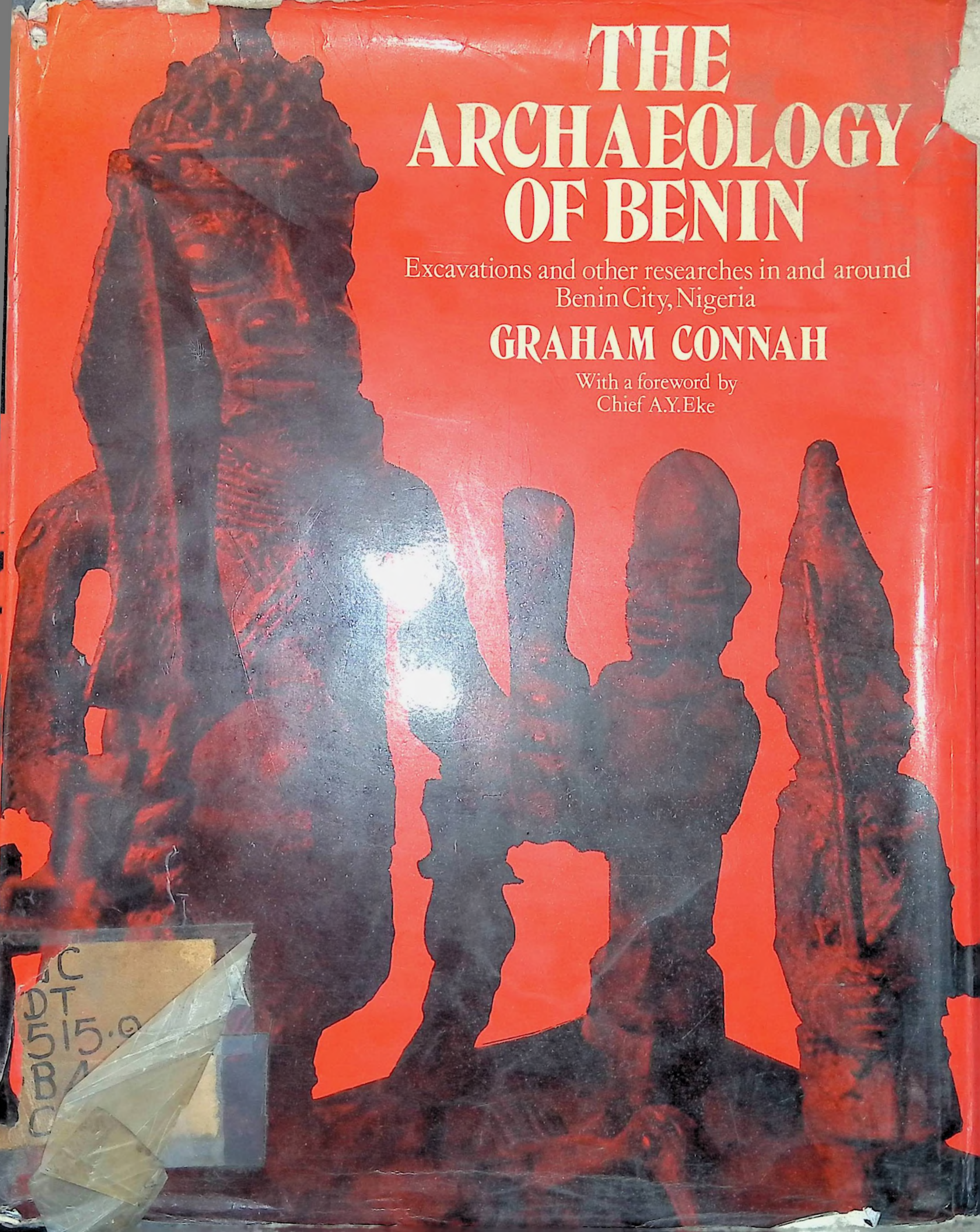
THE ARCHAEOLOGY OF BENIN

Excavations and other researches in and around Benin City, Nigeria

GRAHAM CONNAH

With a foreword by
Chief A.Y. Eke



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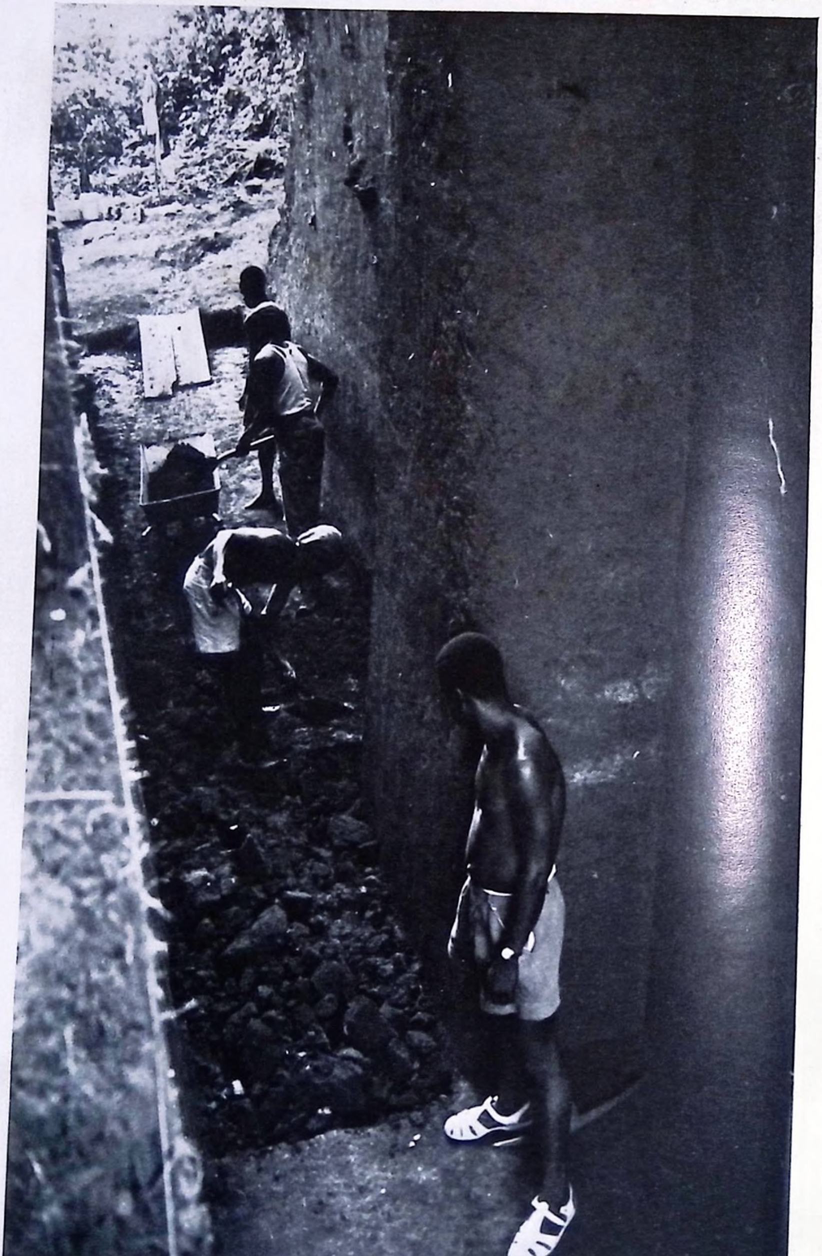

Sectioning the innermost city wall at Reservation Road. A forthright excavation approach for virtually sterile deposits. View from south–west.

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BY

GRAHAM CONNAH

WITH A FOREWORD BY

CHIEF A. Y. EKE

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Dedicated to
Edward Graham Hodgkinson

FOREWORD

So much has been written about the 'Court Art' of Benin that the subject does not require a long introduction. Hardly any reputable Ethnographic Museum exists in the world today which does not have a piece or two of Benin 'bronze', wood, or ivory sculpture. Yet the origins of this art have always been a matter for speculation.

Mr. Connah's book is the first attempt to probe further into antiquity in order to give depth to the study of these ancient works of art. It contains a summary of excavations previously carried out in Benin by eminent archaeologists, in addition to Mr. Connah's own sustained field work between 1961 and 1964. The author has carefully assessed all the archaeological evidence and in so doing he directs the reader towards what may be called a three dimensional view of Benin art—aesthetic, historical, and scientific. The result is illuminating.

The success of this work, as will be obvious to the reader, is due to the meticulous way in which Mr. Connah conducted his excavations and also to the scholarly way in which he has compiled his report. It is a great credit to a man who is already very much respected among his colleagues as one of the most competent field archaeologists in West Africa. I believe the book will occupy a prominent place amongst those of its kind.

The Archaeology of Benin appears at a time when Nigerian historical teaching and research has become predominantly concerned with African history before the advent of the Europeans. It is hoped, therefore, that it will be of great interest not only to those who are already familiar with the art of Benin but also to all our educational institutions, and to all those who wish to extend their knowledge beyond the works of art *per se* to the very foundation of the City whose civilization had so much influence on the history of West Africa.

CHIEF A. Y. EKE
Federal Commissioner for Education

Lagos
3 December, 1974

PREFACE AND ACKNOWLEDGEMENTS

ALMOST a decade has passed since the field research on which this book is based was carried out. The writer is conscious of many shortcomings which stem from this unavoidable circumstance. In spite of its imperfections, however, it is hoped that this book will make a real contribution to our very limited knowledge of West Africa's archaeology. For although Benin has attracted the attention of many scholars it has not previously been the subject of an integrated archaeological examination.

A NOTE ON CHRONOLOGY

The dating of the early phase at the Clerks' Quarters site relies largely on five radiocarbon dates, two of which are for the mass burial, two for the cistern filling a little way above that burial, and one for Layer 14 in Cutting III. (The dates are given in full on page 182.) It is thought that the latter deposit might be of similar date to Layer 9 in Cutting I and that this layer was contemporary with a late stage in the life of the cistern. If this is so, it suggests that the cistern may have been open from about the thirteenth to about the fifteenth century A.D., having a life of some two and a half centuries—which seems an unlikely proposition. The use of radiocarbon dates for chronological synthesis within the present millennium will often demonstrate in this manner what blunt-edged tools they can be. Fig. 57 attempts to illustrate this and it will be seen that to discuss whether the cistern may have been open for 250 years or only for 50 is in some ways to miss the point at issue. The inherent vagueness of radiocarbon dates makes their application to chronological problems over such relatively short periods a virtual impossibility, but there are also more particular possibilities of error. Thus the piece of iroko from the filling above the burial, from which two of the dates came, may have been from a piece of dead heartwood from an iroko tree already 100 years old when it was cut down. Alternatively it may have formed part of a building for a century or so before it fell into the cistern. Although the charcoal used for obtaining the two radiocarbon dates for the burial was not identified, similar accidents may have been responsible for it giving a 'false' date. This is mere speculation, and, further evidence not being available, the writer has accepted the dates at their face value. He hopes that others, in quoting them, will realize the limitations of a chronology obtained in this fashion. Placing the beginning of the early phase, therefore, about the thirteenth century A.D. should be treated merely as a working hypothesis and when it is referred to in the text should be regarded as such.

A NOTE ON MEASUREMENTS

It is only since the completion of the field-work which forms the subject of this book that archaeologists working in Nigeria have agreed to adopt the metric system. All

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A NOTE ON MEASUREMENTS

It is only since the completion of the field-work which forms the subject of this book that archaeologists working in Nigeria have agreed to adopt the metric system. All the records for the Benin work were in imperial measurements and it seemed better to retain them in the published account than to give the spurious impression of accuracy which often results from conversion. Most of the figures do have alternative scales, however. These remarks do not, of course, apply to the specialist reports where contributors have used the system of their choice.

ACKNOWLEDGEMENTS

It is difficult to mention, let alone adequately thank, all those who have helped to bring this work to completion. Most important of these were the people of Benin City itself, particularly His Highness Akenzua II, the Oba of Benin, and Chiefs Egharevba, Idah, and Ine. Perhaps next were those who worked with me and who perspired at depths of up to almost 60 ft. in the Benin sands or, armed with matchet and surveying gear, fought their way through the bush that has engulfed the Benin City walls: Messrs. A. E. Bassey, Bawa Chori, Ibrahim Dali, Peter Egom, Umoru Gol, Sunday Okundia, Julius Tilleh, Enadegha Ushiere were but a few of these. Also in Benin my thanks are due to Mr. J. K. Home who spent many hours of his spare time helping to sort pottery and other finds.

Except where otherwise stated, the Figures and Plates originate from my own work but I am indebted to Messrs. E. Essang and Joseph Bassey for much help on the drawing board and to Mrs. J. Abike Williams for redrawing the excavation plans and sections. On the photographic side I am grateful to Messrs. R. Osoba and Doig Simmonds for much careful processing and to the latter for the photographs of the beads.

My debt to the specialists who have contributed to this publication is obvious. Their names and institutions will be found at the head of each of their reports.

Particular acknowledgement is due to the Nigerian Federal Department of Antiquities by whom I was employed at the time that the Benin field-work was undertaken, and who has made a generous contribution towards the cost of this publication. I am especially indebted to Mr. Ekpo Eyo, the present Director of Antiquities. I also wish to thank the University of Ibadan in whose employment I have been whilst writing this book, and particularly Professor R. G. Armstrong, Director of the Institute of African Studies, for much help and encouragement.

Finally I wish to acknowledge my gratitude to three people without whose constant encouragement the work would never have been completed: Mr. Bernard Fagg, Curator of the Pitt Rivers Museum, Oxford, and formerly Director of the Nigerian Federal Department of Antiquities, who brought me to Nigeria in the first place; Professor Thurstan Shaw, Head of the Department of Archaeology, University of Ibadan, for constant help and support, but more particularly for reading the draft manuscript and making many helpful suggestions; and my wife, Beryl, who has lived with this project for so long.

GRAHAM E. CONNAH

Department of Archaeology, University of Ibadan, *March* 1971
now *Department of Prehistory & Archaeology*, University of New England, Armidale, N.S.W., Australia.

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A. INTRODUCTION

On 4 January 1897 a party of nine Europeans and about 240 Africans were ambushed on a narrow forest path some thirteen miles from Benin City. Only two of the Europeans and fewer than a quarter of the Africans survived what became known as the 'Benin Massacre' (Boisragon, 1897). There followed a British punitive expedition which resulted in the annexation of the territories of Benin to the rapidly growing areas under British control in the zone of the lower Niger (Bacon, 1897).

For Benin itself these events were to prove a turning point of major significance. They ended perhaps as much as 900 years of distinctive cultural development and by main force brought Benin within the confines of literate history. Yet if 1897 brought to Benin a knowledge of the wider world it was an astounded world that turned its attention on Benin. Thousands of examples of Benin art were plundered from the conquered city, as the official spoils of war, and were sold off in London by the British Government (Roth, 1903, Appendix IV). In this manner they became widely dispersed throughout the public and private collections of the world. European anthropologists, ethnographers, and artists were deeply and lastingly impressed by the sophistication of both conception and execution evinced by the items of iron, wood, ivory, and above all 'bronze', which made up Benin art. (An explanation of the use of the word 'bronze' is given on page 138.)

As was to be the case with the later discoveries of Ife art, European commentators at first sought an explanation that would derive the art of Benin from sources outside Africa. The early activity of the Portuguese on the Guinea Coast was well known and it seemed not unreasonable to credit them in one way or another with the origination of Benin art (Pitt Rivers, 1900, p. iv, for example). Research in more recent years has made it apparent that this view was a mistaken one. Whether or not Benin art stemmed from that of Ife, as some believe (Willett, 1967), it appears that not only are its forms an indigenous artistic expression but that the technique of lost wax casting by which most of the 'bronzes' were produced was already at least six centuries old in West Africa when the first Europeans groped their way around the Guinea Coast. Radiocarbon dates for archaeological contexts at both Daima in the far north-east of Nigeria (Connah, 1968) and Igbo Ukwu in the east (Shaw, 1966, 1968) have indicated that copper and its alloys were already being used artistically in about the ninth century A.D. Radiocarbon dating has also indicated that at Ife the casting of its famous heads might have taken place as early as the eleventh century A.D. (Connah, 1969). In Benin the archaeological research with which this book deals indicates an artistic use of copper and its alloys possibly as early as the thirteenth century A.D. Yet the earlier archaeological contexts in Benin have only sparse evidence of its use and cast work is absent. All the indications in Benin archaeology point to the use of copper and its alloys becoming much greater in the periods following the earliest European contacts. For the moment it is possible that the best explanation would be that there existed an old tradition of artistic use of these metals, but that the advent of trade with the Europeans produced supplies of the raw materials in unprecedented quantities. From the writings of travellers and traders it is clear in what form these raw materials were imported. Duarte Pacheco Pereira in about 1500 recorded that slaves were to be bought in Benin for brass or copper manillas (Roth, 1903, p. 5) and it is apparent that between the late fifteenth century and the early seventeenth century the quantity of manillas traded to Benin was very large indeed. Yet excavations in Benin produced only seven manillas of which only two were of the design usually associated with a European origin. The other five were anyway from a context dated to well before the earliest European contact. Presumably most manillas quickly went into the melting pots.

Technically the written history of Benin starts in 1897, but oral tradition and the writings of European visitors combine to make up a history which reaches back somewhere between 800 and 1,000 years. It is reasonable to split the centuries before 1897 into a prehistoric and a protohistoric period. The division between these two occurred when the first Europeans reached Benin. This event took place during the latter part of the fifteenth century, a few years before the first voyage of Columbus to America. Joao Afonso d'Aveiro in 1486 was the first of a whole succession of European visitors (Ryder, 1969). Portuguese, Dutch, French, and British were to visit and trade here for the next 400 years. Many accounts have survived of what they saw (Roth, 1903, Chapter I and Bradbury, 1957, list these accounts). In the late fifteenth and early sixteenth centuries de Pina, Pereira, and de Barros, amongst others, gave an impression of a Benin society that was already highly developed, with an Oba who sent an ambassador to Portugal, and who ordered his son to become a Christian. The anonymous Dutchman D.R. (thought to have been Dierick Ruiters) at the beginning of the seventeenth century described a city with which he was obviously favourably impressed. In the second half of the seventeenth century Dapper referred to it as 'Great Benin'. Yet by 1702 Nyandael found the town depopulated and laid waste by a civil war, and although the eighteenth century seems to have been a time of some recovery, by the latter half of the nineteenth century Burton and others gave an impression of a culture that was running down. It would appear, then, that Benin had reached a peak of cultural development by the sixteenth and seventeenth centuries. Reflections of this and of the subsequent decline can be discerned within the evolution of Benin art. Clearly, however, if the Bini had evolved a distinctive culture of sophisticated character as early as the close of the fifteenth century, it would seem that they had already passed through some centuries of development. For enlightenment on these earlier phases of Benin history we are indebted to oral tradition as interpreted by the modern Bini historian Chief J. U. Egharevba (Egharevba, 1960). In recent years Benin historical studies have been largely based on the chronology of Egharevba as modified by Bradbury (1959). Yet for the remotest periods oral tradition has little to tell us, and what it does tell us is probably heavily flavoured with myth. Furthermore, it has become apparent in recent years that further research into any part of the history of Benin is unlikely to acquire much new information from either European travellers' accounts or from oral tradition. In such circumstances archaeological research assumes a very real importance.

In Nigeria, archaeological research is scarcely thirty years old. In Benin the earliest work was carried out far more recently and by 1961 little had been accomplished. Therefore, the work described in this book aimed above all to provide a basic stratified chronological sequence. It aimed also at providing a corpus of archaeological evidence to act as a starting-point for those who would do further work.

The archaeologist working in Benin has to overcome a number of technical problems which will otherwise severely limit any deductions he might make from his archaeological evidence. Goodwin (1957*b*) has already described these. It seems, however, that Goodwin was rather more pessimistic than might have been warranted. In particular his complaints about a 'suspended water-table' (Goodwin, 1957*b*, p. 72) must have referred to some short-term problem related to the city water-mains, for the present writer experienced no such conditions as did Goodwin when he complained that he found the ground so waterlogged 'that digging of any scientific value could not probe more than 5 ft. below the highest point of the old palace site'. The 1961–4 excavations frequently penetrated over 20 ft. below the surface of modern Benin, reaching down to nearly 60 ft. in one instance. Yet water was a rare problem.

The worst problem in Benin was that of the archaeologist working 'blind'. It was found that Benin had stratified occupation deposits in places 11 ft. or so thick. Yet there was frequently a homogeneity of the soil which made stratification extremely difficult to see, pit-fills difficult to tell from their matrices, and the surface of the natural sand almost impossible to detect to any degree of accuracy. Most intimidating of all was the problem of identifying and isolating coursed mud structures. Successive mud buildings, made from earth dug nearby, which have eventually collapsed to become buried in their own debris, are almost impossible to detect. The problems of identifying mud-*brick* structures in the Near and Middle East are well enough known, as are their solutions, but coursed mud walling is infinitely more difficult. In the latter case there are no mud brick outlines to articulate (Lloyd, 1963) nor straw inclusions to examine with a magnifying glass (Petrie, 1904, p. 47).

It was found that strictly stratigraphic excavation was unattainable in deposits where stratification was commonly only observable in section. Deposits were therefore usually excavated in arbitrary spits of varying depths suited to the material and its content. Each spit interface was trowelled and swept to allow examination for the presence of structures, fillings or other features before the excavation of the next spit. In the drier months of January and February by the time such a surface was sufficiently clean it had dried to a uniform dusty red which obscured anything that would otherwise have been visible. In the process the surface became baked so hard that it sometimes took considerable force with pickaxes to break it up at the commencement of the excavation of the next spit. The difficulty in extracting fragile objects from such a matrix may be easily imagined. In these drier months water was sprayed over the cleanly swept surface in order that slight colour or textural differences might show up. On occasions larger amounts of water were sprayed onto a deposit in the hope of softening it for excavation but the red sand was slow to absorb water put on in this way.

The middle of the Benin dry season has in fact considerable disadvantages for excavation compared with later months. In the true rains excavation is completely impossible, as cuttings would be very susceptible to flooding; but at the beginning of the rains, or at their end, the chance of observing colouration or textural differentiation is better because of the greater moisture in the soil. In both 1962 and 1963 excavation was carried on from January to mid-June (the 1964 season was shorter). In those seasons it was found that March, April, and May were most suitable for excavation purposes.

Such was the success in overcoming these general technical difficulties that Cuttings I, II, and III on the Clerks' Quarters site, by far the most productive pieces of work carried out, were able to be excavated on a strictly stratigraphic basis. All other cuttings were dug in spits. More particularly it was found that the detection of the edges of pits and those of mud walls was possible by concentrating not so much on differences in colour, texture or content as on the 'feel' of the deposits. A pit matrix or a wall was often slightly more compact than the pit-filling or the wall's surrounding debris. The point of a trowel or of a surveyor's arrow could indicate these differences. Most important of all, however, was the exploitation of vertical weaknesses within the red sand. Thus one could isolate a wall by removing the last few inches of deposit from each side with a horizontal approach. This endeavour was often assisted by the presence of fine rootlets which had penetrated between a wall and its surrounding debris and also by an extremely thin skin of darker mud which was to be found on the wall surface, due probably to deposition of fine particles suspended in penetrating surface water. The method adopted has already been described in Connah (1963).

Another excavation problem by no means peculiar to Benin, but found in much of southern Nigeria, is the destructive nature of the red sand subsoil so far as archaeological evidence is concerned. Goodwin (1957*b*) has written of the 'acid, avid soil' of Benin and the present writer refers to it as being 'acid' in this book. This description is applied only in a loose sense to mean a destructive soil and it is uncertain to what extent it is the soil and to what extent the humid climate which should be blamed for the destruction. But, as shown by the finding of organic remains during the excavations described here, the Benin soil is not invariably destructive, and a wide range of evidence can be recovered from it.

If the worst problem with excavation in Benin was the danger of working 'blind', the same was equally true of field-work in the surrounding areas. Benin City is situated 6° 20′ north of the Equator. Its physical environment consists of:

> a low-lying plain covered with porous Benin sand . . . There are no outstanding physical features and no solid rocks near the surface . . . The natural vegetation of the area is high tropical rain forest with a good deal of swamp vegetation to the south and west. The greater

part of the country is now under secondary bush though there is still an abundance of good timber and nearly 40% of the area is in timber reserves. (Bradbury, 1957, p. 18)

Generations of farming and over half a century of extensive timber exploitation have resulted in the areas immediately around the city becoming a dense tangle of secondary growth. Nourished by a mean annual rainfall of 79·2 in. (Nigerian Meteorological Service, 1965) and by a hot and humid atmosphere, the Benin vegetation is a presence against which humanity seems constantly at war. To seek for archaeological sites in such a countryside is extremely difficult. Even the deepest parts of the earthworks known as the Benin City walls are barely perceptible on the air photographs which were available in 1961–4. To follow them on the ground one needs a gang of labourers to chop a path through the vegetation. To excavate on ground that has become so overgrown involves an initial expenditure of time and money on clearance of the site. Furthermore the stratigraphic value of such sites may be much reduced by very extensive disturbance of the soil from the myriad roots of trees and bushes. Nevertheless the basic problem is that of initially finding the sites. The work described in this book does not pretend to have dealt with this problem. Apart from the city walls the only site of probable importance known in the immediate Benin area is Gwato and no work has yet been attempted there. It is probable that the only way at present available for finding new sites in the Benin area would be that of local information. If an archaeologist speaking the Edo language were to tour the villages and hamlets to talk with the farmers and rubber tappers, it is quite likely that fresh archaeological sites might be found. This remains a task for the future.

This difficulty of locating sites in the bush around Benin was felt to be an acute limitation, particularly on the chances of shedding any light on the earliest occupants of the region. At the time of the 1961–4 work there was nothing known about the Stone Age occupation of the area, and a study was therefore made of the ground stone axes which are used in Benin ritual. It seemed reasonable to assume that these had originated in the forest belt, although this was of course by no means certain.

FIG. 1. The names of principal towns and cities appear in capital letters whereas small letters are used for places of archaeological significance. The numbered broken lines indicate the limits of the following vegetation zones: 1. Forest. 2. Derived Savannah. 3. Guinea Savannah. 4. Sudan Savannah. 5. Bauchi Plateau. 6. Mountain Forest and Grassland.

B. ARCHAEOLOGICAL RESEARCH IN BENIN CITY BEFORE 1961

BEFORE the arrival of the present writer in Benin three other archaeologists had worked there. They were the late Professor A. J. H. Goodwin of the University of Cape Town, working on behalf of the Nigerian Federal Department of Antiquities; Mr. Frank Willett, at that time of the Department of Antiquities; and Mr. Liman Ciroma, also at that time of the same Department. Both Willett and Ciroma had worked, in each case, on only a small scale and for a brief period, and the locations and dates of their respective excavations are shown in Fig. 2. Their excavations had been in the nature of rescue work, connected in Willett's case with the construction of the Benin Baptist Church and in Ciroma's case with that of the building that eventually became the Mid-Western House of Assembly. In Goodwin's case, however, a formal programme of field research had been inaugurated which had resulted in excavations being carried out for two short seasons. The location and dates of his most important work are also shown in Fig. 2. His programme was terminated by the illness that led to his premature death in 1959.

