74-77 Pl. LXXXVI).

The skull is incomplete. The whole facial skeleton, parts of the left fronto-parietal region and the left half of the mandible are missing. In addition the cranial base and the left parieto-occipital region show a considerable degree of distortion by earth pressure. The deformation of the bones of this region was so strong, that the restoration was not possible. The skull bones are thick and massive, the upper margin of the orbits — as far as preserved — are rounded, the mastoid processes which are partially broken off seem to have been broad and large and thus the skull undoubtedly belongs to a male individual. The age determination based on the closure of the cranial sutures is very difficult. It seems that the sutures especially the sagittal suture had partially ossified, but was opened again forcibly in connection with the postmortal distortion of the skull. The attrition of the preserved molars of the fragmentary lower jaw suggests an age of about 35-40 years.

Although being badly damaged, some basic measurements could be at least approximately taken. The skull is relatively long and narrow. The approximate measurements of the cranial length and breadth are 194 mm and

134 mm respectively thus resulting in a hyperdolichocranic index (69.07). In norma lateralis the skull is relatively low (auricular height 112 mm). The L-AH. Index and the B-AH. Index (57.73 and 83.58) place it in the chamaecranic and metriocranic group. The forehead is low and receding and passes upwards and backwards in an only slightly arched curve of the vertex and a markedly protruding occiput (occiput en chignon). The low jaw is massive with a medium prominent chin. The broad and high ascending ramus of the mandible rises nearly vertically. The right half of norma occipitalis which is well preserved shows a typical house-shaped contour with a low and rounded vault. Norma verticalis is of pentagonoides outline with a slight bulging at the parietal region. The calculated cranial capacity is 1407 cc. (eucephalic). The low and receding forehead, the moderate height of the vault, the occiput en chignon and the massiveness of the bones give the skull primitive appearance. From the fact that the partially preserved upper margin of the right orbit is only slightly arched, it may be deduced that the orbits were originally rather low.

As the facial parts of the skull are missing the type-diagnosis is very difficult. Yet many of the characters described above are typical for the Proto- or Palaeoeuropid type, common at that time in Eastern Europe and Central Asia.

Skull 186 a (Figs. 78-85 Pl. LXXVIII)

The skull, the mandible of which is missing, is in a very bad condition. It shows a large elliptical gap in the right frontoparietal region and a second one in the frontotemporal part which extends to the cranial base. From the first mentioned gap a fissure runs over the forehead downwards to the upper margin of the orbit. The skull is vertically compressed especially in its facial part. Yet it was possible to restore it so that the main characters of the skull can be recognized and basic measurements could be taken.

The skull undoubtedly belongs to a female. It is small in size, the upper margin of the orbits the skull bones are relatively thin, the upper margin of the orbits extremely sharp, the forehead steep and the development of the preserved right mastoid processes is extremely weak. All sutures seem to be still open except a small portion of the sagittal suture which has commenced to fuse suggesting the age of about 25-30 years.

The skull is small in length but comparatively broad ($g-op = 173$).

eu-eu = 136) thus resulting in a high cranial index of 78.61, which belongs to the mesocranic class. The length-breadth index is the highest of all skull of the cemetery except that of skull No. 101 b. In *norma frontalis* the forehead and the face appear extremely low and broad. The comparison of the metrical data shows that the upper facial height is of an intermediate position, while the bizygomatic breadth (which could only approximately be estimated owing to the missing of the left zygomatic arch surpasses that of the other female skulls of the cemetery. Consequently the facial index is low (48.91) and the face distinctly euryen. Like the face the orbits are medium high but extremely broad, thus resulting in a mesoconchic orbital index of 77.27. The nasal aperture is relatively high while the other characters of the nose could not be judged as its lateral walls are badly damaged.

In *norma lateralis* the low forehead rises nearly vertically. The contour of the vault is low, moderately arched, and sloped backwards in a rounded occiput. In this view the facial skeleton shows very characteristic features. A depression of the high nasal root is totally missing; the nasal bones are flat with no projection at all giving thus this region a high degree of flatness, which can be seen especially from the photographs of the skull before restoration (Figs. 78-81 Pl. LXXVII). Owing to the fragmentary condition of the areas, the simotic and dacryal index could, however, not be calculated. In the middle segment of the projecting cheek-bones and the shallow canine fossa are remarkable.

The vault of the skull is extremely low. The auricular height of 95 mm is the lowest value of all measured skulls. Consequently the length-auricular height and breadth-auricular height index, being 54.91 and 69.85 respectively, are extremely low, and thus the skull is chamaecranic and tapeinocranic. In *norma occipitalis* the lateral walls are low and rounded giving the skull in this view a rounded-oval shape. *Norma verticalis* is sphenoides in outline. The calculated cranial capacity is 1120 cc. (oligocephalic).

As striking features of this skull can be considered the medium high but extremely broad face, the considerable degree of facial flatness, the extremely low vault and the relatively high cephalic index. With the exception of the low face and orbits the above described characters are typical of the Mongoloid type. This typological classification could be established by the naso- and zygomaxillar angles too, which clearly point out the Mongoloid character of this skull (see Section 7, C).

Skull No. 192 (Figs. 86-89 Pl. LXXIX).

The skull is in a very bad state of preservation. The left lateral half, the side on which the skull was resting is fractured, decomposed and compressed; the mandible is missing. The restoration of the skull was not possible and no useful measurements could be taken. Nevertheless the main morphological characters of the skull can be recognised and described. On the whole the skull appears small, smooth and gracile with a sharp upper margin of the preserved right orbit, absent superciliary ridges and small mastoid characters which speak of a female skull. All sutures seem to be open, except a small portion of the sagittal suture which gives appearance of having commenced to fuse indicating an age of about 30-35 years at the time of death.

In norma frontalis the face appears medium in height with a high and rounded orbit. Yet no exact measurement of the orbit could be taken because its lower and medial margin is fractured and eroded. In norma lateralis the forehead is relatively steep and passes upwards and backwards in a smooth contoured, well arched vertex and rounded and only slightly protruding occiput. Norma occipitalis is, as far as can be judged from the preserved half, of house-shaped contour with a slightly diverging side wall. Norma verticalis seems to be ovoides in outline. From this view it can also be deduced that the skull was most likely dolichocranic.

The smooth contoured, gracile, seemingly dolichocephalic skull, with high orbits most probably belongs to the Mediterranean (Leptodolichomorph) type. From an archaeological point of view it is interesting to note that during the cleaning of the skull three small metal rings probably belonging to a necklace, were found loosely attached with the cranial base. In fig. 87 two of these rings can be seen in the space between the mastoid processes and the maxilla.

Skull No. 197 a (Figs. 90-93 Pl. LXXX).

The skull is in a relatively good state of preservation and nearly complete. Only little portions of the right occipito-temporal region and both condyles processes of the mandible are fractured or missing. The skull is typical female. The upper margins of the orbits are extremely sharp, the mastoid processes small, the frontal and parietal eminences well marked, the glabella and the superciliary arches weakly developed. All sutures are open, the wisdom teeth of the maxilla are already visible, while those of the

mandible had not yet erupted thus suggesting an age of approximately 20 years, which accords with the only slightly worn off molars. The skull is medium in length and breadth ($g-op = 183$, $eu-eu = 130$) and dolichocranic (L.B. Index = 71.04). In *norma frontalis* the forehead is high and rounded, the face is medium high and broad. The total facial index and the upper facial index being 88.71 and 52.63 respectively place the skull in the mesoprosopic and mesen class. The orbits are rounded with a tendency to rectangular and mesoconchic (OI. = 82.50). The piriform aperture is medium high but extremely broad (28 mm) leading to a hyperchamaerhine nasal index of 59.57 which is the highest of all measured skulls. Compared with the upper facial segment the bigonial breadth is relatively low so that a narrowing of the face downwards results. In *norma lateralis* the high forehead rises vertically from the ill-marked glabella and passes in the moderately arched contour of the vault and the rounded occiput. According to the length-auricular height index (63.93) and the breadth-height and breadth-auricular height index (99.23 and 90.00) the skull is hypsiceranic and acrocranic whereas the length-height index being 70.49 places it in the orthocranic class. In lateral view the considerable degree of alveolar prognathism is remarkable. The mandible, which is not very massive, shows a moderately projecting chin and a broad ascendent branch. The nasal root is only slightly depressed and the nasal bridge is not very high, and consave.

Norma occipitalis is of a typical house-shaped contour, *norma verticalis* is ovoides in outline. The calculated cranial capacity is 1348 cc. and encephalic. The main characters of the skull are the expressed prognathism, the steep forehead, the relatively low orbits and the high nasal index. With these features the skull shows similarities to the female skull No. 101 a and the male skull No. 03 and likewise it can be typologically classified as Veddiform (Paedoeurydolichomorph).

Skull 198 (Figs. 94-97 Pl. LXXXI).

This is the only better preserved skull of an infant found in the whole cemetery. Except the fractured right half, it is nearly complete. The age could be assessed exactly on the basis of the eruption of the milk teeth. All deciduous teeth had erupted except the second milk molars and the canines which, however, had just started to erupt, indicating an age of approximately 18 months.

The length of the skull is 155 mm, whereas the cranial breadth could

not be determined because of the fragmentary condition of the right parietal region. Yet the skull appears extremely narrow and is most probably hyperdolichocranic as can be judged from *norma occipitalis*, showing an extremely elongated ellipsoidal outline. In *norma frontalis* the face is low (upper facial height = 38 mm, total facial height = 61 mm) whereas the orbits appear relatively high.

In *norma lateralis* the extremely steep forehead passes upwards and backwards in a well arched curve of the vertex and the occiput. In this *norma* the low facial segment shows a considerable degree of alveolar prognathism, which is also visible in *norma verticalis*. In *norma occipitalis* the side walls of the skull are high and rise nearly vertically. The outline is of typical house-shaped contour.

The main characters of this long and narrow skull are the relatively low face, the steep forehead and the marked alveolar prognathism. As already shown in connection with the description of other skulls this combination of morphological features is typical for the so-called Veddifform type (see skull 03, 101 b, 197). The typological classification, however, may be considered with some caution, as some of these traits, especially the steep forehead are typical infantile features.

Skull No. 209 (Figs 98-101 Pl. LXXXII).

This skull represents the only well preserved skull of Site No. 2. Except the lateral margin of the right orbit, the whole facial segment and the cranial base are missing. The frontal bone shows a large gap, which includes the glabella region too. The cranial bones are thin, the forehead rather steep and thus suggesting a female. This diagnosis is supported by the gracility of the long bones. As all sutures are still open and the third molars of the lower jaw had not yet erupted an age of approximately 20 years or a slightly younger age can be assessed.

Except the cranial breadth no useful measurement of the cranium could be made. Yet the skull appears long, relatively broad, and mesocranic (according to the approximately calculated cranial index being 77.52). The high and steep forehead passes upwards in a well arched curve of the vertex and a slightly protruding occiput. The lower jaw, the corpus of which is medium in height and thickness shows a moderate projecting chin region.

In *norma occipitalis* the lateral walls of the skull are medium in

height, and slightly curved thus giving the skull in this view a more oval shape. Norma occipitalis is spherioides in outline and shows some anatomical variations of the sutures (metopic suture and some wormian bones at the lambdoid suture) which can be seen in norma occipitalis too.

Owing to the fragmentary condition of the skull the typological classification is very difficult. As the skull shows some features in common to the skull 06 the same may be true concerning the typological differential diagnosis.

B. POSTCRANIAL SKELETON AND STATURE.

Just like the skulls the postcranial skeletons were mainly badly preserved. This was also true of the anthropologically most significant regions of the postcranial skeletons, particularly the long bones. Notwithstanding, it was possible to measure 56 long bones belonging to 17 males and 12 females. The measurements of 4 more long bones were not taken into consideration because the sex determination was not possible. Quite a good number of the measured long bones were still complete but in such a bad state, that even with the help of preservatives they could not be salvaged. Therefore the measurements had to be taken in situ. This is specially valid for some femura and tibiae. Yet only those measurements (taken in situ) are presented here which could be made exactly. Out of the many possible measurements of long bones only the most significant ones are selected here, which are important for the determination of the stature and the calculation of the length-thickness indices. The individual measurement and indices are given in the Collective Tables. In 3 cases the extremity bones of both sides were available. So far as small metrical differences between both sides were observed, the arithmetic means are given.

Humerus

Measurements had been made on 11 humeri of adult individuals (7 male and 4 female). The average maximum length is 324.1 mm for males and 311.25 mm for females; the length-thickness indices being 19.49 and 17.51 respectively, show considerable sex differences, which, however, may be due to the small number of bones available for analysis.

Radius

6 male but only two female radii were useful for anthropological

measurements. The average maximum length is 49.33 for males and 237 mm for females. The length-thickness index, calculated from the physiological length (measurement No. 2 according to Martin) and the minimum circumference of the shaft, is 18.31 in case of males and 17.70 for females.

Ulna

Only 5 ulnae (3 male and 2 female) were so well preserved that anthropological measurements could be taken. The arithmetic mean of the maximum length is 265.33 for the male group and 249.5 mm in case of females. The length-thickness indices calculated from the physiological length (measurement No. 2 according to Martin) and the minimum circumference of the shaft are 16.15 for males and 15.12 for females.

Femur

Measurements have been made on 9 male and 6 female femura. Most of the length measurements could be taken only in situ, and correspond to the maximum length (measurement No. 1 according to Martin), while the length in natural position of these bones could not be estimated. As the assessment of the stature according to Manouvrier and the calculation of the length-thickness index are based on the length in natural position, 3 mm were subtracted from the maximum length as proposed by Martin-Saller (1957 I, p 595).

The average maximum length is 456.33 mm in case of males and 421.33 mm for females. The mean robusticity indices are 19.48 and 19.18 respectively.

Tibia

9 male but only two female tibiae could be utilised for anthropological measurements. The average maximum length and the length-thickness indices are 381.33 and 20.89 for males and 352.5 mm and 20.42 mm for females. As in the case of the femura most of the length measurements could be taken only in situ.

Fibula

Anthropological measurements could be made only on one male and

two female fibulae. The length measurement and length-thickness index of the male bone are 350 mm and 10.00 whereas the corresponding mean values of the two female fibulae are 338.5 mm and 10.20.

All measured bones did not show any pathological changes and also did not exhibit any specific morphological characters which are worth mentioning here.

The metrical comparison of the postcranial skeletal material from Timargarha with other skeletal series will be done in a later research work. Yet it should be mentioned here that according to the length-thickness indices the population of Timargarha exhibits a high degree of robusticity, which surpasses, for example, that of the neighbouring prehistoric groups from Harappa, even the comparatively robust series from Cemetery R 37. However in case of R 37 this may be due to the larger length of the long bones, as we know that the length-thickness index decreases with increasing bone length.

Stature

As already mentioned in an earlier section the stature was estimated according to the method of Manouvrier and that of Trotter and Gleser, the latter of which is mostly used in recent research works. For comparison purposes it is, however, possible to estimate the stature according to any other method on the basis of the individual measurements of the long bones given in the Collective Tables at the end.

In our material the stature could be calculated for 17 male and 12 female individuals. In some of these cases this could be done only on the basis of the measurements of one single long bone. The estimated stature from each long bone is given in the Collective Table E. It shows that in case more than one long bone of an individual were available, the stature values calculated from different bones show no great differences. According to the method of Manouvrier the stature varies from 157.1 to 178.9 cm for the male group and between 145.5 and 164.0 cm for females. The corresponding values for the method of Trotter and Gleser are 163.6-181.8 cm for females. The corresponding values for the method of Trotter and Gleser are 163.6-181.8 cm for males and 148.2-167.3 cm for females.

The mean stature is 168.0 cm (Manouvrier) and 171.6 (Trotter and Gleser) respectively for the male group and 158.4 and 160.7 in case of the

female group, thus showing a difference of approximately 3 cm between both the methods. The average stature of the male and female group, estimated by arithmetic mean of the stature of each individual, differs only slightly from the values of a more exact method of assessment of the mean stature for groups, which is described by Martin-Saller (Vol. I, p. 593). According to this method the mean stature of a group is determined as follows: The stature mean from every bone (radius, femur, tibia etc.) is multiplied with the number of particular bones and all such products are added together and divided by the number of all bones taken into consideration. On the basis of this calculation method the mean stature for the male group is 168.1 cm according to Manouvrier and 171.9 cm according to Trotter and Gleser. The corresponding values for the female group are 159.1 cm (Manouvrier) and 161.5 cm (Trotter and Gleser).

According to the same method the mean stature for both sites was estimated separately, although in cases of site No. 2 only a relatively small number of measured long bones of males were at our disposal. The mean stature in case of the male group is 168.2 (Manouvrier) and 172.0 (Trotter and Gleser) for site No. 1 and 167.7 and 171.5 for site No. 2. The corresponding values for the females are as follows: Site No. 1, 159.9 and 161.8 cm; site No. 2, 158.4 cm and 161.2 cm. Thus the differences of the stature between both sites are relatively small and statistically insignificant.

The estimation of stature of the particular typological groups distinguished on the basis of the skull material was not possible as the number of measured long bones was too small.

The comparison of the stature of the protohistoric population of Timargarha with other skeletal series will be done in a later research work. Yet it can be said, that the stature of approximately 170 cm for the males and 160 cm for the females ranges in the upper part of the variation limits of the stature i.e. that the population of Timargarha cemetery is relatively high statured.

C. GENERAL ANTHROPOLOGICAL CHARACTERS OF THE PREHISTORIC POPULATION OF TIMARGARHA CEMETERY.

After the detailed morphological, metrical and typological analysis of the skeletal material in the preceding chapters, especially the study of the individual skulls, in following the series from Timargarha the material should be considered on the whole i.e. as population. This analysis should

be based on the arithmetical mean of the essential anthropological measurements and indices which are given for both sexes in Tab. 5.

If we consider the absolute measurements of the male group, the great cranial length and moderate breadth of the series are remarkable. The other absolute cranial and facial measurements are of intermediate position, with the exception of the bigonial breadth which is comparatively great.

More informations are to be expected from the cranial and facial indices. The cranial index being 69.4 is extremely low and distinctly hyperdolichocephalic. It results from a great cranial length and an extremely low breadth diameter, as already mentioned. According to the length-height index the skull of the male population is medium in height (orthocranic) but high-vaulted (acracranic) according to the breadth-height index, which is due to the moderate cranial breadth of the series. The orbits are of medium height and mesoconchic, whereas the nose is relatively narrow as can be deduced from the low and leptorrhinic nasal index. The upper facial index being 52.2 ranges in the mesen class i.e. that the upper facial height is medium in relation to the bizygomatic breadth. The total facial index is of an intermediate position too. Yet it ranges directly at the border of the meso- and leptoprosopic class and thus indicating a slightly higher face, which is due to the massive and high lower jaws.

In relation to the cranial breadth the face is relatively broad. The bizygomatic breadth exceeds the maximum cranial breadth thus resulting in a transverse craniofacial index over 100. The same is true of the lower part of the face (bigonial breadth) compared with the upper facial section (bizygomatic breadth), which is expressed by the high jugomandibular index of the male group. This will be evident if we compare the series from Timargarha with other series from Asia (see Tab. 6 of section 10).

According to the measurements and indices of facial flatness (simotic and dakryon index, nasomalar and zygomaxillar angles) the series from Timargarha proves to be distinctly Europoid. The two skulls (the male skull 01 and the female skull 186) classified as Mongoloid do not carry any weight concerning the whole series. Nevertheless these two skulls could clearly be distinguished on the basis of the measurements of facial flatness from the other skulls. For the male group the variation limit of these measurements and indices in Mongoloid direction (simotic index = 34.29, dakryon index = 51.32, Nasomalar angle = 145° and zygomaxillar

angle = 134°) belong to skull No. 01 (see also the Collective Tables A and C). In case of the female group the same is true of the zygomaxillar and nasomalar angles concerning the skull 186 (the dakryon and simotic index of this skull could not be determined). According to the method of Manouvrier the stature of the male group is 168.0 cm, whereas according to the method of Trotter and Gleser the stature of 171.6 cm was estimated. If we take the arithmetical mean of both values an average stature of approximately 170 cm results, which is as compared with other prehistoric and also recent populations, relatively high.

The variation range of most measurements and indices is relatively great as for example in the case of the nasal and the orbital indices. Only a few measurements or indices show a very limited variation; this is especially true of the cranial index, the variation of which comprises only 5 index points. The essential features of the male series from Timargarha can be stated as follows: long and narrow-headed with high vault, medium high orbits, relatively narrow nose and medium high till high face, the breadth of which, however, is great in relation to the cranial breadth. The stature of the population is comparatively high and it seems that the postcranial skeletons are massive in structure. (compare section 7, B).

The main characters described above are also true of the female group. The metrical deviations between the male and the female series, especially concerning the absolute measurements correspond to the sexual differences. If we classify the whole series according to the anthropological types we find partially remarkable metrical differences between the different typological groups. Yet these differences are of no great value because the individual typological groups are represented only by a small number of skulls.

The metrical comparison of the series from Timargarha with other pre and protohistoric population from Asia will be given in a later section.

SECTION — 8

SOME PALAEOPATHOLOGICAL REMARKS ON TIMARGARHA BONE MATERIAL

As it is planned to give a full account of the pathological features of the human bones excavated at Timargarha cemetery in a later work after a special and more detailed study of the skeletons under a palaeopatholo-

gical point of view, only a few notes concerning the main pathological finds, as far as they involve changes in the skeleton, are presented here.

Except some anatomical anomalies like wormian bones and other sutural variations which, however, cannot be considered as pathological features in the strict sense, the number of pathological changes which could be traced at the present state of examination is relatively small. Most of them belong to the group of injuries and fractures. As far as they concern the skull they are already briefly mentioned in earlier sections.

The injury of the female skull No. 101 b (Figs. 29-32 Pl. LXV), mainly extended on the left parietal, is a typical depressed fracture of the skull with central impression and shows clearly the line where the instrument struck. This type of injuries is generally caused by edged but relatively blunt implements or weapons. As no signs of healing can be detected one can assume that the death occurred due to this injury (see also section 4. Grave 101).

Contrary to this, the injuries of skull No. 05 located on the right side of the frontal and the left parietal bones are nearly totally healed (Figs. 17-20 Pl. LXII). It seems likely that these wounds were caused by an instrument sharper than that in case of skull No. 101 b. The injuries are relatively narrow and not associated with secondary cracks, and possibly represent the cuttings of a sword or an axe. The injury at the frontal is a relatively deep incision, whereas that of the parietal is only a superficial scratch and possibly caused by a sword or another instrument clancing off the skull bone. The latter may also be true in the case of the superficial injury of skull No. 134, showing at the right parietal a slightly deepened scratch.

One of the most interesting pathological finds of the cemetery is the trephination of skull No. 212 belonging to a young female (see Fig. 110 Pl. LXXXIVa). The trephination hole is of rounded shape and located in the frontoparietal region of the skull at the confluence of the sagittal and coronal suture. Concerning the trephining technique it seems likely that the perforation resulted by slowly cutting out a roundel with a tool.

The internal circumference of the hole is nearly as large as the external one indicating a relatively steep cutting gradient. It seems that no signs of healing are traceable. The edges of the hole are sharp and the exposed diploic spaces of the spongy inner table show no signs of closing as can be seen in Fig. 110, Pl. LXXXIVa from a small portion of the hole near the frac-

ture line. Therefore it is difficult to decide if this operation was performed ante mortem or post mortem.

Possibly another skull of site No. 2 also shows signs of trephination (compare grave 256). In this case it is, however, difficult to reach a final conclusion, because only a small portion of the trephined area of the skull is preserved.

These trephinations are of special interest as according to our knowledge these are the only cases to be observed in Pak-Indian Subcontinent till today.

Questionable, however, is the fracture of Skull No. 186 consisting of a hole on the right frontoparietal region and a fissure running over the frontal and including the right upper margin of the orbit. In this case it is possibly by a sharp stone during the burial, which is supported by the fact that no signs of healing are traceable.

Pathological variations on skulls owing to bone diseases could be found only in one case. As already described in an earlier section, in skull 173-a (thickening on the left molar bone with a rough and rugged surface was seen, which made the canine fossa to disappear. It seems highly likely that this deformation is caused by an inflammation of the bone probably by a chronic state of a periostitis, called as periostitis ossificans.