There are no published excavation reports for any of the work done in Benin City before 1961. In Goodwin's case there are three interim statements (Goodwin, 1957*a*, 1957*b*, 1963), the last being published posthumously by Mr. William Fagg. Part of Goodwin (1958) also refers to his work in Benin. Willett (1961) makes a brief reference to his work at the Benin Baptist Church site and Ciroma's work remains unpublished. The present writer has had some opportunity to examine unpublished sources concerning this earlier work. He is indebted to the Department of Antiquities for access to its files; to Professor R. R. Inskeep of the Department of Archaeology, University of Cape Town, for the loan of an excavation notebook formerly belonging to Goodwin; and to Professor Frank Willett for his generous permission to make use of the unpublished field drawings on which Fig. 3 is based.

Goodwin's excavations in Benin lasted from December 1954 to February 1955, and from December 1956 to February 1957. He was able to demonstrate that the Clerks' Quarters site consisted of stratified structural remains of some depth. Unfortunately, he was unable at that time to explore below a depth of 5 ft. owing to the ground being saturated with water from a nearby water-main and it is doubtful if he investigated many deposits earlier in date than the eighteenth century. In spite of this, during the first season he was able to isolate four consecutive floors of red clay in the area immediately north of the Old European Cemetery. He argued that each of these represented a building that had been destroyed by fire and he equated the last of these disasters with the events of 1897. He was able to identify the positions of walls associated with these floors, but only as interruptions in the flooring material and not as upstanding features. During Goodwin's second season he started work about 100 yards west of the previous excavation but gradually extended in the direction of the former work. The exact location is uncertain and the hatched area on Fig. 2 is deliberately vague. Excavation in this second season seems to have been of even more superficial deposits than that of the first season. Again the ground was saturated at quite a shallow depth and Goodwin seems to have confined himself to exploring in breadth the final phase of the pre-1897 palace. He uncovered part of a courtyard and identified the position of another wall. The most important achievements of this second season, however, were the recovery of a 'bronze' snake's head, the corner of a 'bronze' plaque showing the tail of a fish, and a 'bronze'-handled iron dagger with a leopard-head pommel. These objects have been described in Goodwin (1963) and are now in the Benin Museum.

Particularly during his second season, Goodwin sampled a number of other sites with negative results. Even negative evidence has its value, however, and future

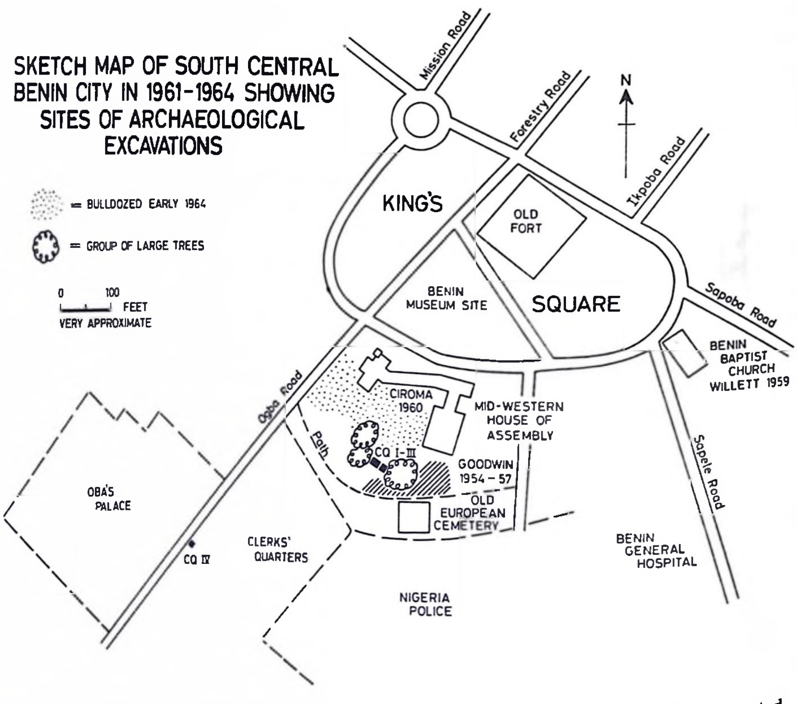

FIG. 2. The diagonal shading indicates the approximate area within which Goodwin excavated. See Fig. 23 for the location of other excavations during 1961–4.

students of the archaeology of Benin would do well to note his unsuccessful attempts to locate the legendary palace of the Ogiso (Goodwin 1957*b*).

No further excavation was done in Benin until Willett worked on the Benin Baptist Church site in 1959. Digging of foundation trenches for the new church had turned up large quantities of pottery which were recovered by sieving the spoil heaps. At the north-east corner of the church 'many elaborate, encrusted wares, probably ritual, were found in abundance' (quoted from one of the excavator's field-drawings). These seem to have belonged to Form 14 of the pottery as described by the present writer (p. 119). At the approximate centre of the area subsequently occupied by the building, Willett found a modern pit which gave him a chance of investigating the stratigraphy of the site. Originally probably a water-storage cistern, this had been filled almost to its top with earth and rubbish (Fig. 3). The excavator laid out a rectangle around this cistern and proceeded to excavate two trenches adjacent to and including its deposits. Cutting I covered half the area of the rectangle and it is its northern section which is shown in Fig. 3. Cutting II consisted of only a little over a quarter of the area of the rectangle, the remaining part being left unexcavated. Willett seems to have thought that he was sectioning deposits that resulted from successive occupation and that had accumulated very rapidly. After his own experiences on the nearby Benin Museum site, the present writer commented (Connah, 1963) that these 'deposits were probably only part of the fill of a larger earlier pit which had been cut into by a smaller later one'. This interpretation would certainly explain the eighteenth/nineteenth-century European pottery at such a depth, and indeed the large quantity of pottery as a whole.

The only other excavation in Benin, before the present writer's arrival there in 1961, was done by Ciroma, in 1960, somewhere on the site of the building that later became the Mid-Western House of Assembly. Ciroma seems to have found deposits similar to those of the Clerks' Quarters site but probably of rather lesser depth. It is interesting that apparently they did extend some distance to the north, although they were much thinner, because further to the north again, on the Benin Museum site, no trace of them had survived at all.

BAPTIST CHURCH SITE, NORTH SECTION CUTTING I

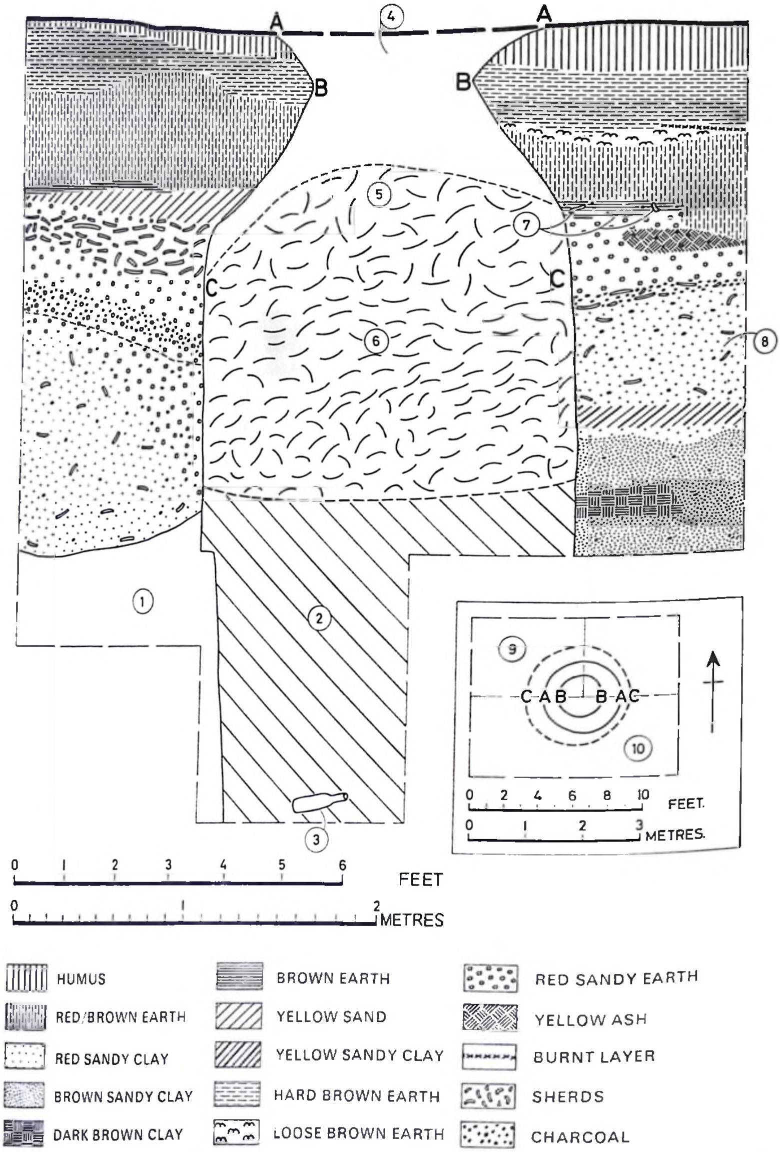

FIG. 3. Figure based on field drawings by Frank Willett. Encircled numbers indicate: **1.** natural sand. **2.** mixed brown and red earth with varying proportions of sand and clay. **3.** beer bottle. **4.** top of modern pit. **5.** grass cuttings at top. **6.** filling of modern rubbish. **7.** bones. **8.** pottery from this layer includes eighteenth/nineteenth century European material. **9.** Cutting II. **10.** Cutting I.

C. THE EXCAVATIONS 1961-4

THE excavations were carried out between December 1961 and May 1964. In that period of thirty months it was found possible to excavate for nearly six months in the 1961–2 dry season, for a further period of nearly six months in the 1962–3 dry season and for three months in the 1963–4 dry season. At the same time a survey of the earthworks known as the Benin City walls was in progress. This was begun in November 1962 and continued, except for the 1963 wet season, until February 1964.

A total of thirty cuttings were dug at six different sites within the confines of Benin City. The work was carried out by the writer with a total staff and labour strength varying between fifteen and twenty during the dry seasons, but dropping to seven or eight in the wet seasons. The whole programme was administered, staffed, and financed by the Federal Department of Antiquities with no external assistance. All the finds from the excavations were deposited in the collections of the Benin Museum.

1. THE BENIN MUSEUM SITE

In November 1961 it was assumed that work on a new museum in Benin City would start in the near future. The site allocated was in the very centre of Benin and formed part of the area known as 'King's Square'. Prior to 1958 it had been the Public Works Department yard but by late 1961 was virtually unoccupied. Archaeological excavation of the site was undertaken before the commencement of building operations. In fact the building of the new museum was postponed but had eventually started by the time of writing (1970). The site offered 2·466 acres of the area which had been part of the Oba's Palace before 1897.

During the first four and a half months of 1962, nineteen large cuttings were opened in this site. It was found that twentieth-century occupation had occasioned some levelling and that wall foundations and other modern disturbances had penetrated to minor depths in some places. Incredibly, however, there was no accretionary stratification at all; the relatively thin skin of modern disturbance usually lay on top of a red/brown sand which merged imperceptibly into the natural sand. In such circumstances no *in situ* building remains were discovered and it was assumed that the area might formerly have been covered by some of the many palace courtyards and by part of the open space in front of the palace. Furthermore, at the time of the British capture of Benin a number of buildings were blown up in order to enable the centre of the town to be more easily defended in the event of a counter-attack (Roth, 1903, Appendix III, pp. xii–xiii).

The site was relatively rich in features which were subterranean to the level of the natural sand. These consisted of infilled pits and cisterns, both having two types of filling. Type 1 comprised almost sterile material flecked with rare eroded sherds; it would seem likely that such a filling consisted largely of structural debris dumped during clearance operations associated with one or another period of rebuilding. Type 2 was made up of domestic rubbish and was consequently rich in broken pottery, fragments of animal bone, charcoal, and ash. The pits which contained these fillings had probably all originated as borrow-pits for sand used in building. This implies that

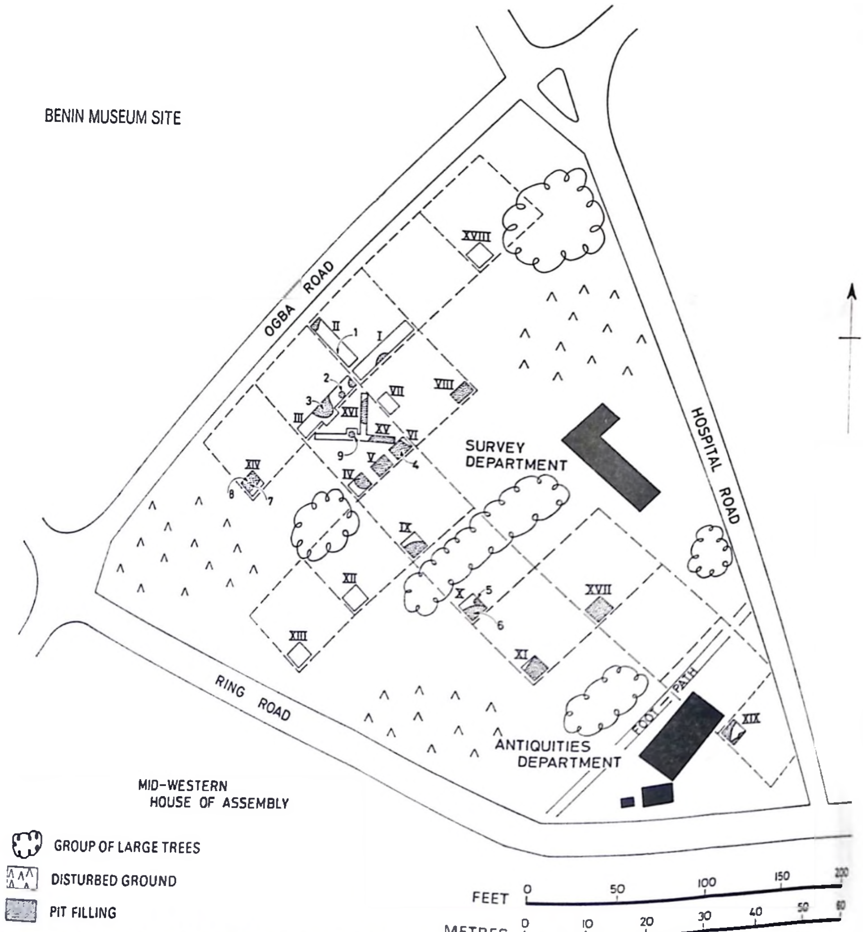

FIG. 4. Broken lines indicate the grid of 50 ft. squares. Cuttings are indicated by Roman numbers. Particularly important features are indicated by Arabic numbers: 1. inverted pot. 2, 5 and 9. well-like cisterns. 3 and 8. lumps of potsherd pavement. 4 and 7. human skulls. 6. human skeleton.

the digging of a pit could have predated its filling by some time and in rare cases there was actually evidence of this. This possibility would be greater in the case of the water cisterns which would have remained in use for some time before filling was dumped into them.

The area available for excavation was reduced by several modern buildings, by a number of clumps of large trees and by ground with surface indications of fairly extensive recent disturbance (Fig. 4). The residue was pegged out in squares measuring 50 × 50 ft. Within the limits of these squares a grid system was then developed in order to search the area as thoroughly as time allowed. After the completion of the first three trenches of this system (Cuttings I-III) it was modified, first into an interrupted grid system (Cuttings IV-VIII), and then into a point system (Cuttings IX-XIV and XVII–XIX) (Atkinson, 1953). The remaining cuttings (XV and XVI) were an opportunistic development aimed at locating a specific feature.

(a) CUTTING I (Fig. 5)
The only archaeological feature was part of a pit with a filling of Type 2.

(b) CUTTING II (Fig. 5)
The only archaeological features were four small pits and one post hole. Pit 1 contained a filling of Type 2; the fillings of the others were unclassifiable.

(c) CUTTING III (Plates 2 and 3, and Fig. 6)
A sounding into the natural sand was sunk to a depth of 5 ft. below the modern ground surface. The archaeological features consisted of three pits.

Pit 1 was vertical sided with a mixed filling of Types 1 and 2. It contained a large quantity of sherds, a majority of which belonged to Form 6, which as Fig. 60 shows was more common in the early part of the Benin sequence. Yet it also contained structural debris in the form of a tip of twelve lumps of potsherd pavement around which some parts of the pit-filling were so hard and compact as to suggest that masses of mud-walling had also been cast into the pit. These lumps of paving were of varying sizes but none were bigger than could have been carried by one man. They lay at various angles, just as they had fallen, some even standing on edge. Their presence would suggest that clearance of structures had been in progress in the vicinity.

Pit 2 was a well-like cistern; its bottom was at a depth of 12 ft. below the modern ground surface. Its individual excavation was commenced at a depth of 1 ft. 6 in., although its top may have been at a higher level than this. Down to a depth of 8 ft. the filling, which was of Type 2, consisted of black earth with many sherds, of which those of Form 6 were in the majority. Below 8 ft. the filling was a red, clayey sand, with fewer sherds, although they were still quite common. From this lower part, only one sherd of Form 6 was recovered. The lower filling may have been of either Type 1 or 2 or may have consisted of silt accumulated in the cistern during use. All the animal bone recovered from Cutting III came from this cistern, the greater part from above the 8 ft. level.

Pit 3 was of no consequence.

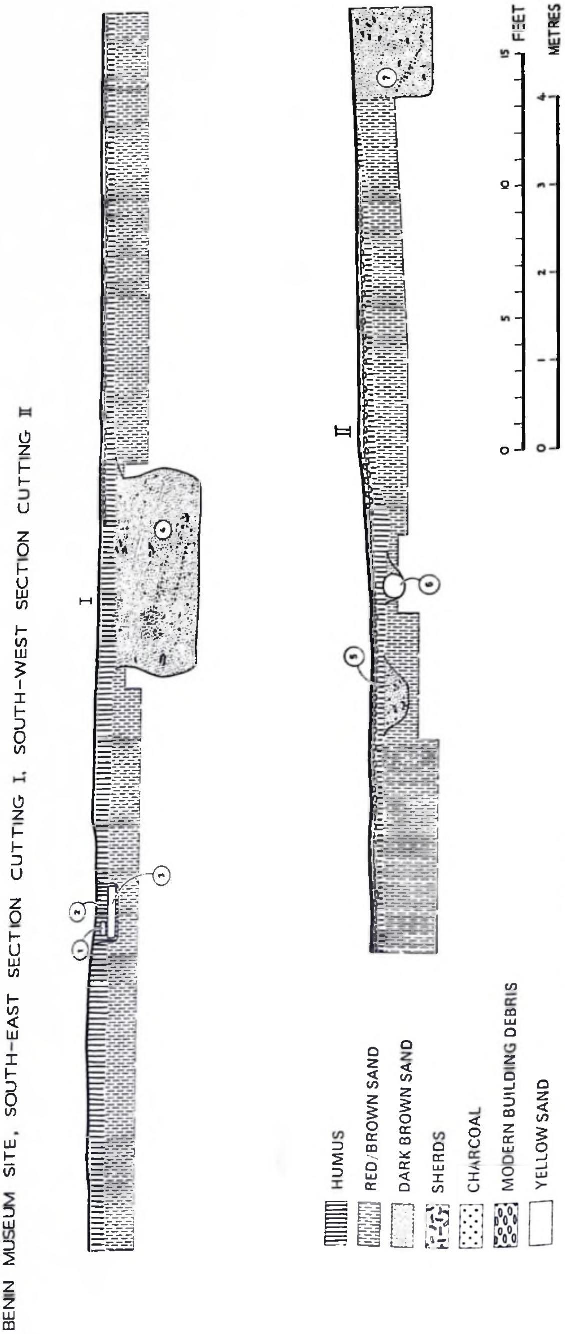

FIG. 5. Encircled numbers indicate: **1.** brick. **2.** abandoned modern drain. **3.** concrete. **4.** Pit 1. **5.** Pit 2. **6.** inverted pot. **7.** Pit 1.

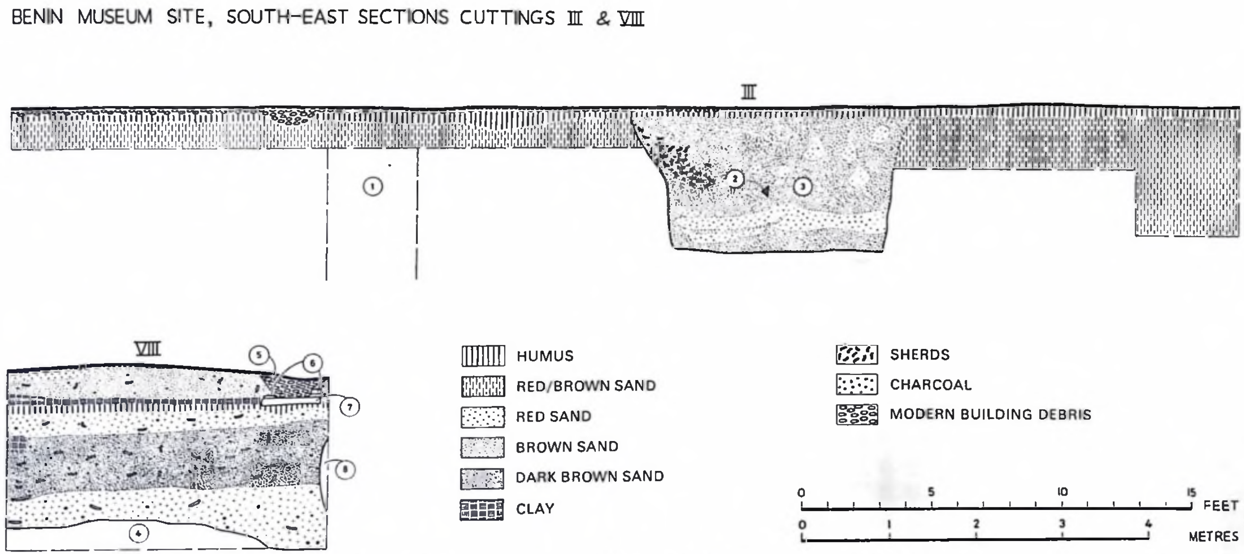

FIG. 6. Encircled numbers indicate: 1. Pit 2 projected onto section. 2. lump of potsherd pavement. 3. Pit 1. 4. natural sand. 5. abandoned modern drain. 6. bricks. 7. concrete. 8. natural sand forming the side of the pit.

(d) CUTTING IV (Fig. 7)

The only archaeological feature was part of a pit with a filling of Type 2.

(e) CUTTING V (Fig. 7)

The whole cutting was taken up by a Type 2 filling which probably represented an extension of the pit already located in Cutting IV.

(f) CUTTING VI (Fig. 7)

Beneath modern deposits the whole cutting was taken up by a Type 2 filling which probably represented part of a different pit to that of Cuttings IV and V. In the pit filling was found the remains of an apparently adult human skull. There was no evidence of any post-cranial remains and it would appear that it had been deposited in the pit together with the filling. Most of the specimen was made up of replacement material. Barely a handful of partly-absorbed fragments of the cranium and of tooth enamel were recoverable. No anatomical examination was possible.

(g) CUTTING VII (Fig. 7)

There were no archaeological features. A sounding into the natural sand was sunk to a depth of 6 ft. below the modern ground surface.

(h) CUTTING VIII (Fig. 6)

Beneath modern deposits the whole cutting was taken up by a Type 2 filling, part of a pit of which only a small piece of the side was located. The stratigraphy suggests that the pit was left open after it was dug, during which time it silted up slightly. It was then used as a refuse pit and finally levelled off with cleaner material on the top of which humus developed.

(i) CUTTING IX (Fig. 8)

The only archaeological feature was a part of a pit with a filling of Type 2.

(j) CUTTING X (Figs. 9 and 10)

Part of a pit (Pit 1) with a filling of uncertain type, perhaps a mixture of Type 1 and 2, had been filled up before the digging of a well-like cistern (Pit 2) very close to it. The bottom of the cistern was 25 ft. 3 in. below the modern ground surface. Its individual excavation was not begun until a depth of 6 ft. 4 in. but its upper part was later traced up to a cone of weathering high in the section. The filling of Pit 2 was of Type 1.

An adult human skeleton was found in the upper part of the filling of Pit 1. This was in poor condition but it was possible to see that the body had been buried face down with the knees drawn up to the ears and the arms behind the back with wrists crossed. It appeared that the corpse had been trussed up and thrown into the pit during the course of infilling. The remains gave no hint as to the cause of death. In spite of treatment with a solution of *Bedacryl* and toluol before removal, the fragments eventually recovered were so damaged as to make anatomical examination virtually

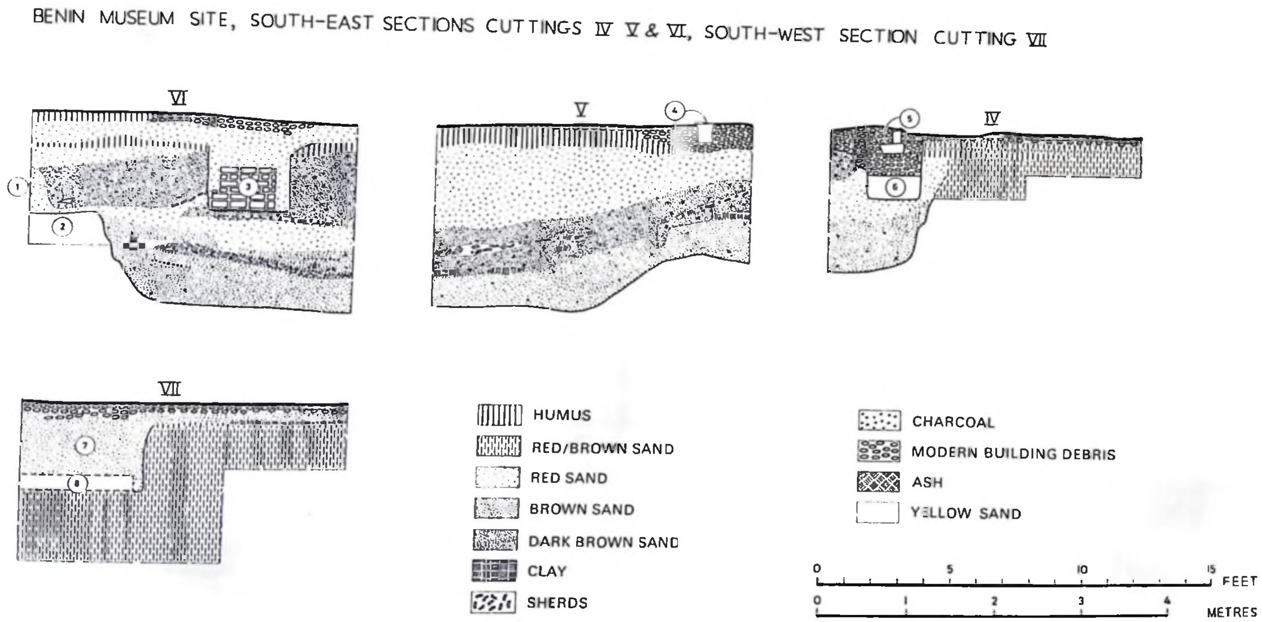

FIG. 7. Encircled numbers indicate: **1.** bone fragments. **2.** natural sand. **3.** modern brickwork in foundation trench. **4, 5** and **6.** modern concrete. **7.** modern pit. **8.** modern brickwork projected onto section.