From the deceases of the jaw and the teeth, some cases of dental caries could be observed. It is however in the present state not possible to tell the exact percentage of this dental disease.

Only a small number of pathological variations could be detected on the post-cranial skeletons which however may possibly be due to the bad state of preservation of most of the bones.

A healed fracture was found on tibia and fibula from grave 190. Both bones were united in the region of the old fracture.

Two tibiae belonging to the male skeletons from grave 138 and 165 are peculiarly thickened at the diaphysis and are unusually bowed. Yet it was not possible to clear up whether we are dealing here with pathological changes or not.

SECTION — 9

ZOOLOGICAL REMAINS

As already mentioned in earlier sections animal bones were found in some graves of Site No. 1 along with human remains. These finds throw not only light on the life customs and the economic conditions of Timargarha population. They are furthermore of special archaeological and ethnological interest because they seem closely connected with certain ritual practices. The animal bones found in the particular graves were determined by Dr. Hemmer, zoologist of the University of Mainz, as follows:

Grave 109

Fragments of the skull and the mandible and the distal parts of the limbs belonging to a female goat of 6-8 months of age.

Grave 125

- 1) Extremity bones of a domesticated horse (*equus caballus*),
- 2) the jaw of a stag (*cervus sp.*), approximately 8 to 10 year of age,
- 3) two teeth, which belong to a small ruminant, possibly goat or sheep.

Grave 137

- 1) Remains of a probably male sheep (*ovis sp.*), which could be proved by a broken metacarpus,
- 2) Two fragments of a humerus and a metacarpus belonging to a young ruminant not yet specifically determined of the size in between a sheep and a stag,
- 3) fragments of the mandible and some limb bones of a hare.

Grave 149

Fragments of the skull and the mandible and parts of the proximale and distal extremities of an old sheep (*ovis sp.*) approximately 10 years of age.

Grave 183

Tail vertebrae of a snake, which were found lying over the rim of dish-on-stand.

Further animal bones were exhumed during 1965 excavation season at site No. 3 in pits along with pottery near the right bank of Panjkora River where, however, no human skeletal remains were found. It is evident that the burial of these bones is closely connected with certain ritual practices too. These bones are at present under examination in the laboratory of Dr. Hemmer. The results will be published in a comprehensive study in near future.

SECTION — 10

DISCUSSION AND CONCLUSION

As the detailed description and typological classification of the particular finds have shown the high statured, long and narrow-headed, high vaulted and distinctly Europoid population along with relatively narrow nose and medium high but comparatively broad face, the skeletal materials do not belong to anthropologically a homogeneous group. Though there were only 25 skulls at our disposal for morphological and metrical analysis, we could at least distinguish 5 different main morphological types, which could be metrically differentiated too. The most common type is the *Leptodolichomorph* (Mediterranean type) including its subtypes as the Transcaspiian type or the Khorasan type. This observation is not surprising as we already know from numerous excavations that from Palaeolithic period onwards the Mediterraneans or the more ancient form of this type (the "Asiatic Protomediterraneans" according to Cappieri) form the basic population element of South and Middle Asia from the Aegean Sea and Egypt to India and from Gulf of Oman to Caspian Sea.

Next to the gracile Mediterraneans, the rugged-bony and robust Eurydolichomorphs and robust Leptodolichomorphs (Protoeuropoids, Palaeuropoids or Cromagnoids = Andronovo types, and Nordics) were the most common types. However it seems that these types were represented in the population of Timargarha in greater number as can be concluded from some fragmentary skulls which could not be included in the proper anthropological analysis.

Mongoloid elements were noticed in two skulls. Significant Mongoloid was the female skull No. 186, whereas the male skull No. 01 was classified as Palae-europoid with a strong Mongoloid admixture. Beside the undoubtedly Mongoloid features (like the flatness of the nasal region the great breadth and the projection of the cheek bones,

the low depth of the canine fossa) the type diagnosis could be confirmed metrically with the help of the measurement and indices of facial flatness (see Section 7, C).

The so-called Veddiform type could be traced exactly in three skulls (2 female and one male). Yet it seems likely that this type was also represented by some skulls, the facial parts of which were missing. Probably the skull of the infant found in grave 198 belongs to this type too. But the classificatory concept of Veddiform or Veddoid requires a clarification. In the prehistoric Anthropology of Asia the term Veddoid is often equated with terms as Australoid, Proto-australoid, Dravidoid, Proto-dravidoid or Australo-veddoid (compare Friedrichs and Muller 1943, Ehrhard 1964, P. 44 and 1965, P. 47) and is used to classify a primitive skull type which is not only found in Mohenjodaro and Harappa but also in the remaining South Asian region. This type is described by most of the authors as long and narrow-headed, with faintly arched and low sagittal curve of the vault, protruding occiput, strongly marked muscular attachment areas, low and receding forehead with strongly projecting glabella and superciliary arches, deeply depressed nasal root, relatively broad and low face and as striking feature the marked alveolar prognathism.

According to Ehrhard (1964, p. 45) the description of this type, which varies concerning certain details among different authors characterizes more of a morphological form group than a distinct racial type, the further differentiation of which seems possible and necessary.

One of the reasons for the insufficient typological classification of the prognathic form group of the Asian region (including the so-called Asiatic Negroids) may be seen in the above mentioned equation, especially of the terms Veddoid and Australoid or Proto-australoid. V. Eickstedt (1934) who introduced the term Veddoid in the science of race to characterize the racial groups living in Central India today has always disputed the opinion that the Veddoids and the Australoids systematically belong together. According to V. Eickstedt both differentiate themselves by the fact that the Veddoids represent an infantile primitive group, while the Australoids exhibit thero-morph primitive features. One of the most important morphological differences between Veddoids and Australoids concerns the frontal region. Australoids are characterized by a relatively low and receding forehead with a projecting glabella and well marked superciliary arches. To the contrary the forehead of Veddoids is relatively steep and shows a less marked glabellar and superciliary region. They are thus characterized as a more paed-

morphic group. In addition the Veddis differentiate from the Australoids by smaller absolute measurements of the skull and the stature by lesser marked muscular attachment areas and other characters. Therefore the Veddis can be considered as more gracile type than the Australoids.

These differences between Veddis and Australoids could also be confirmed in a recent research work of Schwidetzky (1966) by multivariate statistical methods (Penrose and Sanghvi-distance) based on the material from the German India-Expedition (V. Eickstedt 1926-1929).

If we consider on the background of this discrimination the "Veddoid" skulls from the cemetery of Timargarha it can be stated that specially the combination of morphological features like the extremely steep forehead, the weakly developed glabellar and superciliary region, the marked alveolar prognathism and the gracility of the skulls corresponds to V. Eickstedt's infantile primitive Veddid type.

These skulls distinguish themselves not only from most of the so-called "Proto-australoid or Veddoid" skulls from Mohenjodaro, but also from type A of Harappa, which, according to Gupta, Dutta and Basu (1962) is typologically related with the above mentioned type from Mohenjodaro. The same is also true of the skull found at Kish and other sites of South Asia. These skulls are characterized besides the marked prognathism by a low and receding forehead, a projecting glabellar and superciliary region, a deeply depressed nasal root and well developed muscle markings and thus correspond to the Australoids in the sense of V. Eickstedt.

The presence of Veddiform skull types in the extreme north-western corner of the Pak-Indian Subcontinent is both interesting and important because these finds can be considered as geographical and chronological links between the Veddoids in Central India and the prehistoric finds with similar combinations of morphological features found in Turkmenia and the Caspian region. They are dated back to the 5th Millennium B.C. This is specially true of the skull No. 5 from Monsukly-Tepe (South-Turkmenia, 5. Mill. B.C., see Figs. 105-109) which shows striking similarities to the skull 03 from Timargarha. Prognathic skulls exhibiting Veddoid-like combinations of morphological features were also found in Kokca 3 south of the Aral Sea (2. Mill. B.C.) and in the towers of silence of Kalaly-Gyr in ancient Chorazmian.

The Russian anthropologist Trufimova calls this type besides the tra-

ditional terms (Veddoid, Indodravidoid etc.) as Equatorial type. With this nomenclature its hypothetical origin from the south should be noted. Trofimova believes to have found equivalents of similar morphological forms of the South, for example the skulls of Type A from Kish, skulls from Tepe-Hissar, Mohenjodaro, Adichanallur and other sites of South and West Asia (compare Trofimova 1957, 1964a, 1964b.). As a criticism of these morphological connections stated by Trofimova it may be mentioned here that Trofimova does not clearly distinguish between Veddoids and Australoids or Veddoid-like and Australoid-like skull types in the sense of V. Eickstedt, which in our opinion is necessary for the solution of the problem under consideration.

On the other hand the distinctly Veddiform skull types found in Timargarha and in the territory of the Soviet Union seem to confirm the assumption already made by V. Eickstedt more than 20 years ago (compare Eickstedt 1934) that the Veddids of India living today in a completely backward areas were spread farther to West and East and North in earlier time periods. Similar to V. Eickstedt, Trofimova is of the opinion that the Equatorial type living in prehistoric times in the southern territory of Central Asia migrated to this area from India (compare Trofimova 1964 b.). Yet it seems to be premature at the present state of our exploration to draw any definite conclusion in this direction, especially concerning genetic connections between the present day Veddoids and the prehistoric anthropological finds mentioned above, as done by Trofimova.

As already mentioned in the introductory chapter Dani (1966) distinguished three main cultural and chronological periods in the Gandhara grave complex and the cemetery of Timargarha, which according to the tentative dating extend approximately over 1000 years (about 1500 B.C.-500 B.C.). Though the cultural continuity is observed through this whole time period, the three cultural periods differ from each other by certain changes in cultural elements and particularly by different burial rites. The period I inflexed burials are the only burial type whereas in period II beside the ritual complete burials, cremations are observed too. In period III these two burial types continue beside a newly introduced one, the so-called fractional burials probably after exposure of the body. Relatively great cultural differences are observed between the first two periods and period III. Period III differs from the other period by the introduction of new pottery types and iron. When we classify the anthropological material keeping these three different periods in mind it seems likely that the particular cultural periods are represented by different anthropological types.

Though the available anthropological material is too small to reach a final conclusion, the anthropological findings suggest that in period I those skull types are prevalent which are massive in structure and show certain archaic features. The Protoeuropoid and very archaic skull 01, the robust Cromagnoid skulls 04 and 101 a, the massive and rugged-bony skull 101 c and the Veddiform skulls 03 and 101 b belong beside others to this period. Not much can be said regarding the anthropological type of period II, because cremation rite was prevalent and practically no useful anthropological material was available.

In period III the gracile skull types, classified as Mediterraneans are likely to be the most frequent anthropological type. Yet the other types could be observed too. (for example the Veddiform skull 197). To the same period belongs the distinctly Mongoloid skull 186.

The obvious anthropological differences between Period I and III suggest that during that time an immigration or at least a biological contact with foreign population groups took place. These may be responsible for the introduction of new cultural elements too. The manifold of the anthropological types, which exceeds the variation limits of a relatively isolated population confirms this assumption. The great variation range of Timargarha population could be also observed regarding most of the craniological measurements and indices (see section 7, c).

The skull injuries, which are likely to be caused by weapons, as well as an arrow head-like copper piece discovered in the chest of a male individual¹² suggest hostile contacts with foreign groups too. This leads to the conclusion that the protohistoric population of Timargarha cemetery is at least partially not an indigenous group. Thus the question arises regarding the biological origin and the biological connections with other prehistoric anthropological groups of the neighbouring areas.

In the introduction we have already discussed that in recent publications a chain of cultural relationships of the Gandhara grave complex to other cultures of the Asiatic region are pointed out from an archaeological and ethnological aspect. Cultural relationships do not always signify biological relations too, as we know from many examples that cultural elements can be transferred in different forms without any biological connections. Yet the cultural similarities often provide us the direction in which the biological origin and similarities are to look for.

In the present investigation the situation is, however, more com-

plicated because the archaeological similarities extend practically all over West, South and Middle Asia and many of these similarities are not yet confirmed.

In Tab. 5 and 6 some anthropological series from Asia are recorded which belong approximately to the same time period as the finds from Timargarha, and to which either archaeological or anthropological type similarities could be pointed out. The comparison of the series from Timargarha with these prehistoric population on the basis of the main anthropological measurements and indices shows that metrical similarities as well as differences could be observed between the series from Timargarha and all other groups from Asia.

Out of the comparison groups from South and West Asia (Harappa, Tepe Hissar etc.) the greatest similarities are noticeable to Tepe Hissar II when all measurements and indices are taken together. Still there are some greater differences concerning particular measurements. Tepe Hissar III and Harappa R 37 show lesser similarities, while the other series differ to a greater extent.

When we compare the male population from Timargarha with skull series from Middle Asia the surprisingly metrical affinities to Sakae groups from the Pamir are remarkable, where greater differences exist only concerning the facial measurements and indices. Partially there are also satisfactory metrical resemblance to other series from the North, especially to the small series from Tajikistan (2. Mill. B.C.) or to the skulls from the site Tasty Butak I north of Aral Sea which belongs to the Andronovo-culture.

Anthropological connections with North and North-west i.e. to pre-and protohistoric skeletal series from the south and south-western region of the Asiatic part of the Soviet Union exist also regarding the typological classification of the skull findings from Timargarha. Though no direct genetical relationships can be established from phenotypical affinities, morphological similarities are often indicative of such connections.

Already mentioned are the typological similarities between the Ved-diform skull types from Timargarha and anthropological finds from Mon-zukly Tepe in South Turkmenia, Kalaly-Gyr and Kokca 3 in Ancient Chora-zmian (south of Aral Sea). The same is true of the typological affinities between skull 142 b from Timargarha and skull 56, found in an ossuary of Kalaly Gyr. This skull was considered by the Russian anthropologist Trofi-mova representative of the Transcaspien type, a high and narrow faced

variant of the Europoid Dolichomorphs (Mediterraneans) which in recent days also represent the basic anthropological element of the population of Turkmenia.

The other Mediterraneans including there aquiline sub-group (Khorasan type according to Osanin), which form the main anthropological element of the population of Timargarha, especially in cultural period III, can be linked up with leptodolichocranic skull series from the Caspian region too. According to Ginzburg this type was wide spread in Middle Asia during the Neolithic and Bronze Age and is represented in the neolithic skull findings from Monzukly-Tepe, Ovadam-Tepe, Kara-Tepe, Geoksyur, Chapuz-Tepe, Anau, as well as in the Bronze Age skull series from South-Turkmenia (Tachirbaj), Tajikistan, the Ferghana valley, the region south of Aral Sea (Kokca 3) and partially from West Kazakhstan (Al-zar, Tasty-Butak). In later periods the Sakae of the Southern Pamir belong to this type. Representatives of this type were also found among the Usuns of the region south of Lake Balkash and the vicinity of Taskent (compare Ginzburg 1966, p. 175 ff). According to Krogman (1940, p. 16) leptodolichomorph skulls with prominent noses are also traceable among the anthropological material from Tepe Hissar III.

The marked Cromagnoid component of the Timargarha population is also in favour of the anthropological connections with the North and Northwest i.e. the Middle Asiatic region. This typological component could be traced in some skulls but it is also expressed metrically in the comparatively high values of the transversal craniofacial index and the jugomandibular index (compare Tab. 5 and 6). The massive, eurydolichomorph (Cromagnoid) skulls from Timargarha with low and broad face, broad and everted gonial angles and a high and broad ascendent branch of the mandible show striking resemblance not only to anthropological finds of the Afanasevo and Andronovo culture (Andronovo-type) but also similarities to other Cromagnoid skulls of the whole territory of Northwestern Asia and Northeastern Europe, where this type is the basic anthropological population element up to the metal age. Farther to the south this type could be traced in Kokca 3, situated south of the Aral Sea during the middle of the second Mill. B.C. This site belongs to the Tazbag jab-culture, a variant of the Andronovo culture with strong cultural affinities to the lower Volga. At Kokca 3 the relatively robust Andronovo type forms the basic anthropological element besides a gracile and prognathic skull type, showing similarities to the Veddifform skulls found at Timargarha, as has been already mentioned. Yet the metrical relations between the series from Timargarha and

Kokca 3 are not so close. The presence of the relatively robust eurydolichomorph skull types (skull 101 c and 157) with strong similarities with skulls of the Corded People of the European Neolithic suggest connections in Northern and Northwestern direction too. Similar robust but high-faced and dolichocranic skulls are also found in prehistoric periods in Middle Asia e.g. in Kara-Tepe in South Turkmenia. Concerning this type anthropological relations could be found also with the West, especially Tepe Hissar, where according to Krogman the robust Protonordic type is the prevalent anthropological type beside the relatively gracile Mediterraneans.

Along with the most striking hint at the anthropological connection of Timargarha population with the North, can be considered the numerically small but very clearly Mongoloid component. In the Central Asiatic Region Mongoloid admixtures are observed for the first time with the Sakae and the Usuns of the Lake Balkash region in the first Mill. B.C., which is chronologically well in accordance with the Timargarha cemetery. According to Ginzburg (1966, p. 180) further in south and southwest (i.e. in the Caspian region) a certain degree of Mongoloid admixture is observed at a far later period and is connected with the formation of the Hunnic-Alanic clans at the beginning of the 1. Mill. A.D. Possibly this opinion has to be corrected by the Mongoloid finds of Timargarha, which are definitely older than the beginning of the 1. Mill. A.D.¹²

Typological comparisons were also made between the skull material from Timargarha and anthropological finds from South and Southwest Asia belonging approximately to the same time period. Except the Mediterranean type which is, as we know, the basic anthropological element in the whole South Asian region, no great similarities could be found on the basis of typological comparisons. As pointed out earlier close metrical similarities were observed between the male population of Timargarha and that of R 37 from Harappa. However, this could not be confirmed typologically. The primitive and robust so-called "Proto-australoids", which are beside the gracile Mediterraneans the most common type of R 37, differ characteristically from the Veddiiform skull types from Timargarha as well as from the robust Cromagnoids or Palaeoeuropoids as pointed out in details earlier.

Concerning the anthropological relationships of Timargarha population the first results of an extensive statistical comparison of the series from Timargarha with other anthropological series with the help of multivariate statistical methods (Penrose-distance) are of special interest.

In this first analysis (which is based on the 11 absolute cranial mea-

surements given in Tab. 5 and 6) were included beside the male skull series from Timargarha more than 130 longer Neolithic and Bronze Age series from Europe, North and South Asia, the Orient and North Africa¹⁴. Concerning the comparison groups from South Asia statistically significant similarities were only observed to the series from Tepe-Hissar III, but not to the skulls from Harappa (total series) and the series from Kish.

Contrary to this a surprisingly high number of statistically significant affinities were found to skull series from Middle and East Europe, and Middle Asia. This is true of the anthropological series belonging to the painted pottery from South Turkmenia, the Timber-grave culture of the lower Volga and Ukrainian, the western group of the Fatjanovo culture, a series of the Corded People from East Prussia and a series of the Aunjetitzer culture of Thuringia (Middle Germany), which is closely connected with the culture of the Corded People.

Although great caution is necessary regarding the interpretation of these statistical results, they not only confirm the conclusions based on typological comparison and the comparison of the arithmetic means, but also suggest that probably the morphological relationships to Eastern Europe are stronger than originally expected. The final results of this multivariate statistical analysis in which all available anthropological Series from South and Middle Asia and Europe are included, will be published later in a special work.

The anthropological connections with Middle Asia and Eastern Europe as shown on the basis of morphological comparison are confirmed by archaeological and ethnological findings too, which were emphasized by the German Ethologist Prof. Jettmar in a detailed investigation, which will be published in near future¹⁵.

Though the information concerning the Gandhara Grave Complex at the disposal of Prof. Jettmar was scarce, he could show very interesting archaeological and ethnological relationships between the Gandhara Grave Complex and Middle Asia. In the opinion of Prof. Jettmar the final excavation reports from Swat and Dir State may present much more parallels.

Regarding the ceramics Jettmar¹⁶ points out connections between pottery types from Swat and similar pots from the cemetery of Dyndybyj (Central Kazakhstan) as well as from the Syr-darva region and the culture of Murgab area in South Turkmenia (Jaz Tepe I). In South Turkmenia were

also found some specimens of the stone mace-head found in Swat and described by Antonini (1963, p. 23). According to Jettmar, there are further clear typological affinities between a bronze leaf-shaped blade with three central grooves and a circular disc as base (mentioned in Antonini's preliminary report), and metal objects which were developed in the Caucasus and are found also in the Ural region and the steppes of Southern Russia. In grave 142 an iron psalion (part of a horse bridle) with three holes was found which in the opinion of Jettmar typologically belongs to the Steppe region of Middle Asia, where these types are common in the 1st half of the 1st Mill. B.C. Because of the unusual material (iron) Jettmar originally suggested a retardation (i.e. a persistence of this type for a longer time period). However recently an iron psalion of the same type was found in Kazakhstan too (personal communication with Prof. Jettmar).

The finding of the part of a horse snaffle in grave 142 and some bones of the same animal in grave 125 leave no doubt that we are dealing with a population breeding and using horses, which according to the general present day opinion were brought to India by the Aryans. These findings are in favour of the relationship of Timargarha population with the North i.e. the Middle Asiatic steppe region too.

Manifold structural parallels are also observed by Jettmar between the construction principles of the graves of the Gandhara grave complex and the tombs of the so-called Timber-grave culture in the Steppes, Sakae tribes at Ili and the Andronovo Culture.

Parallels can also be established with Middle Asia and even Europe regarding the relationship between sex and the position of the body in case of inflexed burials, which are found from the Neolithic onwards e.g. in Central Russian Fatjanovo Culture (compare Ozols 1962), the Andronovo Culture, among the Corded People and other different prehistoric groups of Europe (see Hausler 1966).

Possible relationships may be existing with the Syr-darya delta concerning certain practices of cremation, where the body is incompletely burnt or roasted, as we have already shown in the earlier section 5.

Particularly the manifold burial customs in the Gandhara Grave Complex have resemblances with Central Asia. According to Jettmar a great variation regarding the burial customs is observed in the 1st Mill. B.C. in this area, which is unique in the whole cultural history of mankind. This is

not only true of the royal burials but also of the other social groups. Particularly there are strong relationships to the northern region concerning the so-called fractional burials i.e. the inhumation of the bones after the decomposition of the body (found in period III of the Timargarha). This practice, adopted later by the Zoroastrians, was very common in the 1st Mill. B.C. among East Iranian tribes (Massagetae, Sogdians and Bactrians) as mentioned already in literature. The exposure of the body was not the only funerary rite of these tribes, but it was found in peculiar association with body burials and cremations, which is in full agreement with the burial customs of Period III at Timargarha.

In this connection an investigation of the Russian archaeologist Rapoport on the evolution of the ossuary burial rites may be of some importance. This burial custom was practised in the beginning of the 1st Mill. A.D. in Central Asia and was specially significant in connection with the Zoroastrian religion. According to Rapoport this rite, the origin of which can be traced back to the 1st Mill. B.C., arose from a contamination of two burial customs widespread among the East Iranian tribes: the custom of exposing corpses for destruction by beasts and birds, and the custom of cremation accompanied by the placing of the ashes in urns. According to Rapoport so-called visage urns have served as prototypes of the ossuaries.

All these elements which (according to Rapoport) led to the ossuary rite in Central Asia are also observed in the cemetery of Timargarha including the visage urns (compare Dani 1966) which were also found in some specimens by the Italian excavation at Swat. With this background, the morphological similarities between skull 142 (found in the same grave like the iron psalion) and skull No. 56 from the ossuaries of Kalaly-Gyr may be of special importance.

If we sum up the previously mentioned details we may reach the following conclusion: Morphologically the population can be characterized as relatively high statured, long- and narrow-headed, with narrow nose and a medium high to high face, the breadth of which is, however, more in relation to the cranial breadth. Though a slight Mongoloid admixture could be observed, the series from Timargarha can be considered on the whole as distinctly Europoid (based on the measurements and indices of facial flatness). The metrical and specially the typological variation range, is great and comprises practically all types common in South, West, Middle and North Asia. Metrical and typological relationships are observed with the anthropological series from Tepe Hissar in the West; particularly close are, however, the anthropological connections with the North and Northwest

i.e. to the Middle Asiatic region and even Eastern Europe. This assumption could also be confirmed by archaeological and ethnological findings which show that the tribes who were living in the 2nd and 1st Mill. B.C. at the southern foothills of the Hindukush had manifold cultural connections with the North.