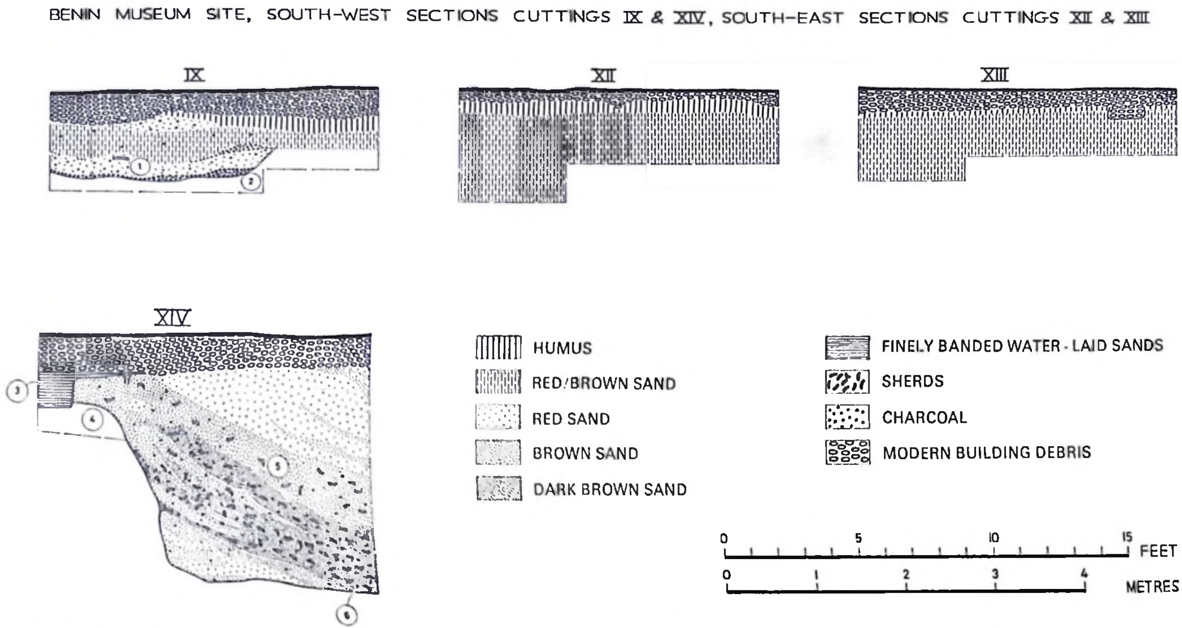

FIG. 8. Encircled numbers indicate: **1.** Pit 1. **2.** natural sand. **3.** abandoned drain. **4.** natural sand. **5.** Pit 1. **6.** level at which lumps of potsherd pavement were found.

impossible. A medical practitioner at that time attached to the Benin General Hospital, Dr. Cohen, examined the remains *in situ* and confirmed their orientation as described above. The manner of burial suggests either execution or human sacrifice.

(k) CUTTING XI (Plate 4 and Fig. 11)
Part of a pit with a Type 1 filling occupied most of the cutting. The pit had remained open for some time, so that deposits of stiff, plastic clay had been formed in its lower parts by standing water. A thin deposit of clay also adhered to most of the portion of side that was uncovered. Beneath this was found a series of holes which had probably been cut to enable those who had originally dug the pit to scramble in and out.

In two places holes were found in the pit-filling which, when filled with plaster of Paris, yielded casts of pieces of wood, (p. 221).

The north-west section of Cutting XI removed a narrow slice from the filling of another pit.

(l) CUTTINGS XII AND XIII (Fig. 8)
There were no archaeological features.

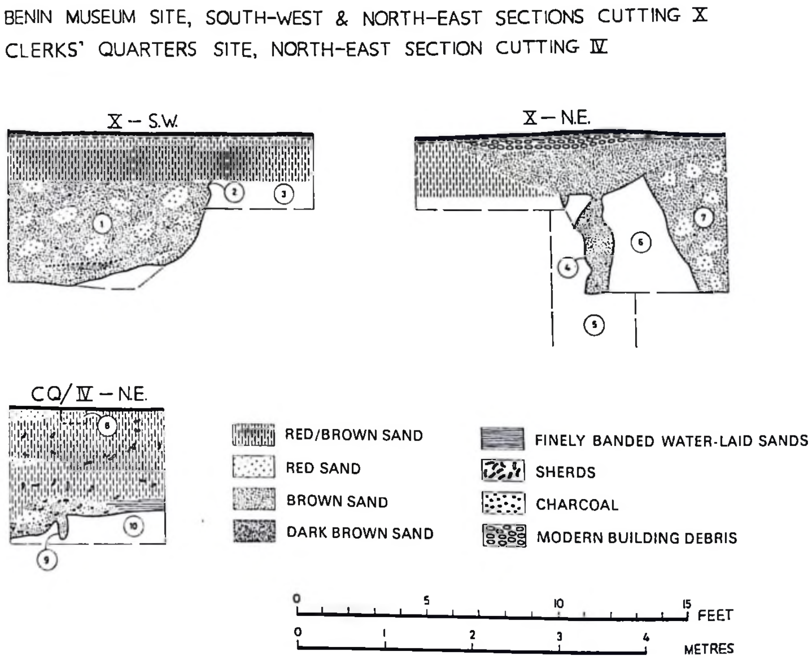

FIG. 9. Encircled numbers indicate: **1.** Pit 1. **2.** position of top of pit uncertain. **3.** natural sand. **4.** slice of Pit 2 filling. **5.** Pit 2 projected onto section. **6.** natural sand. **7.** Pit 1. **8.** position of 'bronze' hoard projected onto section. **9.** hole in natural sand, not a post-hole. **10.** natural sand.

(m) CUTTING XIV (Plates 5 and 6, and Fig. 8)

A mixture of red and brown sand from modern levelling overlay part of a pit. A number of post holes of modern origin penetrated into the top of the pit-filling which was predominantly of Type 2 but with some Type 1 characteristics. Over the top of the filling was a channel filled with horizontally banded sand and within the filling of

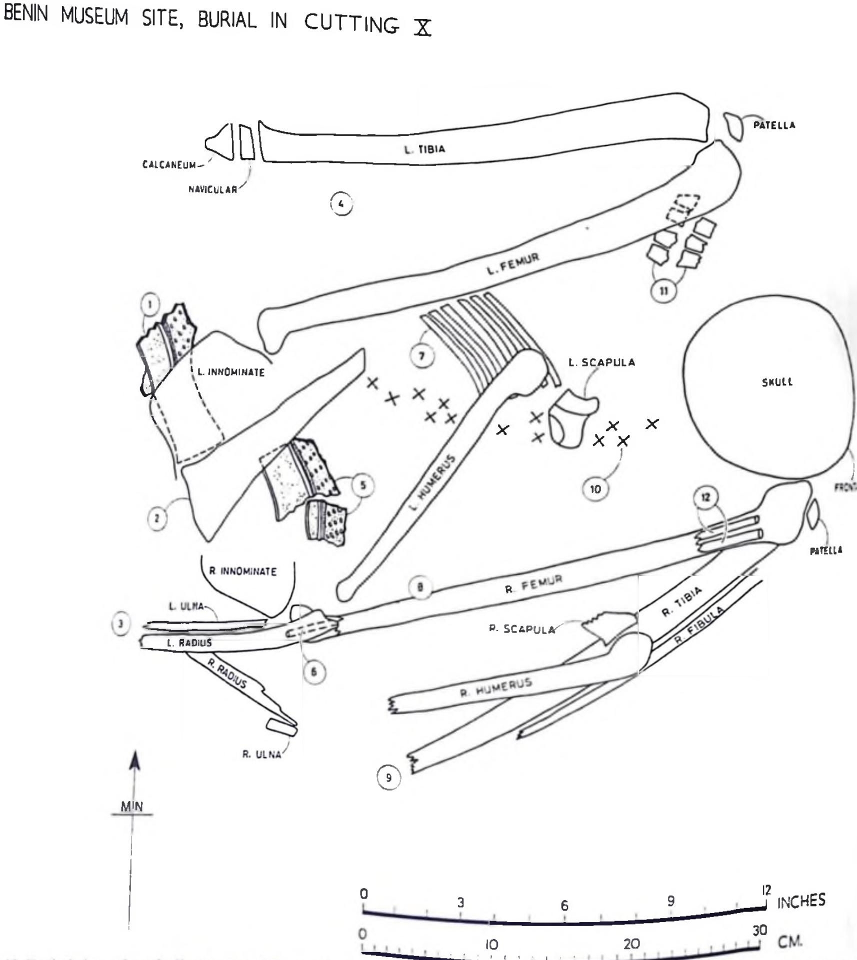

FIG. 10. Encircled numbers indicate: 1 and 5. crushed neck of pot partly beneath pelvis. 2. fragments of sacrum and lumbar vertebrae. 3. fragments of metacarpals and phalanges in this area. 4. fragments of animal teeth, probably of cow, in this area. 6 and 12. tree roots growing down the centre of right femur shaft. 7. fragments of six left ribs. 8. fragments of right ribs extended over right femur in this area. 9. tarsals in this area. 10. Xs indicate fragments of vertebrae. 11. upper and lower animal teeth, probably of cow, partly beneath left femur.

this channel were the bowls of two smoking-pipes, one of indigenous origin (Fig. 49, 8) and the other of nineteenth-century European origin (Fig. 50, 2). Fragments of a human skull lay apparently in the modern overburden; most probably they comprised the remains of a skull displaced from an earlier deposit. Owing to the poor condition of the bone no anatomical examination was possible.

The pit-filling was cut into by a later pit whose top was also sealed by the modern overburden. This pit was 2 ft. 8 in. wide at its top, and its bottom was 5 ft. 8 in. below the modern ground surface, tapering slightly from top to bottom. It was

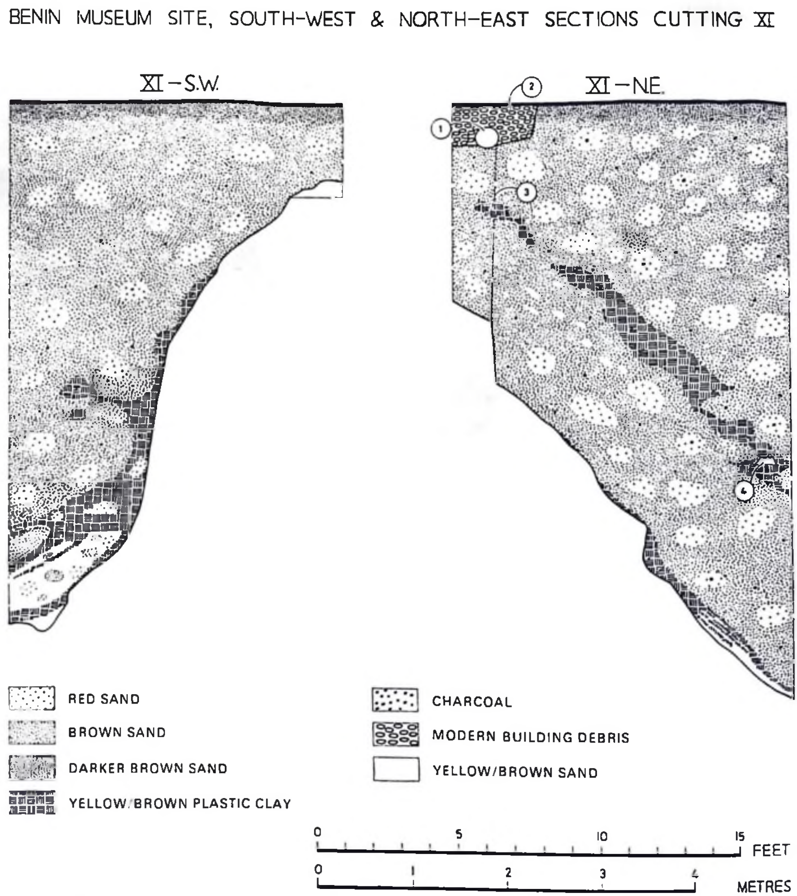

FIG. 11. Encircled numbers indicate: 1. modern pipe. 2. modern pipe trench. 3. to the left of this broken line the shape of the cutting was modified to support the modern pipe. 4. inverted pot.

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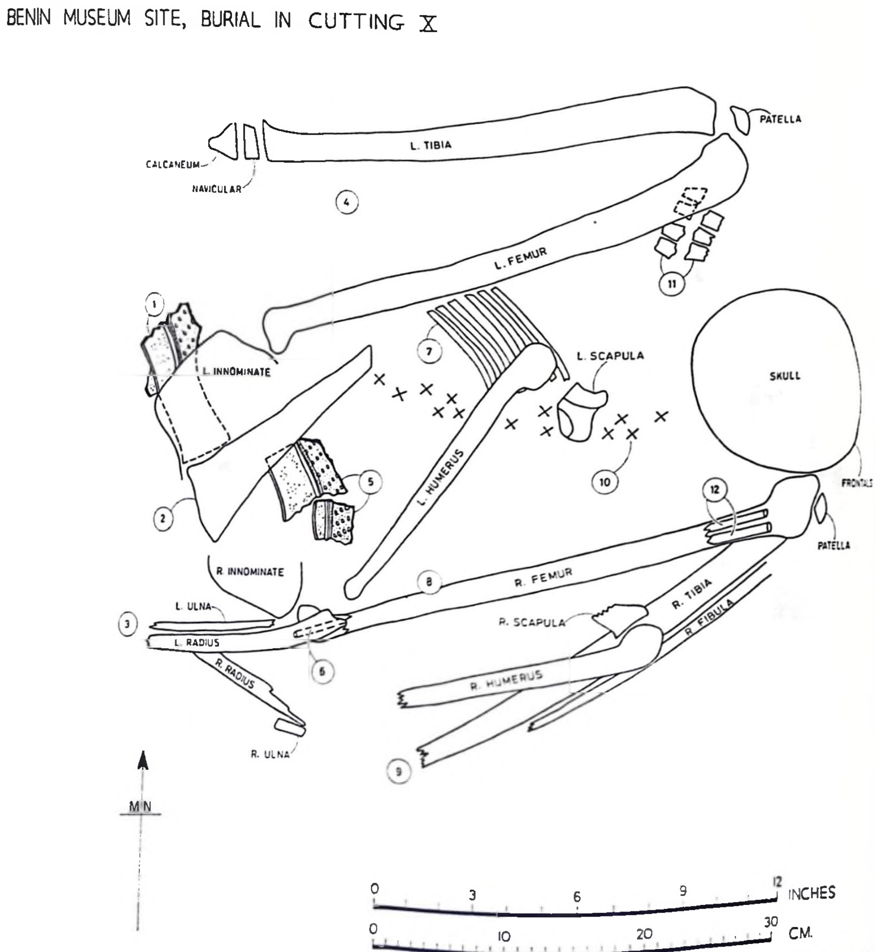

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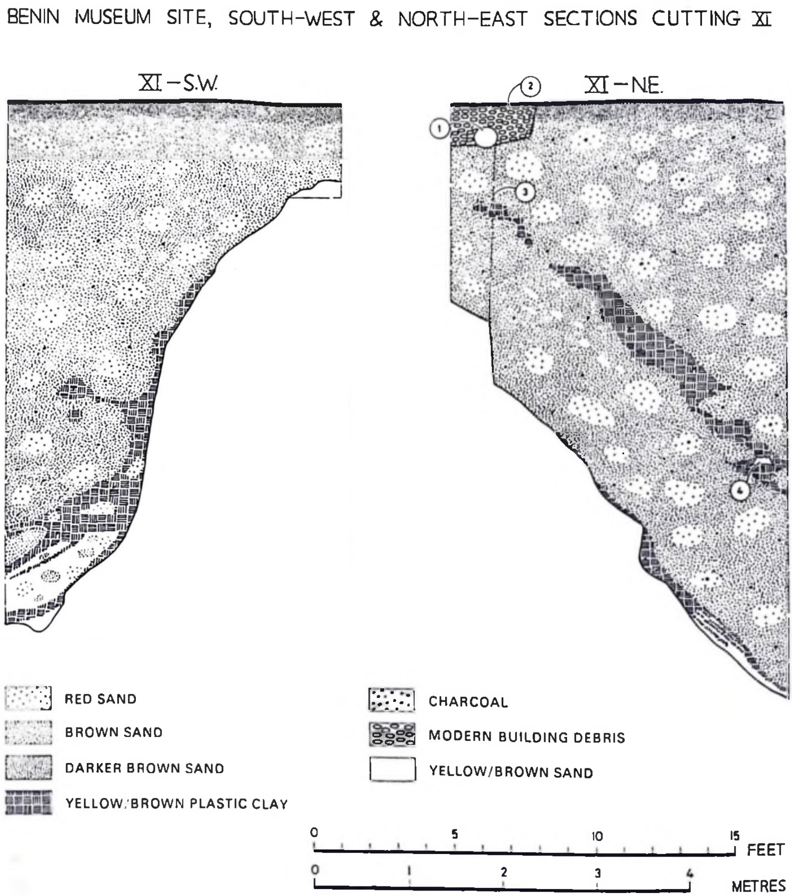

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observed only in the north-west section. In order to lessen the effect of this disturbance on the statistical analysis of the pottery, only sherds from below 3 ft. 4 in. under the modern ground surface were considered as definitely belonging to the main pit-fill. This filling was richer in sherds than any other explored during the Benin excavations. Even when material above 3 ft. 4 in. is excluded, the filling still produced approximately 404 lb. of sherds, of which 261 lb. were diagnostic. Amongst these, sherds of Form 6 were by far the most common, 2,026 sherds of this form being recognized.

Lying in a depression in the pit bottom were nine lumps of potsherd pavement (Plate 6). In Pit 1 of Cutting III similar pieces had been surrounded by probable mud-walling material but this was not the case in Cutting XIV. Here the pieces lay amongst a clutter of sherds and bone fragments. Once again they lay at various angles, just as they had fallen, some even standing on edge. The lumps were far smaller in size, however. Probably this was because the pit was much deeper than Pit 1 in Cutting III: when the lumps were thrown in, the impact on reaching the pit bottom would have been such as to break them up to a much greater extent.

Charcoal from between 6 ft. 10 in. and 7 ft. 10 in. below the modern ground surface was submitted for radiocarbon dating: the result was A.D. 1305 $\pm$ 105 (N–378). The charcoal came from a position higher than the pieces of potsherd pavement and provides, therefore, a date before which the practice of constructing potsherd pavements must already have been established in Benin.

(n) CUTTING XV (Fig. 12)

The people who had cast the lumps of potsherd pavement into Cutting III, Pit 1 and into the pit partly exposed in Cutting XIV, would have been unlikely to have carried such heavy burdens any great distance. There was a possibility that somewhere in the vicinity there might be the remains of a potsherd pavement still *in situ*. Cuttings XV and XVI were made to test this idea but no pavement was found.

At the eastern end of Cutting XV an earlier shallow pit had been cut into by a later deeper one (Pit 2). The later of the two pits was probably another part of the pit explored in Cutting VI. Certainly its filling was similarly of Type 2.

Near the middle of Cutting XV the top of an infilled well-like cistern (Pit 1) was discovered. Its filling was not detected above the level of the surface of the natural sand. On excavation it proved to be a cylindrical shaft of about 3 ft. 6 in. diameter and 9 ft. 10 in. depth, with its bottom approximately 11 ft. 7 in. below the modern ground surface. The bottom of the shaft was flat and in its centre was a circular hole approximately 1 ft. 3 in. diameter and 7 in. deep. The filling of the shaft was probably of Type 2.

(o) CUTTING XVI (Fig. 12)

The only archaeological features were parts of two shallow pits. Of a total of 114 lb. of sherds from Pit 1 88 lb. were diagnostic and yielded no fewer than 1,211 sherds and one complete pot of Form 6. The filling of Pit 1 was probably a mixed filling of Types 1 and 2.

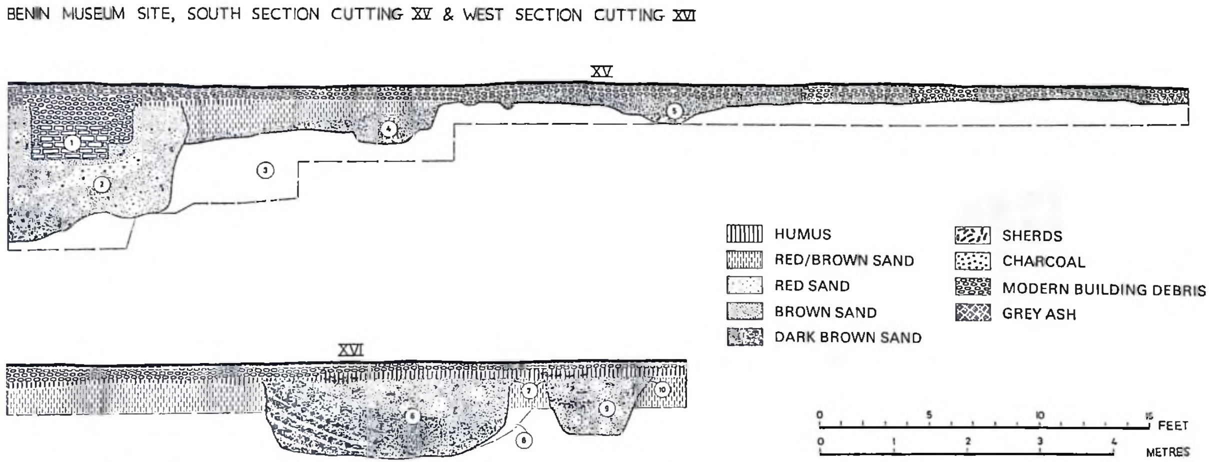

FIG. 12. Encircled numbers indicate: **1**. modern brickwork in foundation trench. **2**. Pit 2. **3**. natural sand. **4** and **5**. shallow pits. **6**. Pit 1. **7** and **10**. position of tops of pits uncertain. **8**. natural sand. **9**. Pit 2.

Pit 2 was of small size and yielded little material. Its filling was probably a mixed one of Types 1 and 2.

(p) CUTTING XVII (Fig. 13)

Beneath a layer of compact red sand the whole cutting was taken up by a Type 1 filling, part of a large pit of which no sides were located. Its bottom lay at a depth of 24 ft. 8 in. below the modern ground surface. Thick deposits of plastic clay at the bottom indicated that the pit had been left open for some time and that water had lain in it.

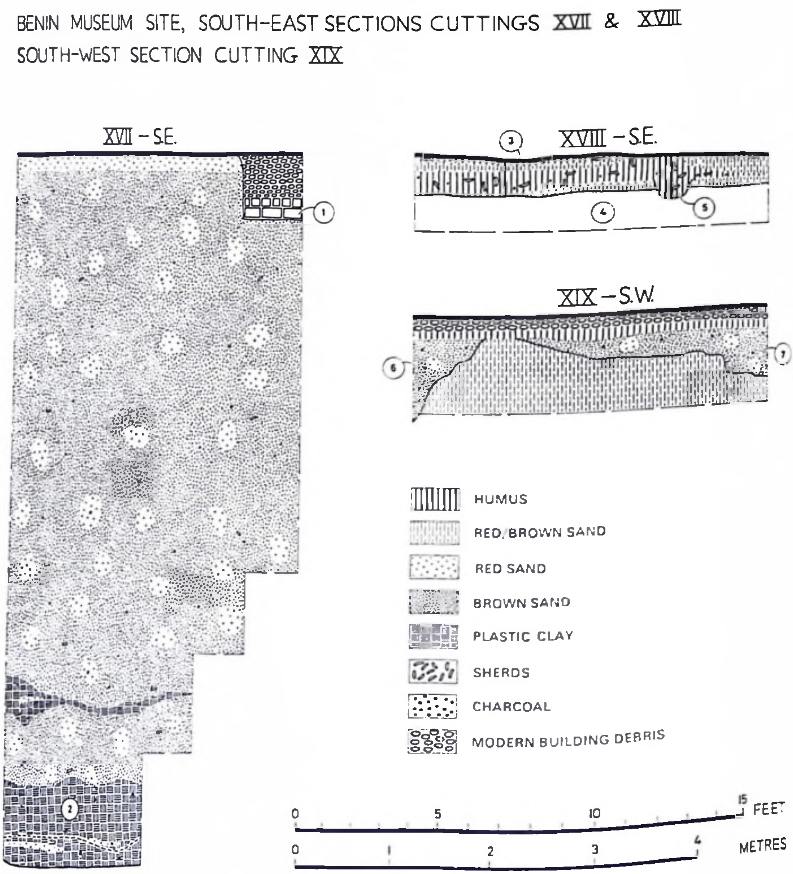

FIG. 13. Encircled numbers indicate: 1. modern brickwork in foundation trench. 2. blue/grey plastic clay becoming yellow/brown below broken line. 3. depression caused by modern foot-path. 4. natural sand. 5. channel. 6 and 7. pit-fillings.

At a time when the excavation of this cutting had reached a depth of 11 ft. 8 in., a violent rainstorm seriously damaged the sections and flooded the cutting. A hand pump soon removed the water but the damage to the sections remained, principally caused by excess surface water draining into the cutting during the storm and washing away substantial amounts of sand from the sides. The looser areas of sand had been removed more readily than the more compact ones thus making it quite clear that the filling consisted of structural debris from mud-walling. It is possible that sand stratigraphies in tropical climates might be made to yield such information more often if someone were able to devise an artificial means of uniformly weathering a carefully smoothed section surface.

Comparison of the filling sectioned in Cutting XVII with that in Cutting XI, 50 ft. to the south-west, revealed striking similarities, particularly the presence of occasional lumps of yellow sand in the red and brown sand mixture. It was tempting to conclude that one was dealing with two small parts of the same gigantic pit. Certainly there were still in Benin City, at the time of the excavations, examples of abandoned borrow pits which remained open and which were quite as big as such a pit would have been. Also it is interesting that statistical analysis of the pottery from the pit in Cutting XVII indicates that the filling belonged to the late group of fillings on this site, as also did that of Cutting XI (Fig. 59).

(q) CUTTING XVIII (Fig. 13)

A channel, cut into the natural sand, ran across the cutting from south-east to north-west approximately.

(r) CUTTING XIX (Fig. 13)

The only archaeological features were parts of three shallow pits whose fillings were of uncertain type.

(s) DISCUSSION OF THE BENIN MUSEUM SITE EXCAVATIONS

At the time of the excavation one thing was demonstrated quite clearly. This was that if the Benin Museum site possessed no accretionary stratification, then the generally level character of the ground in the centre of the modern city of Benin gave little hope that such stratification existed anywhere else in the immediate vicinity. Re-examination of Willett's 1959 findings on the Baptist Church site, only about 100 yards away from Cutting XIX, suggested that his apparent accretionary stratification had probably been in reality a pit-filling. Examination of O'Shea's map of Benin City in 1897 (F.O. 2/121 (Extract)), of Punch's sketch plan in Roth (1903, p. 158) and of the accounts of D.R. and of other early visitors, suggested an explanation. It seemed likely that the area of King's Square had been formerly taken up, in part by the broad space which ran from north-west to south-east across the city and separated the Oba's Palace from the rest of the community, and in part by courtyards of the palace itself. Such an area would tend to lack stratified deposits and this tendency would have been much accentuated by the probable clearance by the British of part of

TABLE 1

BENIN MUSEUM SITE: LOCATION OF SMALL FINDS

ARCHAEOLOGICAL CONTEXT		IRON				'BRONZE'				GLASS		MISCELLANEOUS					ORGANIC REMAINS								MODERN	
		Knives	Nails	Other fragments	Slag	Cast *agwe* pendants	Cast crotals	Smithed bracelets	Crucibles	Beads	Bracelet	Burnt clay	Indigenous smoking-pipes	European smoking-pipes	Stone rubbers	Other stones	Human bones	Animal bones	Ivory	Cowries	Charcoal	Tree resin	Casts of wood	Oil-palm nuts	Scrap iron or brass	Coins
CUTTING I	Superficial	—	—	—	2	—	—	—	—	2	—	—	—	—	—	—	—	X	—	—	X	1	—	—	21	1
	Pit 1	—	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—
II	Superficial	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—
	Pit 1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
III	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	X	—
	Pit 1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	1	—	—	—	—
	Pit 2	—	—	—	2	—	—	—	—	—	—	X	—	—	1	—	—	X	—	1	X	—	—	—	—	—
IV	Superficial	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	4	—	—	—	—	X	—
	Pit 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—	—
V	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	—	—	1	2	—	—	—	—	—	—	X	—	—	5	—	—	X	—	—	X	—	—	—	—	—
VI	Superficial	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	X	—	3	—	—	—	—	1	—
	Pit 1	—	—	—	—	—	—	—	—	—	—	X	—	—	1	—	X	X	—	1	X	—	—	—	—	—
VII	Superficial	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—

VIII	Superficial	—	—	—	—	1	—	1	—	—	1	—	—	2	—	—	—	X	—	2	—	—	—	—	1	—
	Pit 1	—	1	—	1	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	X	—	—	—	—	—
IX	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—
	Pit 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X?	—	X	—	—	—	—	—
X	Pit 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	X	—	—	X	—	—	—	—	—
	Pit 1 contaminated with Pit 2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XI	Pit 1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	5	—	X	—	—	—	—	2	—	—	—
XII	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—
XIII	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—	—
XIV	Superficial	—	—	X	1	—	—	—	—	—	—	—	1	1	—	—	X	X	—	—	—	—	—	—	—	2
	*Pit 1	4	—	3+X	5	—	—	—	—	—	—	X	—	—	7	15	—	X	—	3	X	—	—	—	—	—
XV	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	2	—	—	—	—	—	—
	Pit 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
XVI	Superficial	1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—	—
	Pit 1	—	1?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	X	—	—	—	—	—
XVII	Pit 1	—	—	2	1	—	—	—	1	—	—	X	—	—	—	9	—	X	—	—	X	1	—	2	—	—
XVIII	Superficial	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XIX	Superficial	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	X	—	—	—	—	—	—	—	—

NOTES: 1. Figures record number of whole items or identifiable fragments.
2. X records an occurrence of a quantity which is unspecified.
3. * division here is as observed from stratigraphy. In Tables 2 and 3 it was put at 3 ft. 4 in. below the modern surface to avoid a contamination risk applicable only to the pottery.

TABLE 2

BENIN MUSEUM SITE: LOCATION OF POTTERY FORMS

CUTTING	ARCHAEOLOGICAL CONTEXT	FORMS 1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
I	Superficial	11	—	—	3	—	29	1	7	—	—	—	14	2	1	—	—	—	—	1	1	—	—	—	—	—	—	—
	Pit 1	16	—	—	—	1	10	7	5	—	—	—	—	7	—	—	—	—	—	—	2	1	—	—	—	—	—	—
II	Superficial	5	—	—	—	—	3	3	—	5	—	16	2	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	Pit 1	5	—	—	—	—	1	1	—	2	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—
	Pit 4	P+1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
III	Superficial	7	—	—	—	—	10	8	98	1	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	31	—	—	—	—	29	8	P+586	1	—	1	8	2	—	2	—	—	—	—	1	—	—	—	—	—	—	—
	Pit 2	P+24	—	—	—	1	P+43	21	531	17	—	—	1	2	—	—	—	—	—	—	1	P	P	—	—	1	—	—
IV	Superficial	10	—	—	—	—	7	5	33	7	1	—	3	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	Pit 1	26	—	—	—	—	7	19	156	47	—	1	4	3	1	1	—	—	2	—	—	—	—	—	—	—	—	—
V	Superficial	4	—	—	—	—	3	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	77	—	—	1	2	64	45	553	P+125	—	1	20	31	2	8	—	2	—	1	1	7	—	—	—	—	—	—
VI	Superficial	5	—	—	—	—	7	1	50	2	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	Pit 1	24	—	—	—	—	27	10	109	27	—	1	2	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—
VII	Superficial	1	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VIII	Superficial	6	—	—	—	—	10	1	17	2	1	—	1	—	—	1	—	1	—	2	—	—	—	—	—	—	—	—
	Pit 1	141	1?	—	—	2	201	14	3P+948	22	2	—	18	14	—	4	—	—	—	—	1	13	1	3	—	—	—	—
IX	Superficial	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	1	—	—	—	—	1	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

X	Superficial	1	—	—	—	—	2	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	22	—	—	—	—	19	1	6	3	—	—	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1 contaminated with Pit 2	2	—	—	—	—	4P+23	3	2	3	—	—	3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 2	2	—	—	—	—	P+6	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XI	Superficial	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	2P+16	1?	—	—	—	12	2	1	5	—	—	P+6	2	—	—	—	—	—	—	—	—	—	1	—	1	—	—
XIII	Superficial	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XIV	Superficial	P+12	—	—	3	—	3	17	30	20	3	—	1	9	—	—	—	—	—	—	—	1	—	—	2	—	—	—
	Pit 1	239	—	—	—	1	93	216	2026	2P+247	—	—	13	28	—	7	—	1	4	3	1	9	—	2	—	45	—	—
XV	Superficial	4	—	—	—	—	4	1	13	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	2P+8	—	—	—	—	4	6	19	P+11	—	—	5	1	P	—	—	—	—	—	1	2P	—	—	—	—	—	—
	Pit 2	—	—	—	—	—	—	1	—	1	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
XVI	Superficial	22	—	—	1	—	18	3	203	2	1	—	3	5	—	3	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	18	—	—	—	1	21	15	P+1211	4	—	—	4	2	—	P	—	—	—	—	—	P+1	—	—	—	—	—	—
	Pit 2	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVII	Superficial	3	—	—	—	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	16	1	—	—	—	11	1	9	1	—	—	2	—	—	—	—	—	1	—	—	1	—	—	—	1	—	—
XVIII	Superficial	8	—	—	1	—	2	1	2	—	4	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
XIX	Superficial	2	—	—	—	—	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: Figures are number of sherds. 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.

TABLE 3

BENIN MUSEUM SITE: LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

ARCHAEOLOGICAL CONTEXT		DECORATIONS															OTHER CHARACTERISTICS										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
CUTTING I	Superficial	67	49	—	13	4	2	14	29	10	7	8	—	—	—	—	8	7	—	—	—	—	1	51	—	—	—
	Pit 1	85	15	—	16	2	14	9	—	2	3	10	—	—	—	—	—	—	—	—	—	—	—	37	—	—	—
II	Superficial	19	7	—	5	3	—	11	12	9	—	2	1	—	1	—	3	1	—	—	—	—	—	14	—	1	—
	Pit 1	20	4	—	4	—	—	6	9	3	2	1	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—
	Pit 4	—	—	—	—	—	—	—	—	P	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
III	Superficial	23	10	—	6	2	2	5	2	8	—	23	—	—	—	—	—	5	—	—	—	—	—	21	—	—	—
	Pit 1	132	34	—	22	2	1	27	—	16	9	21	—	—	—	—	—	—	—	—	—	—	—	20	—	—	—
	Pit 2	P+191	197	10	8	11	—	139	—	46	6	P+69	—	—	—	—	—	—	—	—	—	—	—	67	—	—	—
IV	Superficial	29	10	—	2	—	2	31	—	10	—	14	—	—	—	—	1	—	—	—	—	—	—	16	—	—	—
	Pit 1	82	39	6	21	17	2	83	—	38	3	53	—	—	—	—	—	—	—	—	—	—	1	30	—	—	—
V	Superficial	7	2	—	2	1	—	1	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	376	158	11	44	22	12	138	—	59	25	191	—	—	—	—	—	—	1	—	—	—	2	98	—	—	—
VI	Superficial	4	—	—	3	—	—	1	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—
	Pit 1	66	22	3	9	2	3	37	—	9	1	19	—	—	—	—	—	—	—	—	—	—	—	16	—	—	—
VII	Superficial	2	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VIII	Superficial	12	3	—	4	2	1	5	7	2	5	1	—	—	—	—	—	8	—	—	—	—	—	10	—	—	—
	Pit 1	306	196	—	145	57	19	102	—	81	22	63	3	—	—	—	—	—	—	—	—	—	—	171	—	—	—
IX	Superficial	4	—	—	—	—	—	—	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	13	—	—	5	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

X	Superficial	7	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	6	3	—	—	—	—	6	—	2	—	3	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—
	Pit 1 contaminated with Pit 2	3	2	—	16	—	—	1	—	—	1	3	—	—	—	—	—	—	—	—	—	—	—	10	—	—	—
	Pit 2	7	—	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XI	Superficial	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	76	3	—	28	—	—	8	—	9	—	4	—	—	—	—	—	—	—	—	—	—	1	2	—	1	—
XII	Superficial	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
XIII	Superficial	3	—	—	—	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XIV	Superficial	62	11	2	22	2	5	21	13	14	2	39	1	—	—	—	18	3	—	—	—	—	—	11	—	—	—
	Pit 1	915	292	33	132	40	23	369	—	118	45	249	—	—	1	2	—	—	—	1	—	—	—	165	—	—	—
XV	Superficial	14	1	1	1	—	—	8	—	3	—	6	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—
	Pit 1	25	13	—	—	—	3	25	—	5	8	13	—	—	—	—	—	—	—	—	—	—	—	7	—	—	—
	Pit 2	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVI	Superficial	54	31	—	14	4	1	6	—	8	—	9	—	—	—	—	—	1	—	—	—	—	—	25	—	—	—
	Pit 1	54	27	—	18	14	2	23	—	5	P+2	12	—	—	—	—	—	—	—	—	1	—	—	13	—	—	—
	Pit 2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XVII	Superficial	6	—	—	4	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Pit 1	25	4	—	9	1	—	2	—	6	1	3	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
XVIII	Superficial	24	4	—	8	1	—	1	25	2	1	5	1	2	—	—	4	3	—	—	—	—	—	4	—	—	—
XIX	Superficial	—	—	—	1	—	—	—	—	1	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—

NOTE: Figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses. 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.

the city centre soon after the fall of Benin in 1897 (p. 11). Thus one might expect to find accretionary deposits at a little distance away from the centre of the city rather than in the centre itself. That the distance away need be very little, had been demonstrated both by Goodwin at the Clerks' Quarters site and by Ciroma on the adjacent site of the building that later became the Mid-Western House of Assembly.

It was observed that between the first of the Clerks' Quarters fronting Ogba Road and the junction of that road with King's Square, there was a slight but quite perceptible rise in the level of the road. H. H. Akenzua II, the present Oba of Benin, commented in conversation that this rise in the level of Ogba Road marked the point where the front of the actual buildings of the palace had been until 1897. It was in line with the highest point of this rise that Clerks' Quarters Cuttings I–III were subsequently excavated.

The real significance of the Benin Museum site has only become apparent, however, in the course of studying the excavated material. The statistical analysis of the pottery from all the Benin sites (pp. 183–209) has indicated that the pit and cistern fillings of this site divide into an early and a late group (Fig. 59). All of the fillings with large samples (eight) are in the early group whilst all of those with small samples (six) are in the late group. (There were a few fillings which contained so little pottery that they have been omitted altogether.) The early group includes both of the fillings (Cutting III, Pit 1; and Cutting XIV, Pit 1) which contained fragments of potsherd pavement, and charcoal from above those in Pit 1 of Cutting XIV has been radiocarbon dated to A.D. 1305 $\pm$ 105 (N–378).

The occurrence of potsherd pavement in Benin is interesting. No European traveller ever commented on the existence of such things nor, so far as the present writer is aware, is there any local tradition of the previous existence of such pavements in Benin. In the interim report on the Benin excavations (Connah, 1963) the present writer commented that: '... their discovery in the excavations provides some archaeological corroboration of the close contact which traditionally is said to have existed between Benin and Ife in the past.' In a similar vein, Willett (1967) has stated that: 'One of the most characteristic features of Ife architecture, pavements made of broken potsherds, have been found at Benin, Owo, Ifaki, Ikerin and Ede, in Dahomey at Ketu and Dassa Zoumé and in the Kabrais district of Togo. The cultural influence of Ife was evidently widely spread ...' However, the archaeological culture of ancient Ife is still inadequately defined and it is perhaps unwise to treat potsherd pavements as evidence of its influence. Probably the making of potsherd pavement will be eventually found to have had a wide distribution in West Africa.

Potsherd pavements may be laid with the individual sherds flat or on edge. Those of Ife and Benin, and presumably at the other places mentioned by Willett are on edge, and it is this type which appeared about the eighth century A.D. in the mound at Daima and which the present writer has seen weathering out of the surface of the mound at Amkunchu in the Tchad Republic. It has also been found in the Yelwa mound, near Yelwa in the Niger valley (Hartle, 1970*a*) and in a site near Lagos (Hartle, 1970*b*). Flat-laid pavement is perhaps also fairly widespread. David (1968) has excavated it at the mound of Nassarao I, in the Benue valley near Garoua, and at the mound of Bé in the Mayo Kébi valley (David, 1970), both sites in the Cameroun Republic; Priddy (1970) in the mound of RS 63/32 in the Niger valley near Yelwa; and Breternitz (1968, 1971) in two of the mounds at Old Warra in the Niger valley near the southern tip of Foge Island. The tradition of making flat-laid potsherd pavements seems to have survived in the Niger valley amongst the Nupe (Nadel, 1942, p. 296) who go even to the lengths of making special pottery discs whose convex upper surfaces are decorated with concentric grooves. These are cut into quarters, fired, then beaten into a soft mud surface so that they break into fragments forming a pattern (King, 1962 p. 23, lower plate). The resultant flooring can be extremely attractive. Also it is possible that the 'mosaic' floors seen by Rohlfs in 1867 (cited by Armstrong (1955, p. 138)) in the area of the Afu, north of Loko on the lower Benue, may have been some sort of potsherd pavement.

Radiocarbon dates for charcoal from a layer overlying potsherd pavement 7 at the site of Ita Yemoo at Ife are A.D. 1060 ± 130 (BM-262) and A.D. 1150 ± 200 (M-2119) (Willett, 1969). A radiocarbon date for charcoal from the bottom of a pit below potsherd pavement 1 on the same site is A.D. 960 ± 130 (BM-261) and a date for charcoal below potsherd pavement 4, which is in turn sealed by the town wall, is A.D. 1160 ± 130 (BM-259) (Willett, 1969; Shaw, 1968). Thus it is quite possible that potsherd pavement at Ife may have been ancestral to that of Benin, but their connections could just as likely have been through a common ancestry which had its origins in the Sudanic zone. The occurrence of edge-laid pavements at Daima and Amkunchu and of flat-laid at Jebel Moya (Addison, 1949) is of great interest in this respect. It is unknown how the two types of pavement relate to one another but it is just possible that they both had some remote inspiration from the tessellated pavements of the Mediterranean ancient world. Such a possibility might even explain why the edge-laid pavements of Daima, Ife, and Benin all include examples of geometric arrangement of the sherds, and why at Ife there is one pavement that has panels of quartz pebbles included in its design (Willett, 1967), and others in which both potsherds and 'cobbles' are used (Myers, 1967). Potsherd pavements were not unknown in the Mediterranean ancient world. The present writer is indebted to Lady Olwen Brogan (1969) for the information that they occur at Delos in Greece, in a number of contexts, of which one is dated probably to the second century B.C. There they consist of potsherds set in mortar and were evidently used as an economical form of flooring in passages, latrines and so on. Bruneau & Ducat (1965, p. 52) describe these pavements as being either on edge or flat-laid. Potsherd pavements are also reported (Brogan, 1971) in houses 'of the late B.C. period' at Utica, north of Tunis. On the other hand West African potsherd pavements of both edge- and flat-laid types might be a purely indigenous solution to the problem of converting an earth floor into a more durable living surface; using one of the most readily available of materials, broken pottery.

In addition to providing the only evidence so far discovered for potsherd pavements in Benin, the early group of pit-fillings has other significant features. For instance one of these fillings (Cutting III, Pit 2) was contained in a well-like cistern, indicating that this method of water conservation is of some antiquity. Also one filling (Cutting VI, Pit 1) contained a human skull without any traces of the rest of the skeleton, suggesting that decapitation of either criminals or sacrificial victims was also a practice of some antiquity. All but two of the early group of fillings produced evidence of iron working, either in the form of iron objects, unidentifiable fragments of iron or iron slag. The two exceptions (Cutting IV, Pit 1; and Cutting VI, Pit 1) are so sited in the group as to suggest that they are part of its later rather than its earlier elements, and so it is unlikely that their lack of iron is of any chronological significance. Cowries occurred in three of the fillings (Cuttings III, Pit 2; VI, Pit 1; and XIV, Pit 1) but the total number of examples recovered was only five. Even these had been damaged by the acid condition of the soil.

It is perhaps instructive to comment also on the things that were not found in the early group of fillings. There were, for instance, no beads, and there was a total lack of European imports, of smoking-pipes and of 'bronze'. Furthermore although this site yielded a good deal of modern rubbish in superficial contexts there was none in any of these early fillings.

The late group of fillings has few significant features. One of the fillings (Cutting XV, Pit 1) was contained in a well-like cistern. Two others (Cutting XI, Pit 1; and Cutting XVII, Pit 1) were fillings of Type 1 within a pit or pits of considerable depth. Pit 1 of Cutting XVII produced a fragment of a crucible which had been used for non-ferrous melting, probably for melting 'bronze'. One of the most outstanding features in the late fillings is the execution or sacrifice burial in Pit 1 of Cutting X. Although the condition of this burial was poor, it was perhaps not as poor as might have been expected of a burial in such a stratigraphic position in the acid Benin sands had that burial been of any great antiquity.

The late group of fillings, like the early group, lacked beads, and it lacked smoking-pipes. There was also an absence of modern rubbish.

Examination of the distribution of pottery forms and decorations between these groups of fillings (Figs. 60–2) reveals a number of outstanding phenomena. Thus Form 6 appears to be more common in the early group, while Decoration 3 is restricted to the later elements of the early group. Decoration 8, on the other hand, occurs only in one filling (Cutting II, Pit 1) of the late group.

Excavated deposits which were not fillings have been grouped together under the term 'superficial'. They consisted of modern building debris, of modern disturbances of various sorts, and of a red/brown sand which merged imperceptibly with the top of the natural sand. The process of formation of this red/brown sand is not understood. In part it may have resulted from the levelling of wall debris from previous buildings. In part it may have been no more than a weathered natural sand. It is perhaps significant that in many cases the pits seem to have been cut through it. The superficial deposits are excluded from the statistical analysis of the pottery. It is interesting to note, nevertheless, that they contained all the modern rubbish excavated from the site and all the glass beads. They contained also most of the cowries from this site, all but one of the European imports, which were mostly fragments of smoking-pipes and china, the greater part of the site's meagre evidence for 'bronze', and the only indigenous smoking-pipe bowl that was found.

It seems, then, that three chronological phases can be detected from the excavated evidence at the Benin Museum site: an early phase, for a middle stage of which there is a radiocarbon date belonging to the thirteenth or fourteenth century; a late phase, of which the end could be dated to the close of the nineteenth century; and a modern phase. If one accepts Egharevba's date of about A.D. 1170 for the commencement of the Benin dynasty (Egharevba, 1960) it is just possible that the earliest stage of the early phase might relate to the semi-mythical Ogiso period of Bini history. If one accepts Bradbury's modification of that date to about 1300 (Bradbury, 1959) then such a possibility becomes more tenable. It is in any case probable that the early phase relates to a period before the earliest European contact in the late fifteenth century. The late phase, on the other hand, is likely to belong to a period after that earliest contact.

2. THE CLERKS' QUARTERS SITE

The Clerks' Quarters site was thought more likely to yield an accretionary stratification than the Benin Museum site. Excavation was commenced on Cutting I in April 1962 and continued till mid-June. By that time the cutting was thought to be complete, and the rains were becoming a serious problem. Work was resumed at the beginning of January 1963 and Cuttings II and III excavated adjacent to Cutting I. Figure 2 shows a sketch map of the area. The excavation of Cuttings II and III was not completed until June 1963.

During the wet season of 1962 a hoard of 'bronzes' was accidentally discovered in the compound of A6, Government Quarters, Ogba Road. This was presented by the finder (Mr. Davidson Oddiri) to the Benin Museum. It was necessary to excavate at this site to recover the residue of the hoard and to investigate its archaeological context. The exact spot was located by means of a mine-detector survey, and a small cutting was subsequently excavated in January 1963. This was designated Clerks' Quarters, Cutting IV. In the interim report on the Benin excavations, however, it was referred to as the 'Ogba Road . . . hoard' (Connah, 1963).

The land available for excavation at the Clerk's Quarters site during the years 1962 and 1963 was somewhat smaller than that at the Benin Museum site. As shown in Fig. 2 it consisted of a piece of disused land wedged between the Nigeria Police Barracks, the site of the future Mid-Western House of Assembly and the nearest buildings of the Clerks' Quarters. Subsequently the function of the Mid-Western House of Assembly necessitated the construction of a sizeable car park and this in its turn involved the levelling of the land immediately behind the House of Assembly, an operation that destroyed the top few feet of archaeological deposits. This levelling was carried out with bulldozers during the early part of 1964 but did not extend across the actual area excavated in 1962–3.

Goodwin's excavations at this site have already been referred to (pp. 7–8) and

Fig. 2 shows the approximate area in which they probably took place. He had at no point excavated through the whole depth of deposits, yet it was clearly imperative to avoid his infilled cuttings. This was successfully done, the only possible sign of his work that was encountered being a thin layer of red sand which lay over the modern humus in parts of Cuttings I and II. This, it was thought, could have been the vestiges of an old excavation spoil dump.

Cuttings I, II, and III were sited on the highest part of the site. A very slight ridge ran from south-east to north-west and the cuttings were placed so that their long axis coincided with that of the ridge (p. 11). Each cutting measured 12 × 12 ft. and was separated from its neighbour by an unexcavated baulk 3 ft. in width. Cutting I was back-filled immediately on completion. Early in the excavation of Cutting II it became apparent that the baulk between I and II was obscuring part of a floor, and Cutting II was extended by 2 ft., leaving only 1 ft. of earth to retain the back-filling of I. Later it was observed that the baulk between II and III obscured a mud wall, and it was necessary to sacrifice this baulk completely.

Cuttings I, II, and III on the Clerks' Quarters site were the only ones during this period of excavations in Benin that it proved possible to excavate on a strictly stratigraphic basis. Every other cutting had to be excavated in arbitrary spits. Unfortunately, the stratigraphy presented some difficult conditions which it was not always possible to prevent from adversely affecting the excavated evidence. Every effort was made to minimize the influence of these conditions; even to the point of reopening Cutting I, during the 1963–4 excavation season, after comparison of the drawn sections of that cutting with those of Cuttings II and III had revealed a serious inconsistency in the relative levels at which natural sand had been reached.

In spite of these problems, the interpretation of the other excavations in Benin is dependent on the stratified sequence from these cuttings. For instance, the whole of the statistical analysis of the pottery relies on the sequence available at this site.

(a) CUTTING I (Plate 7 and Figs. 14–18)

(i) *Late phase.* A humus of black sand (Layer 2) was partly overlaid by a thin layer of red sand (Layer 1), a possible remnant of one of Goodwin's excavation spoil dumps. Immediately beneath the humus lay the remains of part of a mud building. Mud-walling debris (Layers 3 and 4) sealed the base of a wide wall (Feature 1), at right angles to which were two narrower walls (Features 5 and 6). On the north-west side of the wall was a pink-coloured floor (Layer 5) which appeared to be made of a mixture of red sand and kaolin, but which geological examination has revealed was made of decomposed granite brought from a distance of at least forty miles outside Benin (p. 226). This floor ran underneath the two subsidiary walls but not underneath the main wall. On the surface of the floor lay a deposit of rain-washed sands of 2–5 in. thickness and sealed by the mud-walling debris. The main wall traversed the cutting, and presumably extended beyond its north-east and south-west sections. The pink floor also extended into these sections and in addition into the north-west section. The subsidiary walls, on the other hand, ended within the cutting; at the end of each wall was a substantial post-hole (Features 8 and 9) extending downwards through the pink floor and the red sand (Layer 6) on which it was laid. The positions of the bottom of Feature 8 and of the lower sides and bottom of feature 9 were uncertain. After the removal of Layers 5 and 6 it was, however, possible to see the actual post-socket within the post-hole of Feature 8. The post-hole had a packing that in part consisted of the distinctive Layer 5 material. Therefore the post-holes must have been later than the pink floor, as also must have been the subsidiary walls which overlay that floor.

Between the subsidiary mud walls, two pits extended downwards through Layers 5 and 6. Of these, Feature 4 was subrectangular in plan and contained a filling of black earth and charcoal. Cutting into its filling, in turn, was a post-hole with a filling of charcoal-flecked red/brown sand. This post-hole should be compared with another with similar filling which was to be seen in the south-west section (Fig. 16) and which definitely originated in the mud-walling debris lying over the pink floor and cut through both floor and floor foundation into the deposit beneath them. Below Layers 5 and 6 the sides and bottom of Feature 4 were not very certain. As with Features 8 and 9, the reason for this difficulty was the similarity of the filling to the deposit which lay beneath Layers 5 and 6. The second pit was Feature 7 with a filling of charcoal-flecked red/brown sand. It cut through Layers 5 and 6 and into the filling of an earlier pit designated Feature 10. Although sealed by Layer 5, it was clear that Feature 10 was similar in date to its deposition, for the red sand (Layer 6) which formed the foundation of the pink floor (Layer 5) composed a large part of the filling of Feature 10.

On the south-east side of the main wall a shallow pit extended from the base of the modern humus into the top of the mud wall debris. This pit contained an assortment of glass bottles, crumpled enamelware, rusty iron and other modern rubbish. The mud wall debris (Layers 4A and 4B) into which this pit intruded overlay a dark brown sand (also Layer 4A) which had the appearance of a buried humus. Clearly this side of the wall had been on the outside of a building whereas the other side had formed part of the interior.

On removing the main mud wall an inverted pottery bowl was found close to the south-west section. It was not beneath the wall but in the bottom few inches of actual wall material. It was one of six bowls found in similar circumstances in Cuttings I, II and III. These bowls belonged to pottery Form 8, known as ‘shouldered bowls’. This particular one was found to contain a solitary yellow glass bead of long cylinder form. In spite of the inversion this lay in the bottom of the bowl which was otherwise filled with a loose dark brown sand containing rare flecks of charcoal. It seems likely that this bowl, like the five others, was a foundation deposit of magical significance.