The present anthropological analysis and the available archaeological informations leave no doubt, that the protohistoric population groups coming to light from the cemetery of Timargarha are closely connected with the southern migration of foreign people into the Pak-Indian subcontinent which began in the second Mill. B.C. and also continued in the first Mill. B.C.

←→

NOTES

- 1) In 1964 only a small number of graves were opened.
- 2) With the exception of the results of the study of one human skull from the necropolis of Butkara II in Swat (GENNA 1965) and the report on some traumatic lesions in some human bones from the same cemetery (G. ALCIATI and M. FEDELI 1965).
- 3) The orientation of the graves and the bodies varies in particular burials from west to east till south-west to north-east. These small variations are not taken into consideration in this report, which is also true of the facing. Only the main cardinal directions (west-east, south-north) are given here.
- 4) It is an example of fractional burial — editor.
- 5) See P. 59 note. As the author has corrected later in his footnote, this burial falls outside the scope of the Gandhara Grave Culture. It may be a Muslim burial.—ed.
- 6) Grave 136, the only burial where the skeleton was lying in extended position most probably belongs to a far later time and does not belong to this cultural complex.
- 7) This is a case of partial burial in a Grave having urns with cremated bones.—ed.
- 8) In this connection the question arises, whether these graves show certain structural similarities with collective graves as traceable till recent past in Gilgit Agency where the skulls are also placed on raised platforms after the decomposition of the flesh. (compare Jettmar 1967).
- 9) The handling together of males and females and of two of our age groups was necessary, as the data for the comparison is specified in that manner.
- 10) With the term "veddiform" it should be noted that this and other skulls show morphological (phenotypic) similarities with the present day Veddoïd racial type. The question whether there are genetical connections or not can not to be answered at the present state of exploration.
- 11) This date could be confirmed by radio-carbon dating (see Introduction).
- 12) Found in a grave of 1964-excavation season (verbal communication by Mr. F. A. Durrani, Peshawar).
- 13) In this connection however the question arises if a relatively flattened skull from Chagar-Tepe (3rd Mill. B.C.) in South-Turkmenia already belongs to the Mongoloid stock (compare Trolldenier 1964 b, p. 6).
- 14) This material was collected in connection with the preparation of the International Symposium on Neolithic (and Bronze Age) of Europe, Asia and North Africa in autumn 1966 in Mainz, Germany "Vergleichende statistische Untersuchungen zur Anthropologie des Neolithikums" to be published in near future in *HOA 9, Zeitschr. f. d. Vergleichende Forschung am Menschen*. This work contains an article of the author on South Asia, Orissa and North Africa, in which, however, the material from Timargarha is not included.

- 15) Prof. Jermar was kind enough to permit the author to go through the unpublished work.
- 16) The comparisons of Prof. Jermar were only based on the Preliminary Notes on the Excavation of the Necropolis found in Western Pakistan (Antonini 1963) and verbal communications by Prof. Tucci (Rome) and the author.

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Acknowledgements

I wish to express my indebtedness to all those persons and organisations whose help could only bring this work to completion.

I am particularly grateful to Prof. Dr. H.A. Dani, chairman of the Department of Archaeology University of Peshawar and Dr. F.A. Khan, Director of the Department of Archaeology, Government of Pakistan (Karachi), for the kind invitation and the invaluable guidance during my stay in Pakistan. To the staff members of both Departments, I also wish to express my thanks for their untiring assistance and cooperation not only during the excavation but also in transporting the material to Germany. My

indebtness is also due to the Vice-Chancellor of the University of Peshawar, Mr. Muhammad Ali and his officers for all the facilities provided to me during my stay in Peshawar.

For specific advice and guidance regarding anthropological and prehistoric problems and profitable discussions I have special reason to be grateful to Prof. Dr. I. Schwidetzky, University of Mainz and Prof. Jettmar, University of Heidelberg. It is a pleasure to acknowledge my sincere thanks and appreciations for the kind help of Dr. Roth-Lutra and Dr. Hemmer, University of Mainz in determination of age and sex of the skeletal material and the determination of the zoological remains. I am also indebted to Dr. Munnich and Mr. Berdau, H. Inst. of Physics, University of Heidelberg, for conducting the C^{14} -datings.

Finally I express my thanks to Mr. V.P. Chopra for the kind assistance in completing this work in English language. Last but not least are my thanks to Deutsche Forschungsgemeinschaft (German Research Foundation), for the financial support of this research project.

Table 1: Site, sex and age at death distribution of all skeletons

Age group (years)	Sex	Site No. I (n=)	Site No. II (n=)	Site I & II (n=)
0 — 1	M&F	9	2	11
1 — 7	M&F	7	8	15
8 — 14	M&F	1	3	4
15 — 19	M	—	1	1
	?	—	1	1
	F	1	—	1
20 — 29	M	5	2	7
	?	1	—	1
	F	14	4	18
30 — 40	M	8	3	11
	?	1	1	2
	F	6	3	9
40 — 50	M	5	1	6
	?	—	2	2
	F	—	—	—
50 — 60	M	2	1	3
	?	1	—	1
	F	—	1	1
Over 60	M	3	1	4
	?	1	—	1
	F	2	2	4
adults, age however not exactly de- terminable	M	8	5	13
	?	7	6	13
	F	3	5	8
Total (n=)		85	52	137

Table 2: Age at death and sex distribution of adults (explanations see text).

Age group (years)	Males		Females		Males & Females		Males & Females	
	n	%				%	n	%
20 — 29	7	22.6	13	56.3	25	39.7	45	71.5
30 — 39	11	35.5	9	28.1	20	31.8		
40 — 49	6	19.4	0	00.0	6	9.5	10	15.9
50 — 59	3	9.7	1	3.1	4	6.4		
Over 60	4	12.9	4	12.5	8	12.6	8	12.6

Table 3: Age at death distribution of Timargarha population compared with other pre-historic and ancient people of approximately the same time period (males and females^a).

Location Period	n	Age at death (%)			Source
		20—39 years	40—49 years	Over 60 years	
Timargarha Bronze Age, Early Iron A.	63	71.5	15.9	12.6	Present material
Lower Austria Early Bronze A.	203	52.6	37.7	9.7	Franz and Winkler (1936)
Greece Middle Bronze, Early Iron A.	175	50.9	46.3	2.8	Angel (1947)
Egypt, Roman times	98	62.2	23.5	14.3	Pearson (1902)
Rome, during Empire	3676	68.3	18.6	13.1	Macdonell (1913)

Tab. 4: Main measurements and indices of the series from Timurgarha.

Measurements and Indices	Males (n=9)		Females (n=11)	
	Mean	Variat. range	Mean	Variat. range
Max. cran. length	190.22	(179 — 196)	180.20	(166 — 186)
Max. cran. breadth	132.00	(126 — 139)	130.90	(118 — 137)
Bas.-bregm. height	136.00	(124 — 148)	129.20	(125 — 133)
Mix. front. breadth	93.75	(91 — 98)	91.67	(86 — 97)
Bizygomatic breadth	133.00	(125 — 139)	122.33	(114 — 137)
Total facial height	119.33	(109 — 126)	113.17	(102 — 125)
Upper facial height	70.25	(63 — 78)	66.57	(61 — 73)
Orbital height	33.25	(30 — 36)	33.13	(30 — 35)
Orbital breadth	41.50	(38 — 45)	40.00	(33 — 44)
Nasal height	50.00	(41 — 57)	48.13	(40 — 53)
Nasal breadth	22.88	(20 — 25)	22.86	(20 — 28)
Bigonial breadth	102.60	(87 — 111)	94.00	(91 — 97)
Cephalic index	69.40	(67.02-72.77) (hyperdolichocranic)	72.87	(63.44-78.61) (dolichocranic)
Length-height index	71.55	(64.92-78.31) (orthocranic)	72.57	(69.75-80.12) (orthocranic)
Breadth-height index	103.23	(89.20-113.85) (akrocranic)	102.04	(97.65-111.02) (akrocranic)
Trans. cranio-fac. ind.	100.72	(96.15-108.73)	94.73	(91.54-100.74)
Total facial index	88.72	(83.85-92.23) (meso-(lepto)prosopic)	90.05	(85.71-93.85) (leptoprosopic)
Upper facial index	51.85	(47.06-54.89) (mesen)	52.21	(48.91-54.55) (mesen)
Nasal Index	46.45	(35.09-59.52) (lepto-(meso)rrhinic)	48.30	(41.51-59.57) (mesorrhinic)
Orbital index	80.56	(66.66-94.74) (mesoconchic)	83.30	(77.27-87.18) (mesoconchic)
Jugo-mandib. index	77.52	(69.60-81.62)	77.12	(73.39-80.67)
Simoric index	58.57	(34.39-83.15)	52.07	(30.63-68.29)
Dacryon index	72.01	(51.32-85.85)	65.43	(53.03-77.06)
Naso-malar angle	134.14°	(145-119)	139.50°	(145 — 131)
Zygomaxillary angle	120.00°	(134 — 112)	140.60°	(142 — 119)
Cranial capacity	1411.81 cc.	(1293-1488) (euencephalic)	1314.85 cc.	(1120-1543) (aristencephalic)
Stature	(n=17)		(n=12)	
Manouvrier	168.0 cm	(157.1-178.9)	158.4 cm	(145.5-166.0)
Trotter & Gleser	171.6 cm	(163.6-181.8)	160.7 cm	(148.2-168.5)

Tab. 5: Main craniological measurements and indices of the series from Timargarha and some other series from South and West Asia (only males).

Location (culture) Time period, Source	n max.	z-oc M1**	eu-eu M8	ba-b M17	fr-fr M9	zy-zy M45	n-pr M48	mt-ek M51	orbh M52	n-us M55	nusb M54	go-go M66	LB1 8/1	BH1 17/8	CF1 45/8	UF1 48/45	NI 54/55	OI 52/51	JMI 66/45
Timargarha 2-1 Mill. B.C., Present series	9	190.2	132.0	136.0	93.8	133.0	70.2	41.5	33.2	50.0	22.9	102.6	69.1	103.2	100.7	51.9	46.5	80.5	77.5
Harappa (total) 2500-1500 B.C., Gupta et al. '62	29	185.9	130.2	134.0	96.2	131.2	69.2	41.6	33.4	51.6	26.2	88.5	73.5	98.4	95.9	51.6	50.6	80.6	68.8
Harappa R 37	14	187.5	133.3	133.8	95.2	131.3	70.6	42.4	33.9	51.9	26.7	89.1	71.1	100.2	97.9	52.7	51.1	80.3	69.7
Harappa G 289	7	189.3	133.5	133.5	98.5	127.9	66.6	40.6	32.1	50.7	25.7	91.0	76.4	96.9	90.8	51.7	50.7	79.5	75.6
Harappa H I	3	187.3	138.0	135.0	96.8	133.5	65.5	41.8	31.8	49.0	27.0	87.3	73.8	97.9	96.7	49.2	55.2	76.0	65.6
Harappa H II	6	189.1	144.7	134.8	95.8	136.0	70.3	40.6	34.5	52.7	25.5	79.0	76.7	93.7	97.8	50.0	47.6	85.4	55.5
Tene Hissar II 2500-1500 B.C., Krogman '40	9	188.3	132.0	134.8	94.2	128.2	67.0	41.0	31.6	50.4	25.1	—	70.1	102.6	94.5	56.2	48.9	76.4	—
Tene Hissar III 2000-1800 B.C.	111	183.4	134.2	134.9	95.7	127.7	70.0	41.4	32.0	50.6	25.5	—	71.3	100.6	94.9	54.6	50.6	77.3	—
Mohenjodaro 3. Mill. B.C., Friedrichs '33	8	185.1	127.5	124.6	92.6	125.2	67.7	38.0	31.9	48.1	24.0	—	69.0	105.2	94.3	52.8	50.3	85.2	—
Shah Tepe (Hor. II) 2. Mill. B.C., Furst '39	4	189.8	141.0	122.0	—	120.0	70.0	37.0	31.0	49.0	23.0	—	74.3	89.7	93.3	56.9	46.9	83.8	—
Kish. (A-Graves) 3. Mill. B.C., Buxton et al. '31	23	188.2	136.7	130.9	94.7	125.3	—	41.5	34.5	57.0	23.8	92.2	72.0	95.4	91.9	—	49.8	81.6	73.6*

* Measurements and indices calculated from the arithmetic means.