Immediately beneath the buried humus on the south-east side of the main wall was the top of an infilled well-like cistern (Feature 11). The top of this cylindrical shaft was approximately 3 ft. below modern ground surface. The upper part cut through earlier archaeological deposits but the rest was cut into natural sand. Unfortunately the feature was situated in the eastern corner of the cutting and only about a quarter of its cross-sectional area was available for excavation. This was accomplished by digging an access shaft into the natural sand to include that part of the filling of the feature that was available. The filling was found to converge with the sections at 32 ft. 9 in. below the modern ground surface and it appeared that the bottom had been reached.

This shaft apparently pre-dated the mud building, part of whose remains has already been described. Its upper parts, cut through relatively unstable man-made deposits, had already become seriously undermined before it was intentionally filled. This was done in at least two stages, for the section showed settlement of the filling on the top of which more material had been dumped. This settlement is marked on Fig. 17 by a broken line. A fair amount of broken pottery was found in the filling as a whole, but a proportion of this must have derived from the earlier deposits through which the shaft had been cut, particularly from the filling of the earlier pit, Feature 12. Also, Feature 11 was not observed until the bottom of Feature 12, and material from the upper filling of the shaft must have contaminated both Feature 12 and the deposits (Layer 7) lying over it.

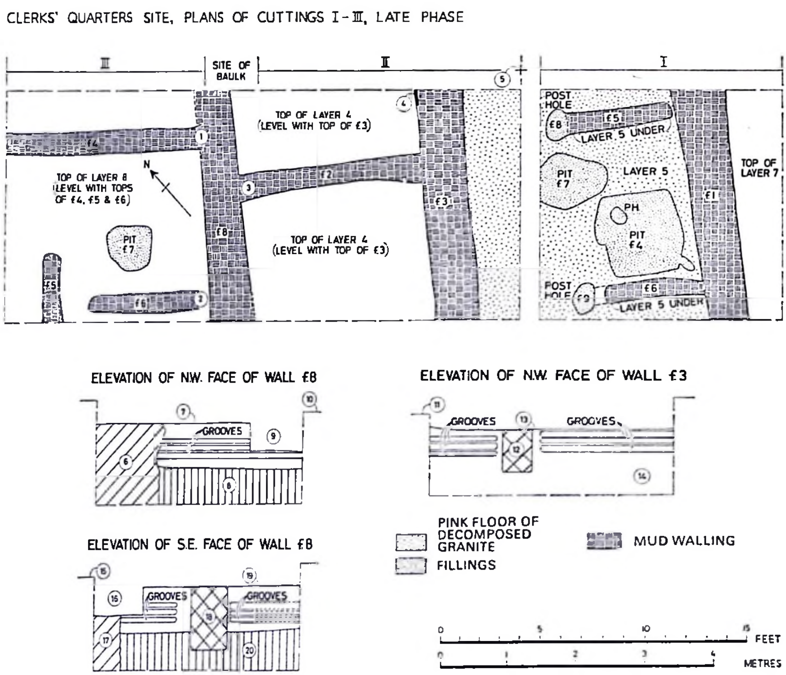

FIG. 14. Encircled numbers indicate: **1** and **2**. details of wall junctions uncertain. **3**. top of wall as excavated was 2 ft. 7 in. below modern ground surface at this point. **4**. face of wall burnt bright red. **5**. zero point for three dimensional measurements. **6** and **17**. wall cut away by baulk sections. **7, 13** and **19**. tops of walls as excavated. **8** and **20**. faces of wall not detectable. **9** and **16**. wall cut away during excavation. **10, 11** and **15**. modern ground surface. **12** and **18**. junctions of subsidiary wall Feature 2. **14**. bottom of wall about here.

The details of the small finds and pottery found in the late phase of Cutting I can be ascertained from Tables 4, 5 and 6. Amongst the identifiable iron items were a selection of nails from the buried humus and overlying mud-walling debris (Layers 4A and 4B) and particularly from within the main mud wall (Feature 1). Presumably these originated from the timber-work of the building, or from that of an earlier building as some of them had become incorporated in the main mud wall itself. Smelting and perhaps also forging of iron was attested by the quantities of slag (p. 230) which lay in the mud-walling debris (Layers 3, 4, 4A and 4B) and in some of the features cutting down through the pink floor, as well as elsewhere. There were also several bellows' nozzles. One of the bellows' nozzles had been built into the main wall (Feature 1) which also contained slag and fragments of iron. This would suggest that some of the evidence was older than the building itself and had been accidentally incorporated when the mud wall was made. A concentration of slag, two iron fragments, and a bellows' nozzle were found, however, in the black earth and charcoal filling of Feature 4. Items of copper-base alloys were mainly limited to fragments of trade sheet, yet Layer 4A produced five fragments of crucibles, two of which were almost complete and are illustrated in Fig. 34, 13 and 14. These crucibles had been used and the occurrence of a few droplets of metal would seem to suggest that 'bronze' casting had been carried out near at hand. Other pieces of crucible were found within the main mud wall, whilst one fragment was found in the post-hole, Feature 9. Some fuel ash containing copper-base alloy debris was found in the same post-hole; on analysis this was found to consist of copper residues with 3 per cent zinc but no tin nor lead (p. 229). This would suggest that brasses were being melted in the crucibles. The few glass beads from Cutting I (possibly of both European and African manufacture) all came from the late phase. So also did most of the only other European imports: a few fragments of smoking-pipes, some doubtful fragments of trade-gin bottles, and all but two pieces of the European china and earthenware.

It is clear that the remains in Cutting I which were attributable to the late phase comprised part of a mud building with a carefully laid floor. A well-like cistern and a nearby pit, although technically predating the building, had probably only been filled up at the time of its construction or shortly before. Some time after the construction of this building, two subsidiary mud walls with terminal posts had been erected creating a kind of alcove against the main wall. The rain-washed sands overlying the pink floor probably indicated that the building had lost its roof before it actually collapsed and buried the stumps of its walls in mud rubble. Some activity seems to have taken place during this period of decay. The pit, Feature 7, was probably dug at this time as also were two post-holes, one of which cut into the filling of Feature 4 and the other of which appeared high in the south-west section. Finally some levelling probably took place followed by the formation of the surface humus through which a modern housewife had dug a hole to bury some unwanted rubbish.

From this interpretation two matters should be singled out for special attention. The first is that the pit described as Feature 4 has not been explained. That it was roughly contemporary with the life of the building seems reasonably clear but its

TABLE 4

CLERKS' QUARTERS SITE CUTTING I: LOCATION OF SMALL FINDS

ARCHAEOLOGICAL CONTEXT		IRON					'BRONZE'										GLASS		MISCELLANEOUS						ORGANIC REMAINS					MODERN	
		Knives	Nails	Other fragments	Slag	Bellows' nozzles	Plaque fragment	Other fragments of cast	Nails	Fragments of decorated sheet	Fragments of undecorated sheet	Narrow tube of sheet	Fragment of strip	Other fragments	Droplets	Crucibles	Beads	Fragments of trade-gin bottles	Carnelian beads	Burnt clay	Indigenous smoking-pipes	European smoking-pipes	Stone rubbers	Other stones	Human bones	Animal bones	Ivory	Cowries	Charcoal	Scrap iron	Other rubbish
SUPERFICIAL:																															
Layer	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	1	—	—	—	2	—	6	1
,,	2	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	2	—	X	—	5	—	—	7
LATE:																															
Layer	3	—	—	2	3	—	—	—	—	—	—	—	—	—	—	—	2	—	—	X	—	—	—	3	—	—	—	—	—	—	—
,,	4	—	—	1	4	—	—	—	—	—	—	—	—	—	2	—	—	—	—	X	—	—	—	1	—	—	—	—	—	—	—
,,	4A	—	4	—	2+X	—	—	—	—	—	1	—	1	—	—	5	—	3?	—	X	—	1	1	1	—	X	—	—	X	—	—
,,	4B	1?	2	1	1	—	—	—	—	—	1	—	—	—	—	—	—	1?	—	X	—	1	—	—	—	X	—	—	X	—	—
Feature	7	—	—	3	X	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
,,	4	—	—	2	X	1	—	—	—	—	1+1?	—	—	—	—	—	3	—	—	—	2+1†	—	—	—	—	—	—	—	—	—	—
,,	9	—	—	5	X	—	—	—	—	—	—	—	—	—	—	1	—	—	—	X	—	—	—	1	—	—	—	—	—	—	—
,,	5	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
,,	1	1?	9	3	X	1	—	—	1	1	—	—	—	1	—	3	1	—	—	—	—	—	1?	—	—	—	—	—	—	—	—
Layer	5	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Feature	11	—	—	1	—	1?	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	X	X?	—	X	—	—
,,	10	—	—	—	1	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—

MIDDLE:																															
Layer	7	1	5	4	1+X	—	—	—	2	1	—	—	—	—	—	3+X	—	—	—	X	1+1†	—	—	—	—	—	—	—	X	—	—
Feature	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—
EARLY:																															
Layer	10	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
,,	8	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	3*	—	—	—	—
Feature	23	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	X	—	X	—	—
Layer	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—
Feature	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	X	—	—	X	—	—
NOT STRATIFIED		—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTES: 1. Figures record number of whole items or identifiable fragments.
2. X records an occurrence of a quantity which is unspecified.
3. * indicates complete elephant tusks.
4. † pieces join but does not mean that Feature 4 and Layer 7 are synchronous. Feature 4 probably overdug into Layer 7.

purpose remains uncertain. The second matter is that there is no particular evidence to indicate that the building was destroyed by fire. Goodwin's interpretation of the evidence he excavated from the same site (Goodwin, 1957*b*) could not be applied to the evidence found in the present writer's excavations. Nor could the four structural phases that Goodwin recognized.

The late phase in Cutting I is clearly of nineteenth-century date. It is a reasonable assumption that the building, whose remains belong to that phase, was part of the palace of one of the nineteenth-century Obas of Benin. It was thought at first that it was part of the palace destroyed in 1897 (Connah, 1963), but evidence in Cutting III (pp. 71–72) indicates that it had already collapsed some time before that. The date of construction of this building might have been quite early in the nineteenth century. Egharevba (1960, p. 45) records the burning of the palace by Ogbebo in about 1816. It is possible that the piece of building that was excavated was part of a rebuilding which took place after that fire.

(ii) *Middle phase.* Below the remains of the late phase was approximately 2 ft. 6 in.–3 ft. depth of deposit which was attributed to a middle phase. This consisted in the main of a red/brown sand containing only rare charcoal and sherds, but over this there lay a dark brown sand in which charcoal and sherds were generally more common. Because of interleaving, both these deposits were excavated as Layer 7, which was the same as Layer 5A, as they were called when first encountered on the south-east side of the late phase main mud wall, Feature 1.

An integral part of the middle phase deposits was an apparently substantial mud wall. Unfortunately this appeared only in the south-west section but it possessed much the same characteristics as Feature 1 and the general similarity of the red/brown sand subdivision of Layers 7 and 5A with Layers 3 and 4 of the late phase would suggest that this deposit consisted of mud-walling debris.

At the bottom of Layer 7, and situated in the western corner of the cutting, lay part of a human skeleton (Feature 24), the north-western extremities of which were lost in the adjacent section but were subsequently found not to extend as far as Cutting II. The bone was in an advanced state of replacement by sand and the fragments recovered were virtually useless for anatomical examination. It seemed that they were the remnants of the legs and spine of a skeleton which lay on its right side with right leg tightly flexed but left leg extended. There was no trace of a grave.

Tables 4, 5, and 6 give details of the finds in the middle phase of Cutting I. Of iron, a much-decayed knife (Fig. 48, 5), and a number of nails and other fragments were recovered, in addition to a good deal of slag. The latter would seem to indicate that smelting and perhaps also forging of iron was being carried on somewhere in the vicinity (p. 230). Direct evidence of 'bronze' was limited but a number of fragments of crucibles used for non-ferrous melting suggested that casting was also going on near at hand. The only European imports recovered were two fragments of china and earthenware. There were no beads of either European or indigenous origin.

It seems likely that the middle phase of Cutting I was mostly made up from the debris of a collapsed mud building of which only one wall was detected in excavation. Lying over the top of this debris was the tail end of a layer of occupation material later found to stretch across both Cuttings II and III. European imports from that layer in Cutting III (pp. 72–73), together with the dating evidence for the plate phase of Cutting I (p. 39), would indicate a date in the eighteenth century, but probably excluding the first few decades. The occupation material seems to have been derived from a rubbish dump which was perhaps levelled prior to the construction of the late phase palace. The middle phase walling debris might be attributed at least to the beginning of the eighteenth century.

(iii) *Early phase*. Beneath the remains of the middle phase lay a thin, rather irregular deposit of red sand (Layer 10) which appears only in the north-east section (Fig. 17). Partly covered by this was a red/brown sand of slightly lighter colour than that of Layers 7 and 5A. This was designated Layer 8 but has not been differentiated on the drawn sections. Generally around 6 in. deep, it occupied the angular depression in the top of Layer 9 in the right hand part of the south-west section, it sealed Layer 9 in the north-west section and also appeared to be integral with the upper part of the filling of Feature 23. Only in the north-east section did it appear beneath Layer 10. Although just discernible at the time of excavation, Layer 8 was no longer visible by the time the sections were drawn. Layer 8 seemed to be limited to the north-western side of the cutting where it occupied a strip very approximately 3 ft. wide. Beneath this elusive deposit was a thin layer of dark brown sand containing charcoal and sherds (Layer 9). This deposit of occupation material covered the whole floor of the cutting except where broken by Features 23 and 10. It also formed a substantial part of the filling of the pit, Feature 12. On removal, it was found that Layer 9 covered a relatively level surface of red sand in which were numerous post-holes, stake-holes, and other shapeless holes and depressions (Plate 7). Clearly this was an occupation surface on which a number of wooden structures had stood but it was not possible to discern any of their plans. The red sand into which these various features were cut was thought at the time of excavation to be natural and the cutting was filled in. After the excavation of Cuttings II and III, however, it was realized that a mistake had been made (p. 36). Consequently, during the 1963–4 excavation season the filling of Cutting I was removed, and the supposed natural sand excavated to reveal the top of the real natural sand at a depth some 5–6 ft. below what had previously been thought. This lowest deposit of Cutting I consisted of a uniform red sand with only occasional tip-lines of dark brown sand and a little charcoal. It was virtually sterile.

In the eastern corner of Cutting I the occupation surface with the post-holes was cut through by a pit designated Feature 12. Only a portion of this extended into the cutting. This pit, in turn, was cut through by the later Feature 11. The filling of Feature 12 consisted of a mixture of rather sterile red sand which interleaved with, and was overlain by, Layer 9 material. The pit seemed to be a rubbish pit whose filling was contemporary with the occupation surface. Feature 23, on the other hand, told a very different story. This was the upper part of the same well-like cistern that proved of such importance in Cutting II, where it was excavated as Feature 21. In Cutting I the proximity of its edge to the north-west section at first prevented the complete excavation of its filling (Plate 7). Yet the demonstration of the significance of this cistern, during the excavation of Cutting II, occasioned a careful re-examination of the part extending into Cutting I when that cutting was reopened in 1963–4. By then it appeared unnecessary to excavate all of Feature 23 in Cutting I, but excavation was carried

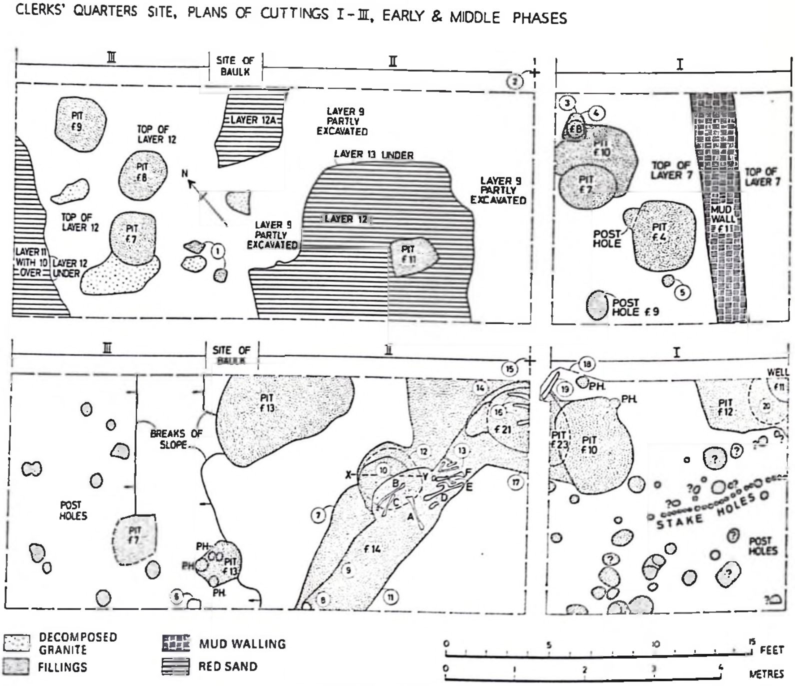

FIG. 15. The lower plans are of the upper surface of the virtually sterile pit-filling which formed the primary deposit of the early phase in these cuttings. (See Plate 9.) The upper plans contain elements belonging to both the early and middle phases. Although Cutting I is shown at the top of the middle phase deposits, Cuttings II and III are shown at the top of the early phase deposits. A number of intrusive late phase elements are present in these plans also. Encircled numbers indicate: **1.** uncertain post-holes. **2** and **15.** zero point for three dimensional measurements. **3.** post-hole. **4.** post-socket. **5.** uncertain post-hole. **6.** lump of burnt clay; this lay at a lower level than the surface which these lower plans otherwise present. **7.** edge of Feature 14 at 6 ft. 2 in. below modern ground surface. **8.** group of sherds. **9.** edge of Feature 14 at 8 ft. 5 in. below modern ground surface. **10.** edge of Feature 14 at 9 ft. 2 in. below modern ground surface. **11.** edge of Feature 14 at 9 ft. 4 in. below modern ground surface. **12.** edge of Feature 20 at 11 ft. below modern ground surface. **13.** disarticulated human bones of which the possible identifications were: A and B—femurs, C—uncertain tibia, D—uncertain femur, E—proximal half of femur, F—right femur. **14.** edge of Feature 14 at 7 ft. 8 in. below modern ground surface. **16.** elephant tusks in section. **17.** edge of Feature 14 at 8 ft. 9 in. below modern ground surface. **18.** sections cut back in order to remove elephant tusks. **19.** elephant tusks. **20.** natural sand cut away in order to give access to Feature 11. The broken line X-Y indicates the position of the section of Feature 20 shown in Fig. 19.

nearly 4 ft. into the natural sand in order to expose a section of the upper part of its filling.

The problem of determining the precise stratigraphic context of this cistern was of great importance to the Clerks' Quarters sequence. Cutting I provided a number of significant pieces of evidence which bore upon this matter. Firstly, the pit Feature 10 was found to have cut away part of the upper side of Feature 23 (Plate 7). Therefore the latter must be of earlier date than the earliest part of the late phase. Secondly, a tip-line of dark brown sand and charcoal fragments, which formed part of the middle phase, extended over the top of the cistern (Figs. 17 and 18). Thus the cistern must be earlier than the middle phase. Thirdly, the top of the cistern was level with the top of Layer 9, and the latter was sealed by Layer 8, with which the upper filling of the cistern appeared to be identical. Hence it would seem that the upper filling of Feature 23 was deposited at the same time as Layer 9 became covered with later material. Evidence from Cutting II shows that the cistern was left open for so long a time that three-quarters of its considerable depth had silted up naturally before the upper filling was intentionally dumped into it. This being so, the cistern must have been at least partly contemporary with Layer 9 and with the occupation surface beneath it. Indeed it might even have been considerably earlier in *origin*. For it is necessary to distinguish between the possible relative date of the digging of the cistern and of its filling up. In the case of Feature 23 it is even necessary to distinguish two main

CLERKS' QUARTERS SITE, SOUTH-WEST SECTIONS CUTTINGS I–III

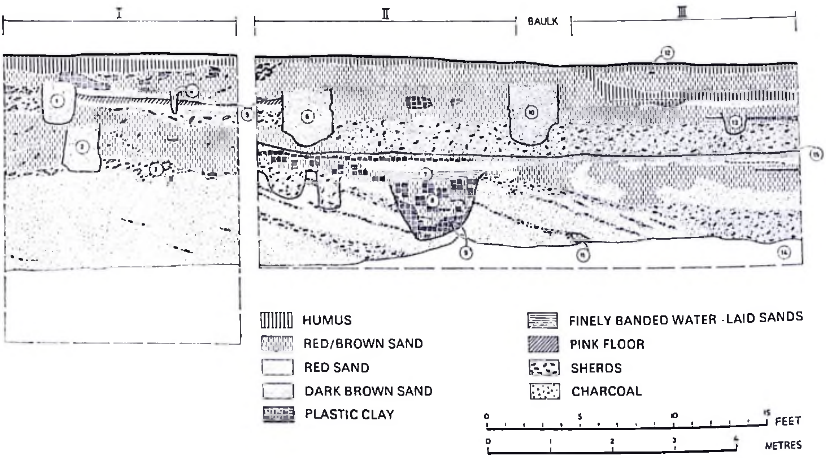

FIG. 16. Encircled numbers indicate: **1.** mud wall, Feature 1. **2.** mud wall belonging to middle phase. **3.** occupation material, Layer 9. **4.** post-hole. **5.** pink floor, Layer 5. **6.** mud wall, Feature 3. **7.** contains some brown plastic clay. **8.** drainage channel, Feature 14. **9.** group of sherds. **10.** mud wall, Feature 8. **11.** lump of burnt clay. **12.** fragment of sheet 'bronze'. **13.** mud wall, Feature 5. **14.** natural sand. **15.** buried humus which marked the hiatus between the early and middle phases.

phases in its filling: one a slow one and the other a rapid one. These might be interpreted as a period of use and an act of abandonment. It might be, therefore, that the wooden structures that stood upon the occupation surface had something to do with the ritual use of Feature 23, into whose depths the bodies of at least forty-one young women had been thrown at an early date (pp. 62–63).

With the exception of the almost sterile basal deposits which lay beneath the occupation surface, the digging of Feature 23 may have predated all the other remains of the early phase in Cutting I. Unfortunately this interpretation relies very much on the enigmatic Layer 8. Yet some verification of the identity of that layer with the upper filling of Feature 23 is provided by three elephant tusks found lying one on top of the other. These were actually in Layer 8, and on the very edge of the top of the cistern (Plate 7). They must have been related to the tusks which were found in the upper filling of the cistern in both Cuttings I and II and which seemed to be a distinctive characteristic of that upper filling. The three tusks in question were in a condition equivalent to soft cheese, but were successfully removed and the best two subsequently treated and reconstructed. The larger had almost certainly been carved but decay of the surface had removed any recognizable detail. An iron nail lay between the upper and the middle tusk.

Doubts about the precise characters of Layers 8 and 10, and about the correctness of their attribution to the early phase of Cutting I, will be further dispelled by examination of the north-east and south-west section drawings of Cuttings I, II, and III (Figs. 16 and 17). In Cuttings II and III a thin deposit of red sand occurs at a similar level to that of Cutting I, Layer 10. In those cuttings, however, it is always overlain by the buried humus which marks the beginning of the middle phase. Furthermore, deposits of red/brown sand, which could relate to Layer 8 in Cutting I, usually occur immediately beneath it.

Tables 4, 5, and 6 show the finds recovered from the early phase of Cutting I. There were fewer finds than in the middle or late phase, and less variety. Evidence of iron was still present, although rather rare, and slag from Layers 8 and 10 indicated that forging and perhaps also smelting of iron had been carried on (p. 230). Evidence for 'bronze' was even slighter, consisting only of a solitary crucible fragment from Feature 12. There were no European imports of any kind and no beads.

The middle and the late phase each represented only about a century of time, but the early phase seems to have represented a considerably longer period. In addition it is possible that a hiatus existed between the early and the middle phases. There was evidence for this in Cuttings II and III, and the absence of such evidence in Cutting I could well be due to the presence of middle phase structural material which did not occur elsewhere (pp. 44–45). The construction of the building responsible for this could have involved the removal of the buried humus which marked the hiatus in the other cuttings. The question remains, however, as to how long that hiatus was. As has been demonstrated already, the middle and late phases are datable from their contained European imports. In the case of the early phase, on the other hand, dating has had to be by radiocarbon. The dates so obtained are all from material found in Cuttings II and III. Before considering their implications it is necessary to review the relative sequence of events in the early phase of Cutting I.

The first activity on the site must have been the dumping of the considerable deposit of red sand on top of the natural sand. The absence of any old ground surface between the deposit and the natural sand, would suggest that sand had been thrown into a shallow pit. Some time later, the cistern, Feature 23, was dug through this basal pit-filling. It must have been sufficiently later for the diggers of the cistern not to know of the risk in sinking a deep shaft through made-up ground. The cistern remained in use for a long time, first perhaps for purely domestic purposes but at one stage for the disposal of execution or sacrificial victims. The occupation surface with its post-holes and other evidence of timber structures was probably contemporary with at least the later part of this time. So was the pit, Feature 12, and the occupation refuse of Layer 9. Then it seems that the cistern was finally filled up with sand and clay into which a number of elephant tusks were thrown. At the same time both the cistern and parts of Layer 9 were covered by Layer 8 which might have been destruction material from a nearby building. In turn, a thin deposit of red sand (Layer 10) partly sealed Layer 8. Layer 10 possibly originated as a scattering of clean sand over a courtyard surface. In much of the cutting, however, the walling debris of the middle phase lay immediately above Layer 9 and the foundation trench of the mud wall belonging to the middle phase cut into that layer so that the base of the wall rested on the early phase

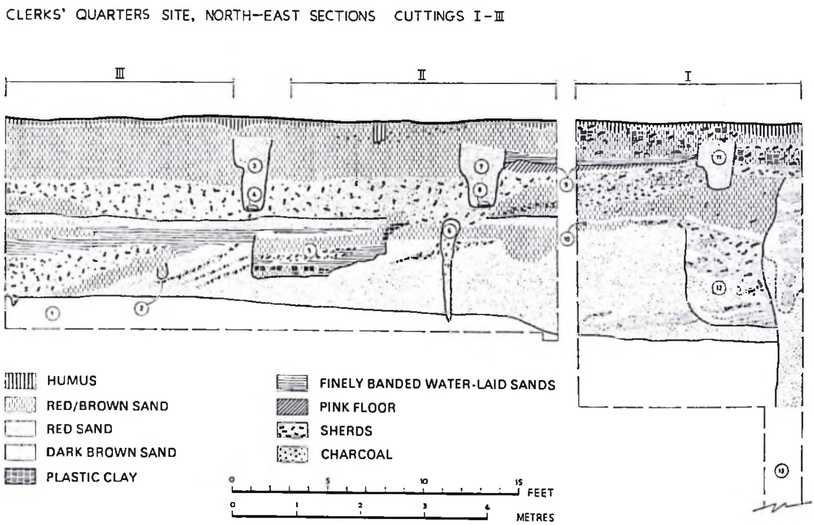

FIG. 17. Encircled numbers indicate: **1.** natural sand. **2.** post-hole. **3.** mud wall, Feature 8. **4** and **8.** foundation deposits of inverted pottery bowls. **5.** pit, Feature 13. **6.** animal disturbance. **7.** mud wall, Feature 3. **9.** pink floor, Layer 5. **10.** elephant tusk. **11.** mud wall, Feature 1. **12.** pit, Feature 12. **13.** well-like cistern, Feature 11.

occupation surface. As already suggested this presumably occurred because of the removal of humus which had sealed the deposits of the early phase.