** Measurements taken according to Martin-Saller (see also Collective Tables A-C).

Tab. 6 Main craniological measurements and indices of the series from Timargarha and some other series from Middle Asia (only males).

Location (culture) Time period, Source	n max	g-op M1**	eu-eu M2	ba-b M17	fr-fr M9	zy-zy M43	n-pr M48	mt-el M51	orbh M52	n-as M55	nasb M54	go-go M66	LB1 8/1	BH1 17/8	CF1 45/8	UF1 48/45	NI 54/55	O1 52/51	IMI 66/45
Timargarha 2-1, Mill. B.C. Present series	9	190.2	132.0	136.0	93.7	133.0	70.2	41.5	33.2	50.0	22.9	102.6	69.1	103.2	100.7	51.9	46.5	80.5	77.5
Kara Tepe 4-3, Mill. B.C. Trofimova '64	15	191.8	134.9	143.7	95.2	129.9	72.6	42.4	31.3	51.4	26.5	106.4	69.4	105.7	96.8	56.0	52.1	74.9	81.2
Afanasevo 2500-1200 B.C. Collect. samp***	17	191.7	142.4	140.2	100.7	141.6	71.7	43.7	32.3	53.1	27.1	101.4	70.9	98.6	99.4	50.9	51.1	73.1	71.6
Andronovo 1700-1200 B.C. Coll. sample***	23	187.2	145.0	138.7	100.9	141.5	68.3	44.8	31.7	50.5	26.1	105.0	77.5	95.7	97.6	48.1	51.7	70.9	74.2
Kolca 3 2 Mill. B.C. Trofimova '59	5	185.4	139.0	140.2	101.4	136.2	68.6	45.2	30.8	50.0	24.3	—	72.2	101.2	98.0	50.4	48.7	68.4	—
Tasty-Butak 1 Bronze Age Ginzburg '62	4	189.2	133.5	136.5	91.7	129.0	66.5	39.7	30.7	49.5	24.2	—	70.6	104.6	96.6	53.1	49.2	77.3	—
Tadikistan 2 Mill. B.C. Kiyatkina '64	4	196.0	138.0	142.2	98.0	139.0	77.0	46.5*	33.7	52.6	25.4	—	70.2	103.0*	100.7*	55.4	48.2	71.0	—
Tadikistan 1 Mill. B.C.	16	183.5	146.1	139.3	98.0	137.9	70.0	42.1*	31.8	24.6	24.6	—	79.5	95.3*	94.4*	50.2	48.9	75.5	—
Ferghana valley Bronze Age Ginzburg '62	9	181.7	131.8	131.5	94.5	123.8	66.7	40.4*	32.4	47.1*	24.2	—	72.6	98.9	93.9*	54.0	51.3	80.2	—
Sakae (Pamir) 1 Mill. B.C. Kiyatkina '64	34	191.5	134.5	132.3	94.3	130.6	75.4	42.1*	34.6	54.2	24.5	—	69.9	98.3*	97.1*	58.0	46.0	82.1	—
Kalaly-Gyr 1 2-3, Cent. A.D. Trofimova '59	31	182.0	144.7	138.6	97.6	132.5	72.9	42.0	33.5	54.1	26.3	—	79.9	94.8	9191.5*	54.9	48.7	79.6	—

* 3

** Compare Tab. 5.

*** Collected in connection with the Neolithic & Bronze Age Symposium (comp. Sec. III, E).

Collective Table A: Basic Measurements of the Cranium

Skd. No.	sex	Age at death (years)	Maximum Cranial Length	Naasion-basion line	Maximum Cranial breadth	Minimum frontal breadth	Maximum frontal breadth	Biauricular breadth	Biastertionic breadth
			M 1	M 5	M 8	M 9	M 10	M 11	M 12
01	Male	20-25	196	109	138	92	—	126	116
03	male	40-50	192	101	130	98	104	109	109
04	male	40-45	179	104	126	90	111	123	103
05	male	30-35	191	114	128	94	107	—	102
101c	male	30-35	195	(103)**	131	95	115	119	106
139	male	30-35	190	104	129	97	111	117	107
142a	male	30-40	189	104	137	93	115	125	107
165a	male	50-60	189	110	130	91	105	100	102
173a	male	40-50	191	89	139	—	—	120	117
02	female	30-35	173	91	128	91	110	111	103
06	female	20-25	176	99	127	92	106	113	99
101a	female	over 60	184	90	128	86	104	121	108
101b	female	20-25	166	94	130	93	115	112	102
134	female	25-30	186	—	141	—	115	125	106
142b	female	30-40	183	—	137	95	124	—	128
144	female	20-25	189	—	134	95	110	129	106
157	female	30-35	—	—	—	—	—	—	—
173b	female	30-35	186	94	1181	81	99	98	100
186	female	25-30	176	—	136	97	—	—	—
197	female	20	183	97	130	95	115	114	105

* = Measurements taken according to Martin-Saller Vol. I.

** = Measurement, which could be taken only approximately.

Collective Table A: Continued

Skl. No.	Basion-bregma height	Pterion-bregma height	Horizontal circumference	Transvers. cranial arc (porion-porion)	Transvers. cranial arc (auricle-auricle)	Sagittal cranial arc	Frontal arc	Parietal arc	Occipital arc
	M 17	M 20	M 23	M 24	M 24b	M 25	M 26	M 27	M 28
o1	132	114	544	293	286	(385)	127	—	—
o3	131	114	527	300	293	393	134	127	132
o4	131	116	499	295	289	359	115	132	112
o5	145	122	518	—	—	374	131	136	107
101c	137	123	525	318	307	394	(138)	138	118
139	136	118	521	305	296	387	135	127	(125)
142	137	115	521	307	301	375	131	134	110
165a	148	129	515	320	314	381	138	130	113
173a	124	108	523	289	280	383	129	130	124
o2	125	113	490	296	290	359	129	125	105
o6	—	116	493	290	285	—	120	125	—
101a	128	114	498	284	274	358	120	122	116
101b	133	119	470	311	292	354	123	119	112
134	—	124	516	319	315	371	132	114	(125)
142b	—	116	529	301	296	—	131	122	—
144	—	119	526	323	321	—	115	118	—
157	—	—	—	—	—	—	119	108	—
173b	131	114	491	285	281	364	127	132	(105)
—	—	95	494	—	—	—	114	118	—
197	129	117	510	308	302	377	131	131	(115)

Collective Table A: Continued

Skull No.	Frontal chord	Height of the curvature of the frontal bone over the frontal chord	Parietal chord	Occipital chord	Height of the curvature of the occipital bone over the occipital chord	Prosthion-basion line	External biorbital breadth	Internal biorbital breadth (IOW according to Woo and Morant 1934)	Subnasale of the nasion from the chord IOW
	M 29	—	M 30	M 31	—	M 40	M 43	M 43/1	—
01	107	22.0	—	—	—	102	109	105	16.7
03	113	29.0	117	103	29.8	109	(106)	—	—
04	104	22.0	117	94	26.1	98	99	94	18.6
05	114	27.2	120	92	26.3	—	100	94	18.8
101c	(125)	—	124	101	26.0	97	106	99	—
129	115	(30.2)	117	94	—	96	100	92	22.0
142a	115	29.0	121	89	27.0	113	98	92	21.2
165a	120	—	113	89	—	99	99	94	28.1
173a	113	25.5	114	103	24.1	87	(109)	—	—
02	111	29.1	108	88	25.5	85	96	89	16.5
06	106	26.4	111	—	—	—	95	91	16.7
101a	110	25.1	112	94	32.9	(84)	96	88	16.3
101b	106	29.5	104	100	24.9	84	100	93	15.8
134	116	—	104	—	—	—	—	—	—
142b	109	28.5	111	—	—	—	97	90	20.4
144	102	—	107	—	—	—	—	—	—
157	107	24.3	97	—	—	—	92	—	—
173b	110	—	116	(82)	—	94	88	82	16.0
186	99	26.0	105	—	—	—	99	96	15.1
197	111	30.0	118	—	—	97	101	95	17.2

Collective Table A: Continued

Skull No.	Bizygomatic breadth	Bizygomaxillary breadth (GB according to Woo and Marston 1934)	Subtense of the subspi- nade from the chond BG	Nasion-splanthion line (Total facial height)	Nasion-prosthion line (Upper facial height)	Ant. interorbital breadth	Subtense from Ant. inter- orbital breadth	Orbital breadth	Orbital height
	M 45	M 46	—	M 47	M 48	M 50	—	M 51	M 52
o1	139	106	22.8	124	73	18.7	7.2	44	34
o3	(125)	93	24.1	109	63	—	—	42	33
o4	137	95	28.5	—	71	15.1	10.7	43	31
o5	—	—	—	—	—	19.9	11.0	—	—
101c	133	96	26.1	(124)	(73)	—	—	41	33
139	(128)	94	29.0	117	(70)	20.0	—	38	36
142a	—	—	—	—	70	20.5	10.0	39	34
165a	—	94	32.0	(126)	78	19.0	11.9	40	35
173a	136	—	—	116	64	17.0	9.0	45	30
a2	(121)	—	—	111	65	14.4	8.0	39	34
a6	—	—	—	—	—	21.7	—	—	—
101a	119	87	20.6	—	—	15.3	6.9	40	34
101b	(119)	92	21.7	102	61	19.6	8.2	38	30
134	—	—	—	—	—	—	—	—	—
142b	—	94	26.2	124	71	16.2	9.6	41	35
144	—	—	—	—	—	—	—	—	—
137	—	—	—	125	73	14.7	10.0	—	32
173b	(114)	—	—	107	60	(15.0)	—	38	33
186	(137)	96	16.8	—	67	—	—	44	34
197	124	95	21.1	110	69	17.6	7.9	40	33

Collective Table A: Continued

Skull No.	Nasal breadth	Nasal height	Maxillo-alveolar length	Maxillo-alveolar breadth	Palatal length	Palatal breadth	Dakryon chord (DC according to Woo Morant)	Dakryal subtenae (DS according to "	Simotic chord (SC according to "	Simotic subtenae (SS according to "
	M 54	M 55	M 60	M 61	M 62	M 63	DC	DS	SC	SS
o1	25	52	—	—	—	—	22.6	11.6	7.0	2.4
o3	25	42	53	62	51	45	—	—	—	—
o4	23	51	56	61	44	37	18.5	14.2	8.6	6.5
o5	—	—	—	—	—	—	19.8	16.9	13.7	6.3
lo1c	24	53	—	61	—	—	—	—	—	—
139	20	52	—	62	—	38	—	—	—	—
142a	22	52	—	—	—	39	—	—	9.5	7.9
165a	20	57	60	—	50	—	19.3	14.4	9.9	5.5
173a	24	41	—	—	—	—	—	—	8.8	5.0
o2	(20)	49	—	—	—	—	16.8	11.2	8.0	4.5
o6	—	—	—	—	—	—	—	—	—	—
lo1a	23	49	—	—	—	—	19.4	12.0	6.7	3.0
lo1b	22	43	53	59	40	37	19.8	10.5	11.1	3.4
134	—	—	—	—	—	—	—	—	—	—
142b	25	52	—	59	—	—	19.6	14.6	7.9	5.1
144	—	—	—	—	—	—	—	—	—	—
157	22	53	—	—	—	—	17.0	13.1	8.2	5.6
157b	(20)	40	—	—	—	—	—	—	—	—
186	—	(52)	—	69	—	—	—	—	—	—
197	28	47	53	62	43	37	18.5	11.0	7.1	3.4

Collective Table A: Continued

Skull No	Frontal inclination angle (Nasion-metopion)	Frontal inclination angle (Glabella-metopion)	Facial profile angle	Nasal profile angle	Alveolar profile angle	Profile angle of the nasal bone	Angle of the nasal bone with nasion-orbition line	Naso-malar angle	Zygoma-massillary angle
	M 32	—	M 72	M 73	M 74	M 75	M 75(1)	M 77	—
o1	75°	62°	86°	83°	84°	—	—	145°	134°
o3	84°	75°	77°	81°	73°	—	—	142°	126°
o4	77°	72°	84°	86°	82°	54°	30°	137°	118°
o5	—	—	—	—	—	—	—	136°	—
lolo	—	75°	—	—	76°	—	—	—	123°
139	83°	78°	—	87°	—	—	—	129°	117°
142a	74°	63°	—	—	—	—	—	131°	—
165a	78°	73°	84°	86°	—	54°	30°	119°	112°
173a	80°	72°	—	—	—	—	—	—	—
o2	79°	72°	84°	87°	—	55°	29°	140°	—
o6	—	—	—	—	—	—	—	139°	—
lola	81°	76°	—	—	—	—	—	140°	130°
lola	94°	91°	78°	83°	71°	53°	25°	143°	130°
134	—	—	—	—	—	—	—	—	—
142b	—	—	—	—	—	—	—	131°	119°
144	—	—	—	—	—	—	—	—	—
157	—	—	—	—	—	—	—	—	—
173b	—	—	—	—	—	—	—	138°	—
186	—	—	—	—	—	—	—	145°	142°
197	92°	89°	79°	82°	72°	64°	15°	140°	132°

Collective Table B: Measurements and angles of the mandible.