The radiocarbon dates from Cuttings II and III, and the details of their stratigraphic context, are discussed elsewhere (pp. 61–63, 75). Here it is necessary only to consider the conclusions that may be drawn from them. The mass burial in the lower part of the cistern would date perhaps from some time around the middle of the thirteenth would date perhaps from some time around the beginning of the fourteenth century. century (p. 63). The silted filling, at approximately 4 ft. higher than the mass burial, Some indication of the length of time that the cistern may have remained open is available from the radiocarbon date for part of the early phase in Cutting III. Layer 14, which occupies a place in the relative sequence rather similar to Cutting I, Layer 9, dates possibly from some time around the end of the fifteenth century. Thus radiocarbon dates indicate that the early phase could have lasted 250 years. To this might be added the red sand pit-filling at the bottom of the early deposits and the final filling up of the cistern and sealing of Layer 9. The early phase may have spread over some three centuries, extending from the early thirteenth to the early sixteenth century A.D. This phase may have been followed by a hiatus lasting for perhaps as long as two centuries.

(b) CUTTING II (Plates 8–12 and Figs. 14–19)

(i) *Late phase.* As in Cutting I, a humus of black sand (Layer 2) was partly overlaid by a thin layer of red sand (Layer 1) which was possibly a remnant of one of Goodwin's excavation spoil dumps. Immediately beneath the humus lay more remains of the mud building, part of which had already been explored in Cutting I. Mud-walling debris (Layers 3 and 4) sealed the base of a wide wall, at right angles to which was a narrower wall (Plate 8). Within the baulk between Cuttings II and III was another wide wall to which the narrower wall was also joined at right angles. For convenience this second wide wall has been treated as part of Cutting II.

In the centre of the cutting, a shallow modern pit (Feature 1) with a filling of Layer 2, intruded into the top of Layer 3. Within its filling was a heap of bones, cowries, and glass fragments. The fragments of bone comprised the remains of the skull of either a sheep or a goat.

Layer 3 comprised the mud-walling debris down to the level at which the surviving tops of the main walls were first observed. Within it, however, was a subdivision which was designated Layer 3A. This was similarly a red/brown sand but it contained a large quantity of sherds, animal bones, and charcoal. It bore the general characteristics of a refuse layer. To the south-east of the mud wall, Feature 3 (Fig. 14), was the continuation of the pink floor uncovered in Cutting I. In Cutting II also it was designated Layer 5. Lying immediately on the surface of this floor was a deposit of rain-washed sands similar to that observed in Cutting I. This was designated Layer 3B.

Below the level of the tops of the main walls, the mud-walling debris was arbitrarily designated Layer 4. There was no discernible difference between Layers 3 and 4. No trace of any floors was found north-west of Feature 3, and this led to the over-digging

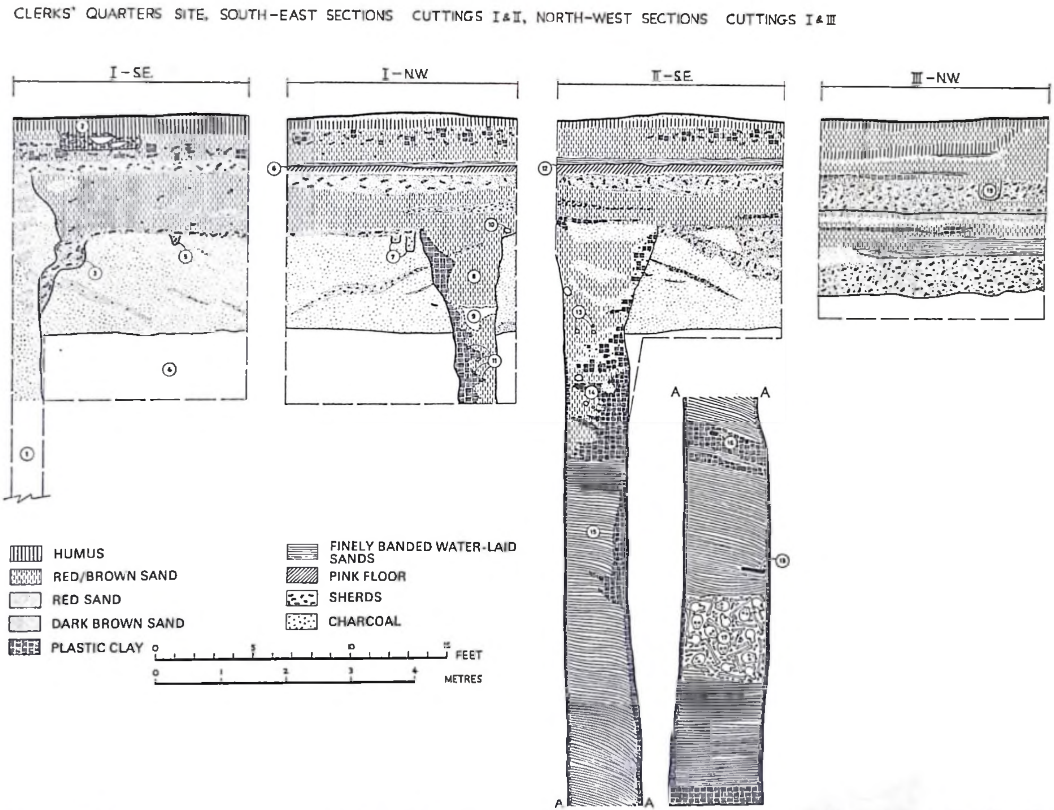

FIG. 18. Encircled numbers indicate: **1.** well-like cistern, Feature 11. **2.** modern pit. **3.** pit, Feature 12. **4.** natural sand. **5.** post-hole. **6** and **12.** pink floor, Layer 5. **7.** post-holes. **8.** pit, Feature 23, which was found to be part of well-like cistern, Feature 21, in Cutting II. **9.** disturbance caused by under-cutting from Cutting II. **10, 11, 13** and **14.** elephant tusks; three of those indicated by **11** are probably the other ends of those indicated by **14. 15.** silting of red/brown sand and light brown plastic clay in bands approximately ¼ in. wide. **16.** highest of the pieces of wood. **17.** mass burial. **18.** piece of wood. **19.** mud wall, Feature 4.

of Layer 4 so that it included nearly all the material forming the middle phase of Cutting II. Fortunately the deposits to the south-east of Feature 3 were similar to those of Cutting I. Furthermore, three-dimensional recording has enabled the sorting out of the small finds from the over-dug area into those which definitely belonged to the late-phase walling debris, those which definitely belonged to the middle-phase occupation material, and those whose context is unknown because no individual measurements were taken. On Table 7 these divisions have been designated, respectively, Layer 4A, 4B, and 4C. The dividing line between the middle and late phases has been arbitrarily fixed at a level of 3 ft. 6 in. below the modern ground surface, a depth that ensures that it is well within the middle-phase material. Material from 4C has been placed at the beginning of the late phase. Such adjustments have not been possible for the pottery; as Tables 8 and 9 show, Layer 4 has been retained as one unit placed at the beginning of the late phase. For this reason pottery from this layer was excluded from the statistical analysis (p. 183).

The exposure of Features 3 and 8 revealed that the north-west face of the former and both faces of the latter were grooved in the manner typical of upper-class Benin architecture (Plate 17) (Roth, 1903, photographs *passim*). The south-east face of the mud wall, Feature 3, was not grooved. Nor were the faces of Feature 1 in Cutting I. Yet, in the case of the wall surfaces facing into the room with the pink floor, it is probable that insufficient height of wall remained to be certain of this. Fig. 14 shows the relationship one to another of the three walls in Cutting II. The absence of any floor is strongly suggestive that this was a space between two buildings and that the subsidiary wall, Feature 2, was an outside dividing wall. The sides of this wall were rather indeterminate, but the adjacent faces of Features 3 and 8 provided confirmatory evidence of its existence. As will be observed in Fig. 14 there was in both cases an area of rough surface indicating the site of the junction with the subsidiary wall and in both cases the grooves stopped short of each side of that area.

On removal of the part of the pink floor which extended into Cutting II, it was found to be laid on a foundation of red sand (Layer 6) as in Cutting I. On removal of the mud walls, five more foundation deposits of the sort already described in Cutting I (p. 37) were found. These consisted of identical pottery bowls of Form 8 which were also identical with the example from Cutting I. They were situated in the bottom of the main mud walls; this is seen in Fig. 17 in the case of two bowls the positions of which happened to coincide with the north-east section. In the base of Feature 8 were two such bowls: the one in the section (Feature 9) and another one (Feature 10) near the possible junction of this wall with another wall, Feature 6 in Cutting III. Both of these were inverted and contained only walling material and an air space in the bottom. In the base of Feature 3 were three bowls: the one in the section (Feature 6), one just under half-way along the exposed piece of wall (Feature 5) and one at an equal distance from the last and situated some 2 ft. short of the south-west section (Feature 4). Features 4 and 6 were inverted and contained only walling material and an air space in the bottom. Feature 5, however, was placed upright; inside it, under a filling of walling material, was found a little white clay. This was probably kaolin, which seems

TABLE 7

MISCELLANEOUS									ORGANIC REMAINS								MODERN
Pottery bead	Spindle whorl	Burnt clay	Indigenous smoking-pipes	European smoking-pipe	Stone rubbers	Fragments of grindstones	Other stones	Fragment of flint	Human bones	Animal bones	Ivory	Cowries	Charcoal	Wood	Oil-palm nut	Cloth	Glass fragments
—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	X	—	4	—	—	—	—	X
—	—	—	1	1	—	—	1	—	—	X	—	—	X	—	—	—	—
—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	X	—	—	1	—	1	—	—	X	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—
—	—	X	4	—	1	—	3	1	—	X	—	—	—	—	—	—	—
—	—	—	2	—	—	—	—	—	—	X	—	—	—	—	—	—	—
—	—	—	—	—	—	1	—	—	—	—	—	—	X	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	X	2	—	—	—	—	—	—	X	—	—	X	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	1*	—	—	—	—	—	—
—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—
—	—	X	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—
—	—	X	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1	—	—	—	X	—	—	—	X	—	—	—	—
—	—	—	—	—	—	—	2	—	—	—	14*	—	—	X	—	—	—
1	—	—	—	—	—	—	—	—	X	X	—	—	X	X	1	X	—
—	—	—	—	—	—	—	—	—	—	X	—	—	—	—	—	—	—

to be the material used so often on shrines in Benin, referred to by Egharevba as 'chalk' (for example Egharevba (1960, p. 46)) and known in Bini as *orhue*.

The north-east section (Fig. 17) showed that both the two main mud walls in Cutting II and the one in Cutting I narrowed appreciably towards their bases. Goodwin (1957*b*, p. 74) has described what he called walls with 'a roughly Y—shaped section' on this site, and has attributed that shape to the fact that later, wider walls were built on the top of the stumps of earlier, narrower ones. Examination of the south-west section (Fig. 16), however, was sufficient in this case to show that in all probability the curious shapes of the wall sections observed in the opposing section were due to very local variations in the width of the foundation trenches.

Tables 7, 8, and 9 give details of the finds from the late phase of Cutting II. There was abundant evidence of iron, including both nails, presumably from the timber-work of the buildings, and other fragments. There was also evidence of the manufacture of iron in the form of slag resulting from smelting, and perhaps also from forging (p. 230), and a fragment of a bellows' nozzle. As in Cutting I, much of this evidence was actually within the mud-walling itself, or dispersed throughout the mud-walling debris. 'Bronze' was well represented in the late phase. A fragment of a plaque with a foliate background (Fig. 42, 3) came from within the subsidiary wall, Feature 2. A fragment of another (Fig. 42, 4) with the rarer, and perhaps earlier, circled-cross background (Forman, Forman & Dark, 1960) came from the ambiguous Layer 4C (p. 139). A portion of a 'bronze' head (Fig. 42, 8), being a fragment of a bead choker of a type suggesting a possible sixteenth-century date (Forman *et al.*, 1960), came from Layer 4A, the walling debris filling the space between the main mud walls. Apart from a number of other minor items and fragments of cast 'bronze', the rest of the evidence consisted of an assortment of nails, tacks, staples, pieces of wire, fragments of both decorated and undecorated trade sheet, and so on. The significance of the fragments of sheet and of the staples was more obvious in the late phase of Cutting III (pp. 67–68). It seems that they represented the remains of decoration from doors, rafters and pillars in the palace, of the sort recorded by F. N. Roth in 1897 (Roth, 1903, pp. 175–7), or from carved wooden objects (Roth, 1903, p. 209, and Figs. 243 and 244). Casting had been carried out somewhere in the vicinity as fragments of crucibles occurred, although again some of them were actually within the mud walls. One of a small number of droplets of metal, which might have originated from casting splashes, also occurred within a wall. Two others were in the walling debris, but six were found in the rain-washed sands overlying the pink floor. These might suggest that fire had destroyed the building (Goodwin, 1957*b*, p. 72) but this seems unlikely when so much other 'bronze' had escaped unscathed. Glass beads and other fragments of glass were fairly numerous, and it is again interesting to see how many of them were actually within the mud walls. The beads were possibly of both African and European origin. Other European imports included two manillas (Fig. 42, 26 shows one of these) in the walling debris; the tongue from a 'bronze' buckle (Fig. 51, 4) within the main wall, Feature 3; a fragment of a smoking-pipe; a fragment of flint (Fig. 51, 14); and all but one piece of the European china and earthenware from the cutting. A small number of fragments of indigenous smoking-pipes were found and also a very few cowries.

The tendency for small finds to occur within the mud walls, which had already been observed in Cutting I, was accentuated in Cutting II. In addition, as also in Cutting I, a reasonable quantity of sherds were recovered from these walls. Some items may have been intentionally placed within the walls for ritual reasons but the most likely explanation is that the material used to construct these late phase buildings had been dug from places which happened to contain earlier archaeological deposits.

The interpretation of the late phase of Cutting II agrees closely with that for Cutting I (pp. 39, 44). Structural remains, which had become buried in their own debris, comprised parts of the outside walls of two adjacent buildings, connected by a subsidiary wall. Part of one of these buildings had been excavated in Cutting I. Part of the other building was explored in Cutting III. The similarity of the bowls used as foundation deposits in all three main walls exposed in Cuttings I and II would suggest contemporaneity. In addition the manner in which the grooves on the opposing faces of Features 3 and 8 stopped short of the junctions with the subsidiary wall, Feature 2, would suggest that the latter was contemporaneous also. It is clear that all these structures belonged to the nineteenth century and that they probably formed part of the palace which had already collapsed some time before 1897.

(ii) *Middle phase.* Beneath the remains of the late phase was a thick layer of occupation material, the tail end of which had been found in Cutting I. This was a dark brown sand heavily flecked with charcoal and containing a large quantity of sherds. It lay directly on the buried humus which marked the hiatus between the early and middle phases. The problems attending its excavation in that part of the cutting which lay between Features 3 and 8 have already been explained (pp. 50, 52). Yet as Layer 7 it was independently excavated where it passed under Feature 3 and Layers 5 and 6. Beneath it in this part of the cutting was the tail end of a layer of red/brown sand (Layer 8) which, as the lower part of Layer 7, has already been described in Cutting I. Under this, in turn, lay the continuation of the buried humus which sealed the early phase material. At this end of the cutting this buried humus was more difficult to see, but in the south-east section its end seemed to seal Feature 21. About half-way along the south-east section but a little way out from it, and so not appearing in the section, was a shallow pit, Feature 7. This was dug into Layer 8 but contained a filling of Layer 7. Originating at the bottom of Layer 7 was a vertical feature in the north-east section (Fig. 17) which resulted from activity by termites or some other insects or animals. Its filling consisted of Layer 7 material which had fallen into the cavity; at its top was an air space.

Tables 7, 8, and 9 give details of the finds from the middle phase of Cutting II. There was much evidence of iron and of the manufacture of iron; iron-smelting and possibly forging might have been carried out close at hand, for Feature 7 contained fragments of iron, a good deal of slag, and two bellows' nozzles. Most of the evidence for 'bronze' came from the occupation material, Layers 4B and 7, and therefore would

TABLE 8

CLERKS' QUARTERS SITE CUTTING II: LOCATION OF POTTERY FORMS

ARCHAEOLOGICAL CONTEXT			FORMS																									
			1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
SUPERFICIAL:	Layer	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	2	4	—	—	11	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LATE:	Layer	3	233	—	—	3	—	21	1	—	—	2	—	2	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—
	,,	3A	—	—	—	4	—	—	—	—	P+9	6	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
	,,	3B	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	2	6	—	—	—	—	2	1	—	—	1	—	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	,,	3–6	28	—	—	1	—	8	7	7	—	3P+4	1	3	2	—	—	8	—	1	—	—	1	—	—	—	—	—	—
	Layer	4	47	—	—	9	1	28	1	21	4	6	—	5	2	—	—	6	—	—	1	—	2	—	17	—	—	—	—
MIDDLE:	Layer	7	7	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—
	Feature	7	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
	Layer	8	9	—	—	—	—	2	—	4	—	2	—	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—
EARLY:	Layer	12*	1	—	—	—	—	1	—	4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer 13 in Feature	14	3	—	—	—	—	1	—	6	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	13	4	—	—	—	—	4	1	3	2	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	9	3	—	—	—	—	4	—	5	—	—	—	8	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	Layer 10 in Feature	14	—	—	—	—	—	2	—	6	1	—	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	,, 14 ,, ,,	14	7	8	—	—	—	1	—	6	2	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	14	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature 21-Top		5	—	—	—	—	5	—	4	—	—	—	7	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	Feature 21-Below 34 ft. 7 in.		P+3	82	P	—	—	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	20	3	—	—	—	—	1	3	5	1	—	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTES: 1. Figures are numbers of sherds. 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.

2. * indicates contaminated with CQ III Layer 12.

TABLE 9

CLERKS' QUARTERS SITE CUTTING II: LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

	ARCHAEOLOGICAL CONTEXT		DECORATIONS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SUPERFICIAL:	Layer	1	4	—	—	—	—	—	5	1	—	—	—	—	—	—	—
	,,	2	32	1	—	1	—	—	11	49	—	1	1	—	—	—	—
LATE:	Layer	3	120	9	—	26	4	1	53	59	7	5	11	1	—	—	—
	,,	3A	77	6	—	1	6	—	18	63	—	—	3	—	—	—	—
	,,	3B	2	—	—	—	—	—	4	2	1	—	—	—	—	—	—
	Feature	2	20	4	—	2	—	—	5	1	3	—	3	1	1	—	—
	,,	3–6	138	9	—	20	6	—	44	17	5	2	21	1	5	2	—
	Layer	5	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	6	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	4	313	47	—	32	23	—	82	74	33	12	33	9	10	7	—
MIDDLE:	Layer	7	22	—	—	3	3	—	4	2	—	3	3	—	—	—	—
	Feature	7	17	—	—	1	—	—	—	1	—	—	1	—	—	—	—
	Layer	8	50	5	—	9	3	—	11	2	2	1	6	—	—	—	—
EARLY:	Layer	12*	—	—	—	1	—	—	—	—	1	1	—	—	—	—	—
	Layer 13 in Feature	14	12	2	—	7	—	—	1	—	—	—	—	—	—	—	—
	,,	13	18	6	—	7	—	4	7	—	2	—	—	—	—	—	—
	Layer	9	33	6	—	12	1	—	3	—	4	1	—	—	—	—	—
	Layer 10 in Feature	14	10	—	—	5	—	—	—	—	1	—	—	—	—	—	—
	,, 14 ,, ,,	14	27	2	—	14	—	—	4	—	3	1	1	—	—	—	—
	,,	14	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—
	Feature 21-Top		13	—	—	7	—	—	—	—	—	1	—	—	—	—	—
	Feature 21-Below 34ft. 7in.		61	9	—	22	20	—	7	—	3	—	6	—	—	—	—
	Feature	21	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	,,	20	21	—	—	4	—	—	4	—	—	—	1	—	—	—	—

	ARCHAEOLOGICAL CONTEXT		OTHER CHARACTERISTICS 1	2	3	4	5	6	7	8	9	10	11
SUPERFICIAL:	Layer	1	1	—	—	—	—	—	—	—	—	—	—
	,,	2	35	5	—	1	—	—	—	5	—	—	—
LATE:	Layer	3	4	3	—	—	—	—	—	46	—	—	—
	,,	3A	—	—	—	—	—	—	—	15	—	—	—
	,,	3B	—	—	—	—	—	—	—	1	—	—	—
	Feature	2	—	—	—	—	—	—	—	8	—	—	—
	,,	3–6	—	—	—	—	—	—	—	33	—	2	—
	Layer	5	—	—	—	—	—	—	—	—	—	—	—
	,,	6	—	—	—	—	—	—	—	—	—	—	—
	,,	4	1	2	1	—	—	—	—	108	—	3	—
MIDDLE:	Layer	7	—	—	—	—	—	—	—	3	—	—	—
	Feature	7	—	—	—	—	—	—	—	—	—	—	—
	Layer	8	—	—	—	—	—	—	—	—	—	1	—
EARLY:	Layer	12*	—	—	—	—	—	—	—	16	—	—	—
	Layer 13 in Feature	14	—	—	—	—	—	—	—	2	—	—	—
	,,	13	—	—	—	—	—	—	—	5	—	—	—
	Layer	9	—	—	—	—	—	2	—	8	—	—	—
	Layer 10 in Feature	14	—	—	—	—	—	—	—	3	—	—	—
	,, 14 ,, ,,	14	—	—	—	—	—	—	—	2	—	—	8
	,,	14	—	—	—	—	—	—	—	—	—	—	—
	Feature 21-Top		—	—	—	—	—	—	—	—	—	—	—
	Feature 21-Below 34ft. 7in.		—	—	—	—	—	—	—	30	—	—	—
	Feature	21	—	—	—	—	—	—	—	—	—	—	—
	,,	20	—	—	—	—	—	—	—	—	—	—	—

NOTES:
1. Figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses.
2. * indicates contaminated with CQ III Layer 12.

not be so likely to have been derived from earlier deposits as was the case with some of the items found in the late phase. Nevertheless this possibility would exist in the case of Layer 8 from which came a little of the evidence. Glass beads and other fragments of glass were restricted to the occupation material. The beads were possibly of both African and European origin. Two of them are thought to have been made in Holland in the period 1650–1700 (p. 172) but the same occupation material produced a faience bead said to have been made in Egypt possibly in the 'first centuries A.D.' (p. 172). The only other European import consisted of a fragment of earthenware of uncertain date and origin (p. 234). A small number of fragments of indigenous smoking-pipes were found in Layers 4B and 8.

The interpretation of the middle phase of Cutting II is much the same as for that of Cutting I. Mud-walling debris was overlain by occupation material which seemed to consist of the remains of a rubbish dump which was perhaps levelled prior to the construction of the late phase buildings. The foundation trenches of the walls of those buildings were dug into this material. In much of Cutting II the mud-walling debris was absent, however, and the occupation material lay directly on the buried humus of the hiatus between the middle and early phases. As with Cutting I, a date in the eighteenth century is likely for the middle phase as a whole but the tailing off of the walling debris may mean that the beginning of that century is not represented.

(iii) *Early phase*. The situation below the buried humus can be seen in the upper part of Fig. 15. Substantial areas of the cutting were covered by spreads of red sand (Layers 12 and 12A) which compared both in appearance and stratigraphic position with Layer 10 in Cutting I. Like that layer they also had originated possibly as a scattering of clean sand over a courtyard surface. One such area of sand is not shown on the plan. This was in the eastern corner of the cutting, was observed only in section, and can be seen in Figs. 17 and 18. It formed the uppermost part of the filling of Feature 21. All these spreads of red sand were subsequently found to lie over fillings. It was as if the sand represented an attempt to level-up a surface made uneven by the settlement of these fillings. In one of these spreads (Layer 12) there was a shallow pit (Feature 11) with a filling of buried humus. Beneath the former baulk between Cuttings II and III lay a small area of decomposed granite similar to that which made up the pink floor in the late phase of Cutting I. This was one of four such spreads, the rest of which lay in Cutting III. Possibly they represented the last vestiges of the floor of a building. In the rest of the cutting lay a mixed deposit of brown and red sand containing patches of red clay (Layer 9). It was thought to have been a continuation of Layer 8 in Cutting I and like that layer it proved difficult to distinguish from the layer above it when the time came to draw the sections (p. 45). In the case of the south-east section it was so difficult that it has been omitted from the section drawing (Fig. 18).

Lying beneath most of Layer 12 was a finely-banded deposit of red and red/brown sands with some brown plastic clay (Layer 13). The banding was horizontal and suggested that the deposit was a water-laid one. In Cutting III, at a similar level, was another deposit of this type. It was of red, red/brown, and dark brown sands arranged in horizontal bands which were of ¼ in., or less, in thickness. The tail end of this latter deposit sealed Layer 12A in Cutting II but this fact was only observed in section. It appears that Layers 9, 12, 12A and 13 were all roughly contemporary.

The early phase of Cutting II was dominated by four main features. First was Feature 21, the deep cistern of which part of the top had been investigated in Cutting I as Feature 23. Second was a substantial ditch, Feature 14, one end of which coalesced with Feature 21 and the other end of which ran into the south-west section. Third was another deep cistern, Feature 20, and fourth a shallow pit, Feature 13. Plate 9 gives some idea of the resultant complexity. It shows Cuttings II/III when the excavation of these features was in progress. The bottom of the cuttings as seen in this plate was the top of Layer 16, the number of which was the same in both cuttings. This was the virtually sterile pit filling that constituted the earliest part of the early phase. Features 20 and 21 were cut through this, Feature 14 was cut into it, and all three of these features originated from its surface. Feature 13 cut into Layer 16 but originated at a higher level than its surface. It is probable that Layers 9, 12, 12A, 13 and Feature 13 were all roughly contemporary.

The south-west section showed that Layer 9 continued to the north-west of Feature 14. As Layer 12 it formed an important element in the stratification of the early phase of Cutting III. Material equivalent to the occupation deposit, Cutting I, Layer 9, was relatively rare in Cutting II. It was represented, as Layer 15, by the fillings of a group of three small pits around the southern corner of the cutting. They were cut into Layer 16 which contained occasional tip-lines of dark brown sand and a little charcoal. In the south-east and south-west sections these tip-lines were more frequent than elsewhere, with the result that their confusion with material of Layer 15 was all too easy. A minor stratigraphic coalescence of this sort occurred in the south-east section near the edge of Feature 21 but a more serious one took place in the south-west section to the north-west of Feature 14. The details of this will be found discussed in the description of Cutting III (p. 74).