Skull No	Bicondylar breadth	Bigonial breadth	Mandibular length	Maximum projective mandibular length	Symphysial height	Thickness of the mandibular body	Height of mandibular ramus	Minimum breadth of mandibular ramus	Minimum breadth of mandibular ramus	Mandibular angle
	M65	M66	M68	M69(1)	M69	M69(3)	(3)M70	M71	M71a	M79
o1	134	108	81	112	36	15	78	39	38	107°
o3	114	87	76	105	36	10	64	32	31	119°
o4	—	—	—	—	—	—	—	—	—	—
o5	—	—	—	—	—	—	—	—	—	—
101c	115	103	73	114	38	15	62	32	31	137°
139	—	104	84	—	33	13	—	34	34	116°
142a	—	—	—	—	—	—	—	—	—	—
165a	—	—	—	—	32	12	—	—	—	—
173a	—	111	88	107	36	14	70	32	31	120°
o2	—	—	—	—	31	08	60	32	30	117°
o6	—	—	—	—	—	—	—	—	—	—
101a	122	92	67	99	26	09	65	31	29	122°
101b	—	96	66	—	30	12	—	26	25	121°
134	—	—	—	—	—	—	—	—	—	—
142b	—	97	—	—	33	11	—	29	27	125°
—	—	—	—	—	29	09	—	—	—	—
157	—	—	—	—	35	12	—	—	—	—
173b	—	—	—	—	32	11	61	29	29	122°
186	—	—	—	—	—	—	—	—	—	—
197	—	91	72	—	29	10	—	30	30	123°

Collective Table C: Estimated cranial capacity and main craniological indices.

Skull No.	Estimated Cranial Capacity	Length-breadth index	Length-height index	Breadth-height index	Length-auricular height index	Breadth-auricular height index	Trans. fronto-parietal index	Total facial index
	M3/M1	M17/M1	M17/M8	M20/M1	M20/M8	M9/M8	M47/M45	
01	1457.7	70.41	67.35	95.65	58.16	82.61	66.67	89.21
03	1373.9	67.71	68.23	100.77	59.38	87.69	75.38	63.85
04	1293.9	70.39	74.86	106.35	64.80	92.06	71.43	—
05	1422.3	67.02	75.92	113.28	63.87	95.31	73.44	—
101c	1478.4	67.18	70.26	104.46	63.07	93.89	72.52	93.23
139	1390.4	67.89	71.58	105.54	62.11	91.47	75.19	91.41
142a	1420.5	72.49	72.49	100.00	60.85	83.94	67.80	—
165a	1488.1	68.78	78.31	113.85	68.25	99.23	70.00	—
173a	1381.7	72.77	64.92	89.20	56.54	77.69	—	85.92
02	1230.8	73.99	72.25	97.65	65.31	88.28	71.09	91.74
06	1268.9	72.16	—	—	65.91	91.34	72.44	—
101a	1306.7	69.57	69.57	100.00	61.95	89.06	67.19	—
101b	1258.1	78.31	80.12	102.31	71.63	91.53	71.54	85.71
134	1542.7	75.81	—	—	66.67	87.94	—	—
142b	1399.7	74.86	—	—	63.39	84.67	69.34	—
144	1443.6	70.89	—	—	62.96	88.81	70.90	—
157	—	—	—	—	—	—	—	—
173b	1230.7	63.44	70.43	111.02	61.29	96.61	68.64	93.85
186	1119.6	78.61	—	—	54.91	69.85	71.32	—
197a	1347.7	71.04	70.49	99.23	63.93	90.00	73.08	88.71

Collective Table C: Continued

Skull No.	Upper facial index	Nasal index	Orbital index	Dacryal index	Simoric index	Transv. craniofacial index	Jugo-mandibular index	Jugo-frontal index
	M48/M45	M54/55	M52/M51	DC/DC	SS/SC	M45/M8	M66/M45	M9/M45
o1	52,25	48,03	77,27	51,32	34,29	100,73	77,70	66,19
o3	50,40	59,52	78,57	—	—	96,15	69,60	78,40
o4	51,82	45,10	72,09	76,76	75,58	108,73	—	65,69
o5	—	—	—	85,35	45,99	—	—	—
101c	54,89	45,28	80,49	—	—	101,53	77,44	71,43
139	54,69	38,46	94,74	—	—	99,22	81,25	75,78
142a	—	41,51	87,18	—	83,15	—	—	—
165a	—	35,09	87,50	74,61	55,56	—	—	—
173a	47,06	58,54	66,66	—	56,82	97,84	81,62	—
o2	53,72	40,82	87,18	66,66	56,25	94,53	—	75,20
o6	—	—	—	—	—	—	—	—
101a	—	46,94	85,00	61,86	44,78	92,97	77,31	72,27
101b	51,26	51,16	78,95	53,03	30,63	91,54	80,67	78,15
134	—	—	—	—	—	—	—	—
142b	—	48,07	85,37	74,49	64,56	—	—	—
144	—	—	—	—	—	—	—	—
157	—	41,51	—	77,06	68,29	—	—	—
173b	54,55	50,00	86,84	—	—	93,22	—	71,05
186	48,91	—	77,27	—	—	100,74	—	70,80
197	52,63	59,57	82,50	59,46	47,89	95,38	73,39	76,61

Collective Table D: Measurements and indices of the extremity bones (males)

Std. No.	Humerus			Radius				Ulna			
	Maximum length	Minimum circumference of diaphysis	Length-thickness index	Maximum length	Physiological length	Minimum circumference of diaphysis	Length-thickness index	Maximum length	Physiological length	Minimum circumference of diaphysis	Length-thickness index
	M 1	M 7	7/1	M 1	M 2	M 3	3/2	M 1	M 2	M 3	3/2
101c	323	61	18.50	251	237	41	17.30	—	—	—	—
111B	—	—	—	—	—	—	—	—	—	—	—
123	—	—	—	—	—	—	—	—	—	—	—
138	—	—	—	—	—	—	—	—	—	—	—
142a	—	—	—	250	237	45	18.99	268	243	40	16.46
142c	300	62	20.67	243	229	43	17.17	257	230	39	16.95
151	320*	62	19.38	—	—	—	—	—	—	—	—
165a	—	—	—	—	—	—	—	—	—	—	—
173a	338	63	18.64	258	245	44	18.78	—	—	—	—
182	—	—	—	—	—	—	—	—	—	—	—
190	361*	66	18.28	—	—	—	—	—	—	—	—
197	319	62	19.41	248	237	44	18.58	271	246	37	15.64
210	—	—	—	—	—	—	—	—	—	—	—
228	—	—	—	—	—	—	—	—	—	—	—
241	303*	65	21.45	—	—	—	—	—	—	—	—
256	—	—	—	246	232	43	18.52	—	—	—	—
270	—	—	—	—	—	—	—	—	—	—	—
Mean	324.14	63.00	19.49	249.33	236.16	43.33	18.31	265.33	239.66	39.00	16.15

*Measurements which were taken in situ.

Collective Table D. Measurements and indices of the extremity bones (males) — continued

Skl. No.	Femur			Tibia			Fibula		
	Maximum length	Circumference of the shaft at the middle	Length-thickness index	Maximum length	Minimum Circumference of diaphysis	Length-thickness index	Maximum length	Minimum circumference	Length-thickness index
	M 1	M 3	8/2*	M 1	M to b	106/1	M 1	M 4a	4a/1
101c	—	—	—	—	—	—	—	—	—
111B	426	91	18,84	406*	86	21,18	—	—	—
123	440*	85	19,45	375*	76	20,27	—	—	—
138	447*	88	19,82	—	—	—	—	—	—
142a	—	—	—	—	—	—	—	—	—
142c	440	86	19,68	—	—	—	350	35	10,00
151	—	—	—	365*	82	22,47	—	—	—
165a	445*	91	20,59	—	—	—	—	—	—
173a	—	—	—	—	—	—	—	—	—
182	458*	87	19,12	—	—	—	—	—	—
190	—	—	—	410*	87	21,22	—	—	—
197	—	—	—	376	76	20,21	—	—	—
210	493*	91	18,57	408	90	22,06	—	—	—
228	—	—	—	338*	—	—	—	—	—
241	—	—	—	—	—	—	—	—	—
256	446*	86	19,41	360	78	21,67	—	—	—
270	452*	89	19,82	394*	71	18,02	—	—	—
Mean	456,33	88,22	19,48	381,33	80,75	20,89	350,00	35,00	10,00

* Measurements which were taken in situ

* As the length in natural position (M 2) of most of the femura could not be measured, the index was calculated from the maximum length (M 1) after subtraction of 3 mm as proposed by Martin-Saller (compare Section 7 B., Stature).

Collective Table D: Measurements and indices of the extremity bones (females).

Sk. No.	Humerus			Radius				Ulna			
	Maximum length	Minimum circumference of diaphysis	Length-thickness index	Maximum length	Physiological length	Minimum circumference of diaphysis	Length-thickness index	Maximum length	Physiological length	Minimum circumference of diaphysis	Length-thickness index
	M 1	M 7	7/1	M 1	M 2	M 3	3/2	M 1	M 2	M 3	3/2
101 b	—	—	—	—	—	—	—	—	—	—	—
124	—	—	—	—	—	—	—	—	—	—	—
142b	—	—	—	240	228	42	18.42	247	223	36	16.14
165b	—	—	—	—	—	—	—	—	—	—	—
173b	—	—	—	234	218	37	16.97	—	—	—	—
180	—	—	—	—	—	—	—	252	227	32	14.10
197	307	55	17.92	—	—	—	—	—	—	—	—
204	300*	50	15.66	—	—	—	—	—	—	—	—
210	302	58	19.21	—	—	—	—	—	—	—	—
212	—	—	—	—	—	—	—	—	—	—	—
256	—	—	—	—	—	—	—	—	—	—	—
262	336	58	17.26	—	—	—	—	—	—	—	—
Mean	311.25	55.25	17.51	237.00	223.00	39.50	17.70	249.50	225.00	34.00	15.12

Collective Table D: Measurements and indices of the extremity bones (females) — continued.

Skl. No.	Femur			Tibia			Fibula		
	Maximum length	Circumf. of the shaft at the middle	Length-thickness index	Maximum length	Minimum circumference of diaphysis	Length-thickness index	Maximum length	Minimum circumference	Length-thickness index
	M 1	M 3	3/2**	M 11	M 10b	10b/1	M 1	M 4a	4a/1
101b	418	79	19,64	—	—	—	—	—	—
124	—	—	—	—	—	—	—	—	—
142b	—	—	—	—	—	—	—	—	—
165b	415*	81	19,66	—	—	—	—	—	—
173b	—	—	—	—	—	—	—	—	—
180	—	—	—	—	—	—	329	34	10,33
197	—	—	—	348	71	20,40	—	—	—
204	446*	82	18,51	—	—	—	348*	35	10,06
210	—	—	—	357	73	20,44	—	—	—
212	381*	74	19,58	—	—	—	—	—	—
256	425	81	19,19	—	—	—	—	—	—
262	443*	84	19,09	—	—	—	—	—	—
Mean	421,33	80,17	19,18	352,50	72,00	20,42	338,50	34,50	10,20

* &

** See Collective Table D: (Males).

Collective Table E. Estimated stature (in cm) from the particular long bones and mean stature of each individual calculated according to Manouvrier, Trotter & Gleser (males).