Feature 21 was a well-like cistern which at the top of natural sand had probably been of elliptical plan measuring some 3 ft. 6 in. × 4 ft. 6 in. Because of its extension through the 1 ft. wide baulk between Cuttings I and II and its intrusion to a maximum of 1 ft. into Cutting I itself, the part available for excavation in Cutting II was reduced to a semi-circle approximately 3 ft. 6 in. × 2 ft. in measurement. The walls of the cistern were not perpendicular, however, and these dimensions varied considerably. Fig. 18 shows the situation in detail. As with Feature 11 in Cutting I, it was necessary to excavate the filling along with a slice of the natural sand which formed the wall of the cistern.

The fact that the south-east section bisected Feature 21 had both advantages and disadvantages. It allowed a careful scrutiny in section of the upper parts of the feature —allowed it indeed from two sides. Furthermore, it enabled the excavation of the whole feature to be carried out in section. However, if it could have been known at an early stage how deep the feature was to prove, or what was to be found in it, steps would have been taken to remove the south-east section. The bottom of the cistern lay at a depth of just over 46 ft. below the top of natural sand, which at this point was only slightly higher than the lower limit of general excavation. The bottom was 52 ft. below the top of the feature itself as observed in the south-east section and just under 58 ft. below the modern ground surface. Normally only one man at a time could work in the cistern and all of the excavated spoil had to be hoisted to the ground surface in a bucket at the end of a rope. As the depth increased, so did the problems. The circulation of air was adequate but not good, the temperature was unbearable. Crouched in a confined space, the excavator grew rapidly more cramped, and perspired so heavily that he was soon coated from head to foot in a muddy covering derived from the loosened filling. Added to this, the lighting gradually deteriorated as the work grew deeper. It can be imagined what the excavation problems were when, at a depth of about 36 ft. below the cutting floor, was found the top of a mass of human bones. These completely plugged the cistern for a depth varying between 3 ft. 9 in. and 4 ft. 8 in. The digging of Feature 21 in section was to create one final problem. It meant that approximately a third of these bones were not retrievable as they lay behind the face of the unexcavated section, probably 1 ft. 6 in. to 2 ft. wide. Immediately prior to back-filling Feature 21, an attempt was made to get some of these out. It was abandoned when it was realised that the section would almost certainly collapse and bury the excavator. The feature was finally filled in again leaving a slice of unexcavated filling throughout its whole depth.

Feature 14 appeared to have functioned as a drainage channel to carry water into Feature 21. At times the volume of water must have been substantial, because the sand forming the sides of the channel had been quite heavily eroded and the bottom of the channel where it joined Feature 21 had become incised. At a position about half way along the north-western edge of the channel, the erosion had sculptured the side into a curiously shaped hollow (Plate 10). This marked the site of Feature 20, another well-like cistern which evidently predated Feature 14 and by inference Feature 21 also. This had been dug from the surface of Layer 16 and abandoned and back-filled before Feature 14 had partly cut through its filling.

The stratigraphy of the fillings of these three features requires careful attention. The uppermost element in that of Feature 14 was Layer 12 (p. 57). Below this was Layer 13 (p. 57). In the surface of Layer 13, sealed by Layer 12, and at a position which placed it over the top of the site of Feature 20, lay an elephant tusk 1 ft. 7 in. long (Feature 12). This tusk was in a fairly advanced condition of replacement. Neither Layer 12 nor 13 lay below the upper edges of Feature 14. The reason for this is that Feature 14 seems to have been intentionally filled in. This filling either settled slightly or was eroded slightly by water which attempted to run along its old course. A depression formed over the site of Feature 14 and in this depression the deposit of water-laid sands referred to as Layer 13 was formed. Clearly it was to deal with this wet hollow that the red sand, Layer 12, was laid down as part of a general process of levelling-up the surface in this area (p. 57). The intentional infilling of Feature 14 consisted of a mixture of red/brown sand and brown plastic clay which was designated Layer 10.

Although there is a slight difference in the description used, this material compared with Layer 9 (p. 57). It formed the greater part of the filling of Feature 14 and in a somewhat modified state formed the upper part of the filling of Feature 21. Within the last feature it contained the much replaced remains of fourteen elephant tusks. It seems likely that Feature 14 and the upper part of Feature 21 were filled in at the same time that Layer 9 was deposited. It would follow, therefore, that Layers 9, 10, 12, 12A, 13, and Features 12 and 13 were all roughly contemporary. It would appear that collectively they represented the abandonment of Features 21 and 14. It is possible that Layers 9 and 10, like Layer 8 in Cutting I, might have been building debris, and this, together with the water-laid sand in the depressions and their subsequent levelling-up with red sand, would suggest that building operations were in progress in the vicinity. The area occupied by the excavator's cutting seems to have been tidied up and then allowed to grass over. Very probably it had become a small part of one of the large open courtyards of which the palaces of the Obas of Benin seem to have had such a large number (see for example Roth, 1903, p. 175).

So much for, as it were, the 'death' of Features 14 and 21, but what of their 'life'? Below Layer 10, Feature 14 contained a mixed deposit of brown plastic clay and red/brown sand, of which the greater part was the clay. This was designated Layer 14. Although it may be hard to believe, in a channel where such erosion had taken place (p. 59), this deposit seems to have been laid down during the time that the feature was actually in use. Bearing in mind the nature of the climate in Benin, it is likely that the quantity of water which flowed down the channel would have had a marked seasonal variation. During a wet season storm it must have been sufficient to cause erosion but in between such storms and during the whole of the dry season, it would have been at most a trickle of water. The greater part of the filling of Feature 21 suggests that this must have been the case. Such conditions seem to have led to the formation of the plastic clay in the bottom of Feature 14. No doubt this process was helped by the partial blockage of the channel at its narrowest point by the decomposing remains of parts of at least two, if not three, human bodies. For as will be seen in Fig. 15 and in Plate 10, this basal deposit contained a confused jumble of human bones amongst which lay four plain bronze bracelets (one was analyzed as bronze (p. 232); the others are inferred to be bronze). The bones were in such an advanced state of replacement that anatomical examination was virtually impossible. All that can be said of them is what was observable *in situ*: that there was a group of long bones, of which three comprised femurs, whilst a fourth was part of a femur, a fifth a doubtful femur, a sixth a doubtful tibia, and all the others unrecognizable. No traces of any skulls were found. It is indeed possible that the bodies had been beheaded, but it is equally possible that the skulls, along with many of the other bones, had been washed down the cistern when decomposition had become so advanced that the bodies had disintegrated. It is possible that the bones found in the channel represent merely portions of bodies that got left behind. That this may have been the case is suggested by the bracelets found with the bones. The one that was analyzed gave rather similar results to the analyzed sample of the bronze items found with the mass burial in the cistern. Also all four of the bracelets belonged to the two most common types (Types 1 and 2, see p. 143) amongst the forty-nine bracelets found in the cistern. Amongst the human bones in Feature 14 were a number of potsherds and these, together with a group of sherds in the south-west section (Figs. 15 and 16) and the sherds from Layer 14 as a whole, contained examples of pottery Form 1A. The only other place in Cutting II where sherds of this form were found was in the lower filling of Feature 21. Such evidence as exists is at least suggestive that the bones in the channel were chronologically related to those in the cistern.

In the following description of the excavation of Feature 21 all depths are measurements from the observed top of the shaft itself, as seen in the south-east section.

At a depth of approximately 12 ft. 6 in. the filling of the cistern changed from Layer 10 (p. 59), which here had an admixture of red sand and a concentration of brown plastic clay. It became, instead, a silted filling of alternate bands of red/brown sand and yellow/brown plastic clay of a consistency similar to butter. These bands were of approximately ¼ in. thickness and roughly horizontal. They formed the greater part of the filling of the remainder of the cistern. As the depth increased they became tilted, at first only slightly but gradually quite steeply. At the bottom of the shaft, however, they were again horizontal. All the characteristics of this filling suggested that it was a water-laid one. As its excavation progressed, virtually no archaeological material was found in it until, at a depth of 32 ft. 11 in., the excavators came across a piece of wood, part of which was embedded in the section (Fig. 18). This proved to be 5 ft. 7 in. long, 4–6 in. wide, and 1½–2½ in. thick. It had been roughly squared and had been preserved by the moist, non-aerated filling in which it lay. Although in a blackened condition it had not been burnt but had become partially carbonized during the time that it had lain buried. Below this piece of wood the banded filling continued as before, until, at a depth of 34 ft. 7 in., a second piece of wood was uncovered. This was a veritable baulk of timber, for it measured 3 ft. 8 in. long, 7–9 in. wide, and 5 in. thick. It was squared, and one end had been cut, although whether by an axe or saw was impossible to say. The other end had been burnt but otherwise its condition was similar to the first piece. The timber lay in a roughly horizontal position with the burnt end to the south-west. Between the timber and the section was a human skull, cranium uppermost. At the same level occurred fragments of pottery and a fragment of an oil-palm nut. The pottery fragments continued to occur until a depth of 37 ft. 5 in. had been reached. At locations between 34 ft. 11 in. and 35 ft. 11 in., however, were found a small number of fragments of cloth, preserved for the same reasons that the wood had been preserved and similarly carbonized. From a depth of 36 ft. 11 in. came a decorated 'bronze' bracelet (Fig. 46, 2). Between depths of 37 ft. 1 in. and 39 ft. 3 in. were found four more pieces of wood. One of these, actually lying at a depth of 37 ft. 1 in., consisted of a thin board which ran into the section (although it does not appear on the section drawing) and had to be broken off in order to remove it. The part that was recovered measured 3 ft. 3 in. long, 7–8 in. wide, and about ½ in. thick. There were three other pieces of wood, but these were fragmentary in comparison. They appeared to have been pieces of thin boards. Two samples from the large piece were submitted for radiocarbon dating: the results were A.D. 1230 ± 105 (N–376) and 680 ± 120 B.C. (I–2721). The second date seemed to conflict so wildly with all the other chronological evidence that a third sample was taken from the wood and submitted to the laboratory concerned. After careful investigations it was decided that the result for I–2721 was inaccurate, and the third sample was dated A.D. 1385 ± 100 (I–3622). From these results it would appear that a date some time around the beginning of the fourteenth century may be indicated. Lying partly under the edge of this large piece of wood, and running into the section, was a sizeable piece of bone which has been identified by Happold as part of a rib, possibly of an elephant.

Excavation continued until, at a depth of 40 ft. 2 in., occurred another small piece of wood. This was again part of a thin board, and in this case it appeared to have been burnt at one end. This also ran into the section and had to be broken off in order to remove it. It will be found marked on the section drawing (Fig. 18). At depths between 40 ft. 4 in. and 40 ft. 7 in. were found four more small pieces of wood, all of them parts of thin boards, one of which had a sawn end. At 40 ft. 11 in. was revealed the top of a compact mass of human bones.

It appeared that the bones of many individuals had become jumbled together after decay of the flesh and softer tissues. For instance, a skull found cranium uppermost had its mandible lying to one side, lateral surface uppermost. The positions of neither of them bore any relation to those of the bones lying around them. Amongst these upper bones were two bronze bracelets, both of them standing on edge in the filling. There were fragments of cloth, indeed the inside of the mandible already mentioned was found to be filled with a mixture of cloth and clay.

In spite of the disordered appearance of the mass of bones, some evidence of articulation was present. Thus some of the skulls were found with the atlases and axes still adhering to their bases. Indeed there was one case where a number of cervical vertebrae were still articulated to the skull. One femur was found articulated into the acetabulum of an innominate bone. The bones of a whole arm were found articulated: humerus, radius, and ulna in a tightly flexed position. Many skulls had mandibles still articulated, mostly in a clenched position but in one case in a gaping position. Yet the bones did occur in an incredibly confused mass, so entangled one with another as to make removal very difficult especially in the confined space available. Comparatively little earth lay between the bones, so densely were they packed together. What earth there was consisted of a sticky yellow/brown plastic clay, mixed to some extent with a red sand of which hard crusts had formed on some of the bones. The bones themselves were in an extremely good state of preservation, especially considering the usual state of bones after burial for any length of time in the soil of Benin. Like the pieces of wood and the fragments of cloth, their condition was due to the unusual circumstances of the moist, non-aerated filling in which they lay. After removal they were spread out in a cool, shaded place and allowed to dry off naturally. No marked shrinkage or distortion resulted but some cracking and powdering of the surface was noticed after drying was completed. This was successfully treated by immersion in some cases in a solution of *Bedacryl* and toluol, and in others in a solution of *Durofix* and acetone.

Mixed with the bones were forty-eight bronze bracelets, of which a selection will be found in Figs. 45, 3–11; and 46, 1 and 3–8. One has been analyzed as bronze (p. 232), the others are merely inferred to be bronze. There were five heavy bronze penannular objects, perhaps large manillas, one of which is illustrated in Fig. 44, 1. All five of these have been analyzed as bronze (p. 232). There were three bronze spiral finger-rings, two of which are illustrated in Fig. 42, 14, and 16. These are inferred to be bronze. There were also numerous fragments of cloth, a few glass beads, a small number of agate beads and one pottery bead. In addition there were a few sherds, some charcoal fragments and, at a depth of 41 ft. 11 in., another small piece of a thin wooden board. Other fragments of wood occurred and a fragment of oil-palm nut was also found.

Two samples of charcoal found amongst the human bones were submitted for radiocarbon dating: the results were A.D. 1180 $\pm$ 105 (N–377) and A.D. 1310 $\pm$ 90 (I–2722). Mr. S. G. H. Daniels of the Department of Archaeology, University of Ibadan, has examined these dates statistically and has calculated a maximum likelihood estimate of A.D. 1255 assuming that both the dates refer to the same event.

On a line sloping from 44 ft. 8 in. to 45 ft. 7 in. the mass of bones finished as suddenly as it had begun. The banded filling resumed and continued as before. Below 46 ft. 2 in. sherds occurred and at depths of 47 ft. 3 in. and 47 ft. 10 in. were found two shattered pots which when rebuilt proved to belong respectively to Form 1 and Form 1B (Figs. 25, 4; and 27, 1). The bottom of the cistern was reached at 52 ft. In the last foot of the filling the bands of yellow/brown plastic clay came to predominate over those of red/brown sand to such an extent that it was not possible to show the latter on the section drawing. This situation occurred also at two adjacent points some distance above the burials. Indeed, from roughly the level of the top of the natural sand downwards the entire shaft was lined with the yellow/brown plastic clay. This lining was usually of only an inch or so in thickness and this has been exaggerated on the section drawing (Fig. 18) in order to show it clearly.

There seem to be three possible ways in which this lining may have been formed. Cylindrical shafts in Benin are not, properly speaking, wells. That is to say they were not dug to tap an actual water-table. Indeed, water-supply seems to have long been a problem in Benin City because of the inability to reach subterranean water-sources with hand-dug wells. Traditionally water was obtained at least partly from the Ikpoba River, at a distance of a little over two miles from the centre of the city. Centuries of use had incised into the landscape the waterpaths which led to the river (Roth, 1903, p. 173 citing Foreign Office Report; Goodwin, 1957*b*, pp. 84–5; Goodwin, 1958, pp. 51–2). Yet it is clear that carrying water for such a distance, part of which involved climbing the Ikpoba Hill as it is now known, was avoided whenever possible. The Benin excavations would suggest that cisterns for collecting surface water during the wet season must at one time have been fairly numerous, even if their value was limited during the late dry season. The Benin sands have a moderately high clay content and it seems to have been a practice, in at least some parts of the areas in which these or similar sands are found, to ram the sides of a cistern with a baulk of timber in order to form a skin of impermeable clay over them. It is probable that Feature 21 was originally intended as just such a cistern, and the first way in which the lining of clay might have been formed would have been by this means. It seems unlikely, however, that such a thick lining could be formed merely by ramming the sides. Perhaps, therefore, the lining was actually plastered on by the diggers of the cistern. Thirdly, and perhaps most likely, however, the clay might have been deposited naturally on the walls of the cistern from the water draining into it out of the channel, Feature 14. From the silted filling with its alternate bands of sand and clay it is apparent that this water carried a substantial quantity of both coarse and fine particles. The latter must have remained in suspension for some little time so that the sides of the shaft became coated with them. Thus, after each rainstorm, the coarser, heavier particles would quickly form another band of sand whilst the finer, lighter ones would more gradually form a band of clay above this and, within the limits of the depth of the water at that particular time, add a little to the clay on the cistern walls. Theoretically it might have been possible to assess the number of rainstorms involved by counting the pairs of bands in the filling itself, although from the practical point of view this would have been very difficult and, in fact, it was not done.

Feature 20 was a well-like cistern approximately 3 ft. wide in its upper part and 28 ft. 5 in. deep (Fig. 19). Its excavation was commenced at the lower limit of general excavation in Cutting II. Apart from a change at a depth of 14 ft. 10 in., the filling was markedly homogeneous suggesting that the cistern had been abandoned and intentionally back-filled. This is made more likely by the lack of any silt in the bottom of the feature and by the fact that the only finds were a little pottery and some fragments of undiagnostic animal bone. From stratigraphic evidence it is apparent that Feature 20 predated both Feature 14 and Feature 21 (p. 59).

Tables 7, 8, and 9 give details of the finds from the early phase of Cutting II. There was a reasonable amount of evidence for the use of iron but little for its production. There was relatively little evidence for 'bronze' except in Features 14 and 21 where there was a great deal. A small selection of the objects involved were analyzed and actually proved to be bronze. It was noticeable that all of the objects appeared to have been made by smithing and chasing techniques and it is inferred that the ones that were not analyzed might also have been actually of bronze. Evidence of 'bronze' casting was rare and was mainly restricted to Layers 9 and 10, the exception being a solitary fragment of crucible which was found in the lower part of the filling of Feature 21. Glass beads were rare except for twenty very small yellow ones from amongst the human bones in Feature 21. None of them need have been imported from Europe, neither were there any other European imports nor any evidence of pipe-smoking. Amongst the only possible imports of any kind were two beads, both from Feature 14, one being in Layer 10 and the other in Layer 14. Van der Sleen has identified these as being of Egyptian faience (p. 172). There were also four agate beads whose origin may have been somewhere outside the confines of modern Nigeria. Lastly, it should be emphasized that the damp and non-aerated conditions of the lower parts of Feature 21 have made a most significant contribution to our knowledge of the period to which this cistern belonged, by preserving substances that normally cannot survive in the Benin soil.

The interpretation of the early phase of Cutting II is the same in general as that for Cutting I (pp. 48–50). A virtually sterile pit-filling was formed perhaps some time before the middle of the thirteenth century A.D. Through this was cut a well-like cistern (Feature 20) which was abandoned and back-filled. Possibly the filling of this feature

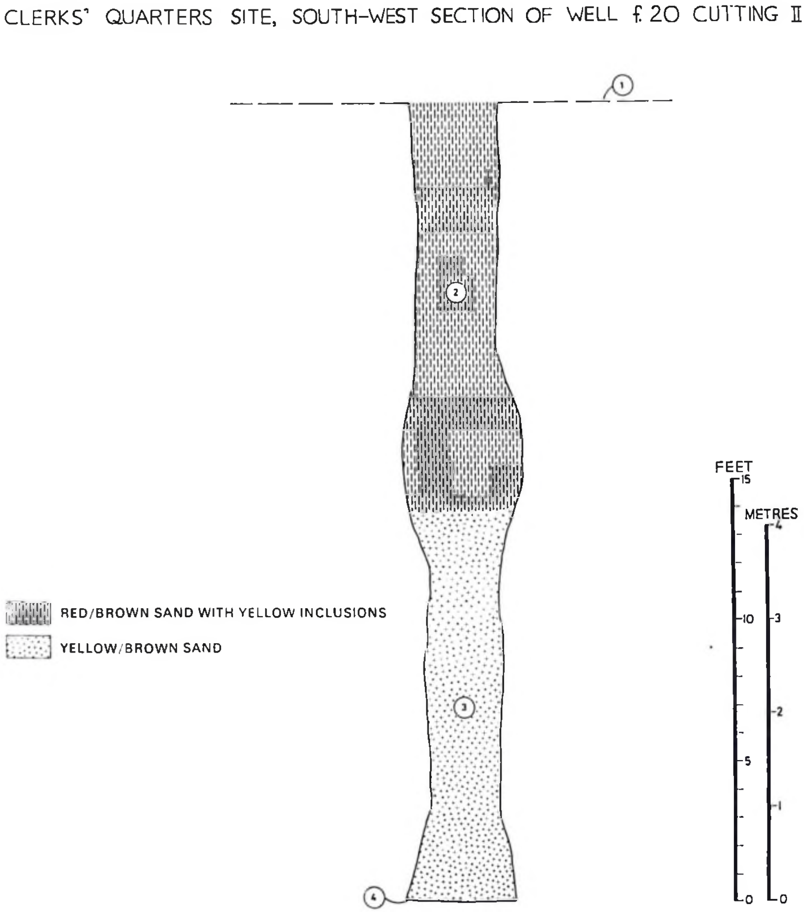

FIG. 19. This section of Feature 20 was located at X–Y on Fig. 15. Encircled numbers indicate: 1. lower limit of excavation of Cutting II. 2. upper filling. 3. lower filling. 4. bottom of well-like cistern.

also predated the middle of the thirteenth century, as did the digging of an unusually deep well-like cistern nearby (Feature 21). Contemporary with this was a drainage channel (Feature 14). After a considerable lapse of time, perhaps around the early sixteenth century A.D., the heavily silted Feature 21 and the less heavily silted Feature 14 were filled up and the whole area levelled off to become a grass-grown open area within the palace.

Features 14 and 21 require closer examination. It seems that Feature 21 was dug as a cistern specially fed by the drainage channel Feature 14. The presence of two shattered pots near the bottom of its filling would suggest in fact that Feature 21 was originally used as a water-supply. It is possible that the channel was in turn fed by a nearby impluvium, or perhaps by a number of impluvia. Goodwin (1957*b*, p. 68) has described how an underground drain led from each impluvium of a Bini house, whilst Roth (1903, p. 187), citing Punch, has described how such drains were made. Perhaps it was at one time customary for these drains to empty into an outdoor drainage channel which supplied a cistern.

Possibly around the middle of the thirteenth century, after the cistern had been in use for some time, at least forty-one, probably female, bodies were dropped down it. Anatomical examination of the skeletal remains of these bodies (p. 212) has indicated that the individuals concerned had an age-range of 15–35 years and radiological examination (pp. 216–217) has suggested that this could be narrowed to perhaps 19–24 years. The bones gave no clue as to the cause of death. Evidence found with them suggests that some of the bodies were clothed when they were dropped into the cistern and that they were still wearing their bracelets, finger-rings and beads. No bracelets were found actually encircling bones, however, and the presence of the heavy bronze manilla-like objects is difficult to understand. The throwing of bodies into pits or wells in Benin during the past has been fairly well documented. Allman (1897) cited by Roth (1903, p. 69) referred to pits 12 ft. in diameter and 40 ft. deep. He had examined seventeen such pits, principally in the vicinity of the palace, of which seven contained bodies. Punch, cited by Roth (1903, p. 102) wrote of having seen such a pit 'about 60 feet deep', which 'was empty and only just finished'. Burton, in 1862, cited by Roth (1903, p. 169) recorded having seen a 'wide and deep well' into which sacrificial victims were thrown. A sketch plan of 'the king's compound' by Roupell, published in Roth (1903, p. 184) marked a 'well' in one corner, of which was written: 'The ground here caked like cement with spilled blood'. It appears that Feature 21, having started off as a water-storage cistern, was used as a hole in which to dump bodies, but was so used on only one occasion. After this event the cistern continued to silt up as before.

Yet not quite as before. The first 9 ft. of silt laid down over the bones contained some interesting evidence. An assortment of pieces of wood, three of them being quite large pieces, found their way into the filling. All of them were of iroko (p. 220), today often regarded as the Oba's timber, and possibly at one time reserved for the Oba's use. The majority were pieces of thin boards and nearly all showed evidence of having been shaped, perhaps with a saw (p. 220). In two cases, and one of them was the baulk of timber at 34 ft. 7 in., the pieces were burnt at one end. Three quite large pieces of charcoal were also recovered; they too were iroko. By the baulk of timber lay a human skull, situated 6 ft. 4 in. above the top of the other human bones. Just below this a few cloth fragments occurred scattered through a foot depth of the filling, although the only other place in which such fragments were found was with the mass of human bones. Below these fragments lay a solitary 'bronze' bracelet, 4 ft. above the highest of those with the human bones and identical to one of those found with the bones. Then as suddenly as they had started, the series of events which had led to these things getting into the cistern must have stopped; for more than another 20 ft. the silting was practially sterile.

When the cistern had silted up to within 12 ft. 6 in. of its top, it was filled up and levelled off with the rest of the surrounding area. But its significance may not have been forgotten. The substantial number of valuable elephant tusks which were placed in the upper filling were perhaps a recognition of this.

(c) CUTTING III (Plates 9 and 11, and Figs. 14–18)

(i) *Late phase.* As in Cuttings I and II, a humus of black sand (Layer 2) was partly overlaid by a thin layer of red sand (Layer 1) which was possibly a remnant of one of Goodwin's excavation spoil dumps. Beneath the humus lay a red/brown sand (Layers 3 and 3A) which was probably mud-walling debris. Along the north-east and south-east sides of the cutting this merged imperceptibly with similar material below, resulting in a stratigraphy comparable with that observed in the upper parts of Cuttings I and II. In the rest of Cutting III, Layers 3 and 3A overlay buried humus (Layer 4) that occupied a depression which tilted slightly downwards in a south-westerly direction. To the north-east and south-east the edges of this depression were roughly parallel to the adjacent sections and from 1 ft. 3 in. to 3 ft. distant from them. To the north-west and south-west the depression ran into the sections and can consequently be observed in Figs. 16 and 18. The lower part of the overlying mud-walling debris was excavated as a separate unit designated 3A, but Layers 3 and 3A can be considered synonymous. Examination of Tables 10–12 will show how rich in archaeological material Layer 4 was, particularly for a deposit nowhere greater than 1 ft. in thickness and in most places far less. There were numerous fragments of sheet 'bronze', much of it decorated, and imports of European origin were more common than in any other archaeological deposit excavated by the writer in Benin. These imports were of nineteenth-century date, the majority probably belonging to the latter part of the century. The significance of the fragments of sheet 'bronze' and of the many staples found with them has already been referred to (p. 53) in discussing similar finds from the late phase of Cutting II. It seems that they were the remains of decoration either from doors, rafters, and pillars in the palace, or from carved wooden objects. It seems likely that the sheet metal concerned, although decorated in Benin, was also a European trade commodity. Indeed Cyril Punch (Roth, 1903, pp. 101–2) records that he brought Muntz metal to Benin and that it was used to cover doors in the palace. Muntz metal is a brass, being 60 per cent copper and

40 per cent zinc. Thus Layer 4 comprised buried humus containing material suggestive of late nineteenth century destruction. It is probable that this refers to the 1897 punitive expedition and to the levelling of parts of the palace which followed it. Material must have become scattered over the topsoil from nearby buildings and then covered with the debris from the demolished walls.

The depression in which Layer 4 was situated had probably originated from a very shallow pit dug into the collapsed mud-walling of earlier buildings. This was no doubt for the common purpose of procuring building material. A thin deposit of red sand (Layer 5) then formed in the resultant hollow, probably being washed in by rain as certainly must have been the case with the finely banded water-laid sands which lay over it in places (Fig. 18). Eventually humus had accumulated in the depression as a whole.