Skl. No.	Humerus		Radius		Ulna		Femur	
	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser
101c	166.6	171.3	169.3	174.0	—	—	—	—
111B	—	—	—	—	—	—	173.6	177.0
123	—	—	—	—	—	—	165.2	166.0
138	—	—	—	—	—	—	166.5	167.8
142a	—	—	168.9	173.6	169.1	173.3	—	—
142c	156.2	162.8	166.6	171.0	165.4	169.0	165.2	166.0
151	164.4	169.0	—	—	—	—	—	—
165a	—	—	—	—	—	—	166.0	167.3
173a	167.1	174.6	173.0	176.5	—	—	—	—
182	—	—	—	—	—	—	168.1	170.4
190	179.2	181.6	—	—	—	—	—	—
197	163.7	168.6	168.3	172.6	170.3	174.3	—	—
210	—	—	—	—	—	—	175.4	178.7
228	—	—	—	—	—	—	—	—
241	157.1	163.6	—	—	—	—	—	—
256	—	—	167.7	172.0	—	—	166.2	167.5
270	—	—	—	—	—	—	167.2	169.0
Mean	164.9	170.2	169.0	173.8	168.3	172.2	168.2	170.0

Collective Table E: Continued (males).

SkL No.	Tibia		Fibula		Mean Stature	
	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser
101 c	—	—	—	—	168.0	172.2
111 B	177.0	181.0	—	—	175.3	179.0
123	168.1	173.0	—	—	166.7	169.0
138	—	—	—	—	166.5	167.8
142 a	—	—	—	—	171.3	173.5
142 c	—	—	163.7	165.5	163.4	166.9
151	165.8	170.5	—	—	165.1	169.8
165 a	—	—	—	—	166.0	167.3
173 a	—	—	—	—	170.1	175.6
182	—	—	—	—	168.1	170.4
190	178.5	182.0	—	—	178.9	181.8
197	168.1	173.5	—	—	166.7	171.6
210	177.7	181.5	—	—	176.6	180.1
228	160.0	163.8	—	—	160.0	163.8
241	—	—	—	—	157.1	163.6
256	165.0	169.2	—	—	166.3	169.6
270	173.0	178.0	—	—	170.1	173.5
Mean	170.4	174.7	163.7	165.5	168.0	171.6

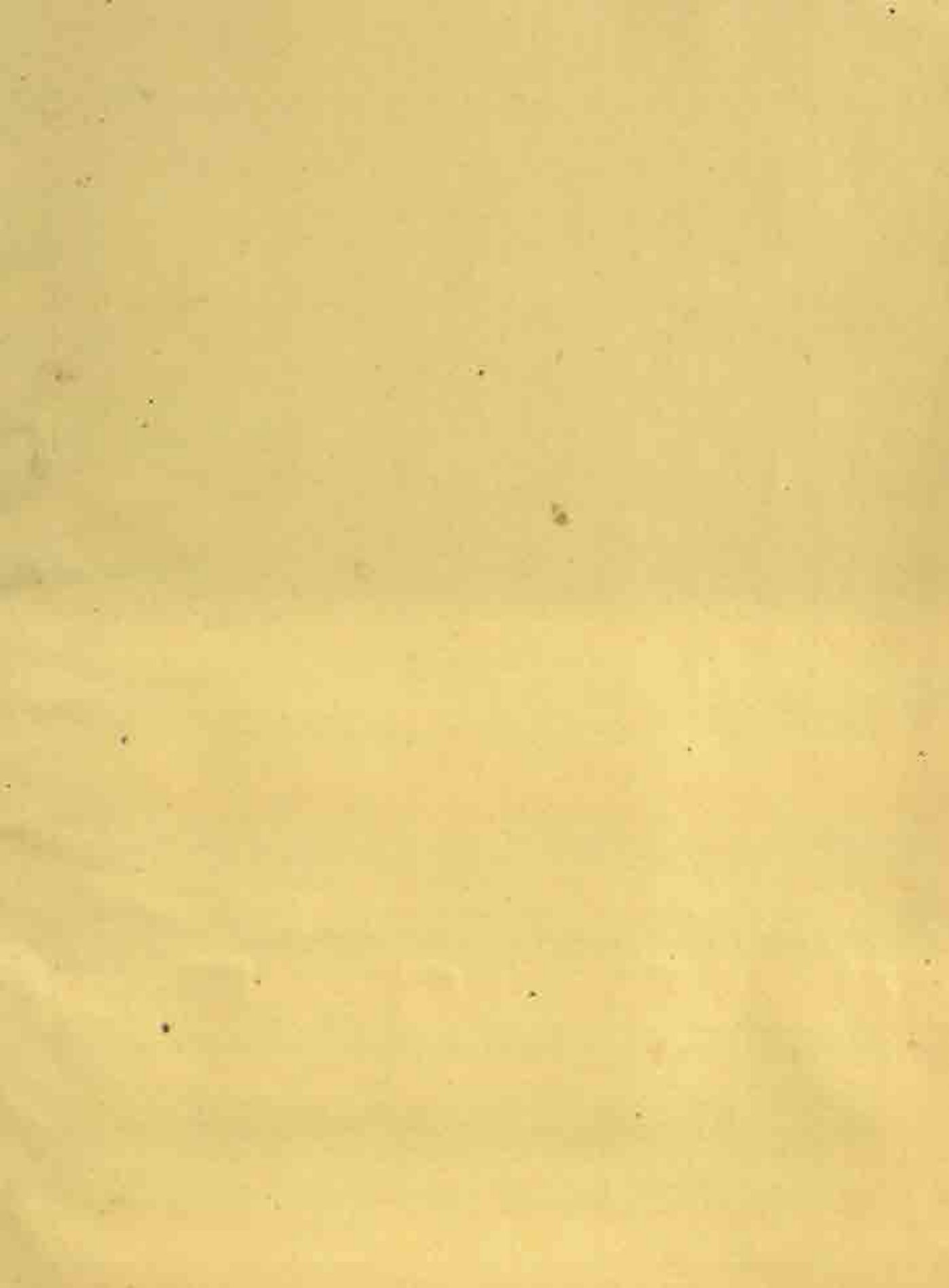
Collective Table E: Females

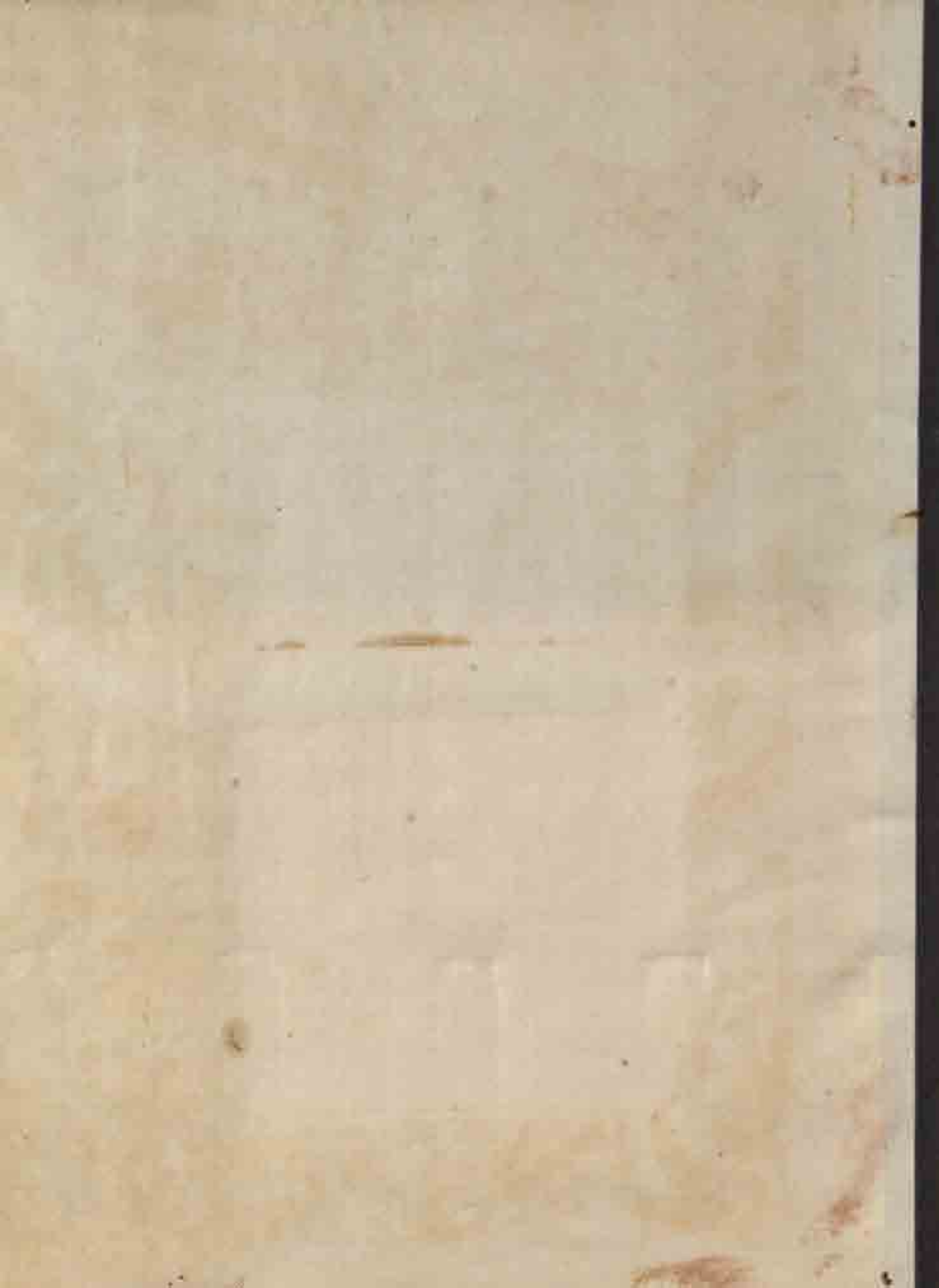
Skull No.	Humerus		Radius		Ulna		Femur	
	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser
101 b	—	—	—	—	—	—	155.8	157.2
124	—	—	—	—	162.8	163.3	—	—
142 b	—	—	166.0	168.5	—	—	—	—
165 b	—	—	—	—	—	—	154.9	156.5
173 b	—	—	163.0	166.0	165.2	165.5	—	—
180	—	—	—	—	—	—	—	—
197	158.2	161.0	—	—	—	—	—	—
204	155.9	158.7	—	—	—	—	161.2	164.2
210	156.8	159.7	—	—	—	—	—	—
212	—	—	—	—	—	—	145.5	148.2
256	—	—	—	—	—	—	156.8	159.0
262	167.6	171.0	—	—	—	—	160.4	163.5
Mean	159.6	162.6	164.5	167.3	163.5	164.5	155.8	158.1

Collective Table E: Continue (females).

Skull No.	Tibia		Fibula		Mean Stature	
	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser	Manouvrier	Trotter & Gleser
101 b	—	—	—	—	155.8	157.2
124	—	—	—	—	162.8	163.3
142 b	—	—	—	—	166.0	168.5
165 b	—	—	—	—	154.9	156.5
173 b	—	—	—	—	163.4	156.0
180	—	—	155.1	156.0	155.4	156.0
197	158.6	162.6	—	—	158.4	161.3
204	—	—	160.2	161.6	159.1	161.5
210	160.9	165.0	—	—	158.9	162.7
212	—	—	—	—	145.5	148.2
256	—	—	—	—	156.3	159.0
262	—	—	—	—	161.0	167.3
Mean	159.8	163.8	157.3	159.1	158.4	160.7







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