Below the depression, and also to its north-east and south-east was a deposit of red/brown sand comprising mud-walling debris and excavated as Feature 2, Layer 6 and Layer 7. Feature 2 was merely the higher portions which had not been destroyed by the depression. Layer 6 was a slightly banded red/brown sand and Layer 7 was red/brown sand intermixed with small quantities of brown plastic clay. Layer 7 lay over Layer 8, a thick deposit of dark brown sand heavily flecked with charcoal and containing a large quantity of sherds. This was a continuation of material already encountered in both Cuttings I and II and, as with those cuttings, its upper surface formed the end of the middle phase. When this surface had been thoroughly cleaned, it revealed three late phase mud walls whose foundation trenches had been cut into it (Figures 14, 16, and 18). These walls were only about 1 ft. in width and their relationship to the other walls excavated on this site was not very clear. Probably they had adjoined Feature 8 of Cutting II and represented internal dividing walls. Although very narrow, it is possible that the gap between Features 5 and 6 had been a doorway. A band of clay visible in the north-west and south-west sections and forming part of Layer 7, may have been the remnants of a floor. At the point where Feature 6 should have joined Feature 8 of Cutting II, enough remained of the surface of the latter wall to see that a decorative groove continued unbroken across the presumed point of junction. This would suggest that Feature 6 was a later addition just as Features 5 and 6 were later additions to Feature 1 in Cutting I.

Tables 10–12 give details of the finds from the late phase of Cutting III. There was plentiful evidence of iron, particularly in Layer 4. Of special interest from this layer was a door bolt, a length of chain, some pieces of wire, some nails and some fragments of sheet. The nails probably came from the timber-work of nearby buildings and the fragments of sheet may have been from the imported galvanized iron sheets with which a portion of the palace had already been roofed by 1897 (Roth, 1903, pp. 171–3). The actual manufacture of iron was indicated by the presence of slag, some of which definitely resulted from smelting (p. 231).

'Bronze' was well represented in the late phase. Four cast *agwe* pendants were recovered from Layer 4 and are illustrated in Fig. 38, 11–13 and 15. Four cast crotals (Fig. 42, 22–4) came from the phase as a whole, three of them being found in Layer 4.

TABLE 10

	MISCELLANEOUS													ORGANIC REMAINS					
	Other fragments	Faience beads	Agate beads	Carnelian beads	(Mineral?) bead	Spindle whorl	Burnt clay	Indigenous smoking-pipes	European smoking-pipes	Stone rubbers	Other stones	Lead musket balls	Fragment of imported sword	Animal bones	Ivory	Charcoal	Wood	Tree resin	Oil-palm nut
SUI	—	—	—	1	—	1	—	1	—	—	—	—	—	X	—	—	—	—	—
LA'	—	—	—	—	—	—	—	—	—	1	—	—	—	X	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—
	X	1	2	—	—	—	—	1	3	—	X	—	—	X	X	X	—	1	—
	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	—
	X	1	—	1	—	—	—	—	1	—	—	—	—	X	—	—	—	—	—
	1	—	—	—	—	—	—	—	—	—	—	—	—	X	—	X	—	—	—
	—	—	—	—	—	—	—	1	—	—	1	1	—	X	—	—	—	—	—
	X	—	—	—	—	—	—	1	—	—	—	—	—	X	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
MI1	1+X	3	1	—	—	—	X	9	—	—	X	1	1	X	X	X	—	—	—
	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	1	—	—	X	—	—	—	—	—
EA1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	X	—	—	1
	—	—	—	—	—	—	X	—	—	—	—	—	—	—	—	—	—	—	—
NO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE 11

CLERKS' QUARTERS SITE CUTTING III: LOCATION OF POTTERY FORMS

ARCHAEOLOGICAL CONTEXT			FORMS																										
			1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
SUPERFICIAL:	Layers 1 & 2		4	—	—	10	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
LATE:	Layer	3	8	—	—	—	—	5	—	3	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
	,,	3A	6	—	—	1	—	2	—	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	4	26	—	—	4	—	10	2	10	—	6	—	1	—	—	1	—	1	—	—	—	—	—	—	—	1	2	—
	,,	5	3	—	—	1	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	2	5	—	—	1	—	12	—	2	1	1	—	—	1	—	—	1	—	—	—	—	—	—	—	—	1	—	—
	Layer	6	11	—	—	1	—	6	—	5	—	3	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—
	,,	7	12	—	—	3	—	6	—	2	—	4	—	—	2	—	—	—	—	—	—	—	—	—	3	—	1	—	—
	Feature	4	1	1	—	5	—	4	—	—	—	3	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—
	,,	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	6	4	—	—	1	P	1	—	—	—	1	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—
	,,	7	1	—	—	—	—	—	—	1	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MIDDLE:	Layer	8	43	1	—	5	1	31	—	8	7	31	—	2	1	—	4	23	—	3	—	2	—	—	11	3	1	—	—
	Feature	3	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	9	2	—	—	2	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
	Feature	9	3	—	—	—	—	—	—	8	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—
	Layer	10	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
EARLY:	Layer	11	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	10	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	12	6	—	—	—	—	5	1	3	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	13	—	—	—	—	—	5	—	4	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	14	15	—	—	—	—	17	1	57	8	—	—	5	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	,,	15	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	13	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	16	7	—	—	—	—	—	—	3	4	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	11	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	,,	12	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE: Figures are number of sherds. 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.

Table 12

CLERKS' QUARTERS SITE CUTTING III: LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

Archaeological context			Decorations															Other characteristics										
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
SUPERFICIAL:	Layers 1 & 2		57	2	—	4	2	—	13	53	3	—	3	1	—	—	—	73	16	—	—	—	—	—	—	—	—	—
LATE:	Layer	3	57	2	—	5	—	—	11	24	1	2	6	—	—	—	—	9	2P+30	—	—	—	—	—	2	—	—	—
	,,	3A	20	1	—	3	3	—	5	20	4	1	4	—	—	—	—	2	11	—	—	—	—	—	—	—	—	—
	,,	4	243	9	—	10	4	—	54	118	6	2	8	1	—	—	—	—	2P+58	1	—	—	—	—	2	—	—	—
	,,	5	13	1	—	2	—	—	1	18	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
	Feature	2	103	6	—	13	—	—	19	54	2	4	4	3	—	—	—	—	2	—	—	—	—	—	21	—	—	—
	Layer	6	76	6	—	18	—	1	29	30	3	1	8	3	—	1	—	—	4	—	—	—	—	—	20	—	—	—
	,,	7	76	6	—	14	2	—	25	15	4	5	7	1	1	1	—	—	3	—	—	—	—	—	21	—	—	—
	Feature	4	10	6	—	1	—	—	7	3	2	—	4	—	—	—	—	—	—	—	—	—	—	—	9	—	—	—
	,,	5	1	2	—	1	4	—	4	—	—	1	3	1	—	1	—	—	—	—	—	—	1	—	3	—	—	—
	,,	6	12	4	—	4	1	—	3	2	2	1	5	—	—	—	—	—	1	—	—	—	—	—	5	—	3	—
	,,	7	12	2	—	1	1	—	5	—	—	1	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
MIDDLE:	Layer	8	467	98	—	61	37	—	190	86	59	28	74	15	4	20	—	2	7	3	1	2	—	—	265	—	10	—
	Feature	3	3	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	9	17	10	—	3	1	—	5	—	3	—	1	—	—	—	—	—	1	—	—	—	—	—	9	—	3	—
	Feature	9	20	5	—	3	—	—	10	8	1	1	3	—	—	1	—	—	1	—	—	—	—	—	7	1	2	—
	Layer	10	4	1	—	1	—	—	5	6	7	—	1	—	—	—	—	—	—	—	—	—	—	—	6	—	1	—
EARLY:	Layer	11	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	10	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Layer	12	1	2	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—
	,,	13	2	2	—	7	—	—	3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	10	—	—	—
	,,	14	19	10	—	8	2	—	11	—	3	—	11	—	—	—	—	—	—	—	—	—	—	—	20	—	—	—
	,,	15	3	2	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feature	13	1	—	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
	Layer	16	11	2	—	9	—	—	3	—	2	1	6	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
	Feature	11	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
	,,	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—

NOTE: Figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses. 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.

Other fragments of cast 'bronze' were also found, one of those from Layer 4 (Fig. 41, 4) being a cylindrical object of the sort that can be seen in Forman, Forman & Dark (1960, Plates 61 and 62) forming part of the head-dress of a standing figure (p. 141). Five smithed finger-rings came from the late phase, four of them being in Layer 4. One of the latter is illustrated in Fig. 42, 15. Yet by far the greatest proportion of the 'bronze' recovered consisted of nails, tacks, staples, wire, and sheet, either flat (both decorated and undecorated) or bent round to form tubes. Examples of the nails, tacks and staples will be found amongst those illustrated in Fig. 47. A selection of the fragments of decorated sheet 'bronze' will be seen in Figs. 35 and 36. One of the most notable was that illustrated in Fig. 35, 2. This is designated Feature 1 in Table 10. In Figs. 35 and 36 all the items except Fig. 35, 13 and Fig. 36, 5, 6, and 8 came from the late phase of Cutting III, the majority being from Layer 4. Casting of 'bronze' had been carried out somewhere in the vicinity, as fragments of crucibles and droplets of metal were found.

Useful for dating purposes was the assortment of European imports most of which came from Layer 4. Of 'bronze' were two ferrules for the ends of sticks (Fig. 50, 10, and 11), a button (Fig. 50, 12), a key (Fig. 50, 8) and the tongue from a buckle (Fig. 51, 3). It is just possible that the broken cast 'bronze' object to be seen in Fig. 38, 3 was also part of an imported item, possibly a piece broken from the guard of a European sword. On Table 10 it has been entered under 'other fragments of cast'. There were fragments of glass trade-gin bottles of the square-faced variety, pieces of one of which, from Layer 4, bore the inscription 'v.MARKEN &. Co' (Fig. 50, 1). There were also fragments of wine bottles and of sheet glass which had probably originated from imported mirrors. In addition there was a fragment of a glass figure in European dress (Fig. 50, 7). Glass beads were numerous although these were possibly of both African and European origin. Smoking-pipe fragments were present and these also were of both indigenous and imported origin. One of two lead musket-balls found in this cutting came from the late phase and it is possible that this was an imported item also. Amongst the sherds excavated from the late phase there was a substantial quantity of European material (see Table 12). Outstanding were the remains of most of a bowl, (Fig. 51, 1 and 2), apparently made specially for the African market and stated by Charleston to belong to the second half of the nineteenth century (p. 234).

The tendency for small finds to occur within the mud walls, which has been commented on in the descriptions of both Cuttings I and II, was also observed in Cutting III. In addition, sherds were fairly frequent in all three walls, Features 4, 5, and 6.

The interpretation of the late phase of Cutting III differs from those of the late phases of Cuttings I and II in one important respect. This is that only in Layers 3, 3A, and 4 of Cutting III are there signs of activity which can be referred fairly certainly to the events of 1897. The capture of Benin, the looting of its shrines, the destruction of its buildings and the subsequent levelling of parts of the palace: all this may be read into the pathetic jumble of fragmentary objects found, particularly in Layer 4.

This material and the layers that contained it lay in a hollow that had probably originated as a very shallow pit cut into the mud-walling debris of the earlier, but still nineteenth-century, buildings. It is clear that all of the late phase in Cutting III belongs to the nineteenth century. Although this cutting alone contained vestiges of the 1897 events, it, like the other cuttings, contained no particular evidence of any destruction by fire.

(ii) *Middle phase.* Beneath the remains of the late phase was a thick layer of dark brown sand heavily flecked with charcoal and containing a large quantity of sherds (Layer 8). This occupation material has already been described when dealing with Cuttings I and II. Partly enclosed by it was a deposit of red/brown sand that can be seen on the section drawings (Figs. 17 and 18) in the northern corner of the cutting. This was designated Layer 9. Layers 8 and 9 lay over a thin but uniform layer of dark brown sand which continued across Cutting II. This was the buried humus which marked the hiatus between the early and middle phases in Cutting III, just as it had done in Cutting II. It was designated Layer 10. Originating at the top of this layer were two pits extending down into the early phase deposits. One of these (Feature 8) was only 8 in. deep, but the other (Feature 9) penetrated to the surface of the natural sand.

Tables 10–12 give details of the finds from the middle phase of Cutting III. There was evidence of iron in the form of nails and other fragments and evidence of its manufacture in the form of slag which resulted either from smelting or forging (p. 231). 'Bronze' was not so common as in the late phase but there was still quite a lot of it particularly in Layer 8. Four fragments of plaques of which three (Fig. 42, 1, 2, and 5) showed parts of a circled-cross background (p. 139) were recovered. It is possible that these three pieces came from the same plaque which had been broken into small pieces for re-melting. The most important 'bronze' item from the middle phase was a fragmentary bell (p. 141) found in the bottom of Layer 8, actually lying on the surface of Layer 9 (Fig. 41, 8). The object was crushed and near it were two beads, an iron nail and another fragment of iron. The whole group of objects was designated Feature 3. Also from Layer 8 were two fragments of cast bracelets one of which showed a human face (Fig. 38, 4). There was a cast crotal (Fig. 42, 25) and various other objects of 'bronze'. In addition, the nails, tacks, staples, wire, and fragments of decorated and undecorated sheet so common in the late phase occurred again but this time they were less frequent and were almost entirely restricted to Layer 8. Figures 35, 13, and 51, 19 show two items from this assortment of material. Fragments of crucibles, one droplet of metal which might have originated from a casting splash and two fragments of metal which might have been casting runners or risers are all suggestive that 'bronze' casting had been carried out somewhere in the vicinity.

European imports were not so common as in the late phase and they seemed to indicate a rather earlier date. Outstanding was part of a European sword-hilt (Fig. 50, 9), of German or Dutch origin and dated 1700–50 (p. 233). This came from Layer 8. Glass beads were numerous and included beads possibly of both African and

European manufacture. Amongst the latter were six beads thought to have been made in Amsterdam in the period 1650–1700 (pp. 175–176). There were also several fragments of square-faced trade-gin bottles, a fragment of a possibly eighteenth-century wine bottle and various other fragments of glass. In addition there was a lead musket ball (Fig. 51, 8), which possibly was an imported item also. Lastly, amongst the sherds excavated from the middle phase was a little European material (see Table 12). Outstanding amongst this were three fragments of German stoneware made in the period comprising the late seventeenth century and the first half of the eighteenth century. These may have been pieces from the same vessel. Also there was a fragment of English stoneware probably made in the first quarter of the eighteenth century (p. 235).

The interpretation of the middle phase of Cutting III is much the same as for that of Cuttings I and II. A buried humus was overlain by a thick deposit of occupation material which seemed to consist of the remains of a rubbish dump which was perhaps levelled prior to the construction of the late phase building. The foundation trenches of the walls of that building were cut into this deposit. As with the middle phase of the other cuttings, a date in the eighteenth century is likely. Indeed, it is the evidence of the European imports from the middle phase of Cutting III which is the basis for this date in Cuttings I and II. It has been seen that those imports cover a possible span of time of roughly A.D. 1650–1750. It should be borne in mind that they come from layers largely resulting from midden material. It is possible therefore that even the latest of the objects were already of some antiquity when they were lost or discarded. Therefore, in suggesting an eighteenth-century date for this phase in Cutting III itself, it would perhaps be reasonable to exclude at least the first few decades.

(iii) *Early phase*. Below the buried humus (Layer 10) were the deposits of the early phase. The uppermost of these was a thin layer of red sand (Layer 11) which covered only the north-western parts of Cutting III (Figs. 15–18). This compared both in appearance and stratigraphic position with Layer 10 in Cutting I and Layers 12 and 12A in Cutting II. Like those layers it had originated possibly as a scattering of clean sand over a courtyard surface. In Cutting III also this red sand lay over the top of material which seemed to constitute a filling and possibly it represented an attempt to level-up a surface made uneven by settlement. At about the same level as Layer 11 were four small spreads of decomposed granite similar to that which made up the pink floor in the late phase of Cutting I. One of these spreads lay beneath the former baulk between Cuttings II and III and has already been described (p. 57). Possibly these spreads represented all that was left of the floor of a building.

Beneath Layer 11 and the possible floor remnants lay a mixed deposit of red/brown sand and red sand which contained a thin layer of brown plastic clay lying across the western corner of the cutting. The whole deposit, including the clay, was bracketed together as Layer 12. In both stratigraphic position and probable function this layer may be compared to Layer 8 in Cutting I and Layer 9 in Cutting II. It would seem that these layers all represent the levelling of an uneven surface by dumping onto it material brought from elsewhere. The characteristics of Layer 12 in the south-west section of Cutting III (Fig. 16) strongly suggest this. Further confirmation is provided by the manner in which Layer 12 interdigitates with Layer 13. This latter layer consisted of a deposit of red, red/brown, and dark brown sands arranged in horizontal bands which were of ¼ in., or less, thickness. Its characteristics suggested that it was a water-laid deposit. It may be compared with Layer 13 in Cutting II. As in Cutting II these banded sands would seem to have been the result of rainfall on an uneven surface. Also, just as in Cutting II it appeared that Layers 9, 12, 12A and 13 were all roughly contemporary, so in Cutting III it seemed that Layers 11, 12 and 13 were of about the same date.

Under the deposits already described was a layer of dark brown sand heavily flecked with charcoal and containing a large quantity of sherds (Layer 14). In appearance it was similar to Layer 8 of the middle phase. Along the north-western end of the cutting Layer 14 lay directly on top of the natural sand and here it formed a thick deposit. Yet the layer sloped upwards to the south-east, narrowing until it tailed off altogether. Its south-eastern edge was marked in part by the break of slope to be seen in the lower plan of Fig. 15 stretching from the north-east section to Feature 7. From Feature 7 its edge ran to the north-eastern side of Feature 13, where it joined another break of slope which it followed into the south-western section. It seemed that Layer 14 was similar in both appearance and stratigraphic position to Layer 9 in Cutting I, and Layer 15 in Cutting II. As in Cutting II, stratigraphic coalescence had tended to occur with the tip-lines of dark brown sand and charcoal which characterized the otherwise virtually sterile deposits of Layer 16 in both Cuttings II and III. The most serious example of this could be seen in the south-west section (Fig. 16) where the tail end of Layer 14 was indistinguishable from the outcropping end of a tip-line of identical material in Layer 16. At the time of excavation this led to an assumption that Layer 14 was integral with Layer 16, but it appears now that Layer 14 was a distinct deposit with its thickest portions resting on the natural sand and its tail lying over the top of the earlier Layer 16. The north-east section (Fig. 17) shows that on that side of the cutting it was separated from Layer 16 by a deposit of red/brown sand which was probably of similar date to Layer 14. Furthermore Layer 14 covered a sloping surface of red sand which constituted the top of Layer 16 and in which were a shallow pit (Feature 13) and a number of post-holes. Clearly this was an occupation surface comparable with that sealed by Layer 9 in Cutting I. On it had stood some form of wooden structure although it was not possible to discern its plan from the evidence available within the limits of this cutting (Fig. 15). Indeed it is hard to imagine what kind of structure would have been placed on a surface with such a marked slope.

During excavation those parts of Layer 14 which formed the fillings of the post-holes and of Feature 13 were distinguished as Layer 15. Layer 14 itself has previously been referred to (Connah, 1968) as 'a rubbish pit fill'. Perhaps it would be more correctly described as a deposit of occupation material, for the assumption that the sloping surface over which it lay was necessarily part of a pit is perhaps not justified by the evidence available. A charcoal sample made up of fragments collected from Layer 14 in the north-west section was submitted for radiocarbon dating. The result was A.D. 1490 ± 90 (I–2723). Amongst the charcoal fragments comprising this sample was a fragment of oil-palm nut.

Below Layers 14 and 15 was the red sand with occasional tip-lines of dark brown sand and charcoal (Layer 16) which formed the primary deposit of this site in all three cuttings. In this cutting it produced two lumps of lightly burnt clay (Fig. 16, 11 was one of them) which retained part of a curved surface. It seemed possible that they had formed part of a mud structure of some kind.

Tables 11 and 12 list three features which have not been described above. Feature 10 consisted of two uncertain post-holes that extended from the surface of Layer 12 to its base. Features 11 and 12 on the other hand were not definable archaeological features and were of uncertain position within the sequence of the early phase.

Tables 10–12 give details of the finds from the early phase of Cutting III. With the exception of sherds there were very few finds, and there were no European imports.

The interpretation of the early phase of Cutting III presents few problems. A virtually sterile pit-filling was formed perhaps some time before the middle of the thirteenth century A.D. Partly on top of this and partly on top of an adjacent natural surface was built some form of wooden structure, the occupation material associated with which has been radiocarbon dated possibly to about the end of the fifteenth century. After this the area was levelled off by dumping sand onto it. It is possible that a building was erected on the surface of this filling but the evidence is very scanty. What is fairly certain is that the whole area eventually became a grass-grown open space and remained so for some considerable time.

(d) CUTTING IV. (Plates 1 and 13, and Figs. 2 and 9)

The circumstances which led to the excavation of this cutting have already been explained (p. 35). As can be seen in Fig. 2 it was situated some distance away from Cuttings I, II, and III. Although primarily intended to recover the residue of the Ogba Road hoard and to investigate its archaeological context, the cutting did provide a glimpse of the stratigraphy in this particular area. Situated in the front compound of A6, Government Quarters, Ogba Road, this cutting was nearer to the present site of the Oba's Palace than any other excavated during the course of the 1961–4 work.

The search with the mine-detector prior to excavation (p. 35) had indicated that the residue of the hoard was located near the northern corner of the house. A line was pegged out from this corner to the edge of the road and at right angles to the front of the house. A cutting 6 ft. square was then located at right angles to this line at a distance of 1 ft. south-west of it and 8 ft. from the front wall of the house. This cutting enclosed the point indicated by the mine-detector.

Excavation was in spits, each 6 in. deep. Immediately below the compound surface lay the residue of the hoard (Plate 13) in a small, shallow pit with a filling of black soil, light brown ash and charcoal. The pit was dug in a red/brown sand which formed the greater part of the archaeological deposits on this site. There was no trace of any surface humus and it was clear that there had been some truncation of the archaeological profile by erosion. As is often the case with compounds, the surface of this one was devoid of vegetation and the combined effects of brooms, feet, and rainstorms had probably lowered the level of the surface that had existed at the time that the hoard was buried. That this was indeed the case was suggested by the nearby low bank of compound sweepings which marked the boundary between A6 and A5. Amongst this were found five 'bronze' items which must have been eroded from the upper part of the hoard and brushed to one side before anyone had realized that the hoard existed. It is possible that some items from the hoard might have been lost long before it was reported.

Below the hoard the red/brown sand continued almost to the surface of the natural sand. Between the two, however, lay a thin deposit of occupation material partially overlain by a deposit of finely banded water-laid sands (Fig. 9). The total depth of deposit at its deepest point was 4 ft. 9 in. The cutting was too small to allow an adequate examination of the stratification of the site, yet by analogy with Cuttings I, II, and III it would appear that it represented an accretionary stratification made of mud-walling debris which overlay an occupation deposit. The difference in depth of deposit in Cutting IV compared with Cuttings I, II, and III is not surprising. The latter cuttings were sited along the highest part of a very slight ridge which was probably caused by the large accumulation of structural debris in that immediate area. Furthermore, a substantial part of the early phase deposits in Cuttings I, II, and III was made up of a pit-filling so that the original level of the natural sand in that area was uncertain. Lastly, as described above, the deposits at Cutting IV had been truncated by erosion of the compound surface.

Table 13 gives details of the finds from this cutting. The 'bronze' hoard (Feature 1) consisted of sixty-one items of which thirty-nine came from the original discovery, seventeen from the excavated residue, and five from the compound sweepings between Quarters A6 and A5. Just over half the items were cast while the rest were of sheet metal. A large proportion of the cast items were fragmentary and the rare cases where two fragments were found to join have been counted as only one item. Common amongst the cast material were segments of heavy hinged armlets (examples are shown in Figures 43; 44, 6; and 45, 1). Two of these have been analyzed and found to consist of leaded brass (p. 232). Also common were fragments of double gongs (Figs. 38, 5; 39; 40; and 41, 1–3), of which one has been analyzed and has been found to consist of leaded brass (p. 232). Two fragments of openwork rings which may have been parts of the same object (Fig. 44, 3 and 4) and another fragment of cast (Fig. 37, 7) completed the collection of cast objects. The items of sheet metal were mainly in the form of wide tubes (examples are shown in Fig. 37, 3–6 and 8–11). The purpose of these objects was uncertain but it is possible that two other rather more sophisticated tube-like objects were intended as ferrules for the ends of sticks (Fig. 37, 1 and 2). A fragment of a bowl of sheet 'bronze' completed the hoard (Fig. 38, 1). In the filling of the pit which contained it, however, and even mixed with the items of the hoard itself, were fragments of square-faced trade-gin bottles, some of which had been partly melted and one of which was from a v. Marken bottle (p. 177). There was also a clear glass bead thought to be either Venetian or to have come from Amsterdam. Lastly, there was a fragment of partly burnt wood, and a few sherds, one of which was of European origin.

From the deposits below the hoard came the remains of an iron hoe and a few items of cast and sheet 'bronze' of which the only remarkable ones were a tiny snake and a pendant in the form of a gong (Figs. 42, 20; and 38, 9). In Spit 6 was found a fragment of an indigenous smoking-pipe (Fig. 49, 14). A total of twenty-seven glass beads were recovered from the cutting, of which twenty-four came from Spits 1–5. The beads were possibly of both African and European origin. Two beads were thought to be possibly Egyptian, ten to be from Amsterdam, one to be either Venetian or from Amsterdam (p. 176). One of the Amsterdam beads was thought to have been made at a date after 1700; it came from Spit 1. Amongst the sherds from the deposits below the hoard was only one of European origin, from Spit 5.

A comparison of the distribution of finds in this cutting with that of Cuttings I, II, and III would suggest that the deposits belonged to the eighteenth and nineteenth centuries. Indeed a number of pieces of pottery classified as modern (see Other Characteristic 1 on Table 13, C) were found in Spit 8. The fragmentary character of many of the items in the hoard suggested objects intentionally broken. The hoard was most likely a collection of brass-caster's scrap, the most commonly used raw material for casting in more recent times. The date of deposition would appear to have been some time in the nineteenth century, but the items comprising the hoard may have been of widely differing dates, some of them perhaps already of some antiquity at the time that the hoard was hidden.

3. THE OGBA ROAD SITE (Plate 14, and Fig. 20)

It was not until some time after the Benin excavations that radiocarbon dates were obtained, and while the work was in progress every other means of dating was explored. It was noticed that one type of sherd (Form 1A) had been found in the stratigraphically early contexts of Features 14 and 21 in Cutting II of the Clerks' Quarters site whereas its occurrence in later contexts was rare and usually limited to weathered material. It was decided to search for this type of pottery in a dated context: the only one available in Benin was the innermost of the city walls (pp. 99–101) for which the then available evidence suggested a date in the period *c.*1450–*c.*1500.

It was thought that soundings into the ditch silt were likely to yield results more quickly than cuttings through the probably sterile material of the wall itself. Particularly would this be the case if the ditch were sampled at a point near the centre of the old city where there would be a good chance of getting a stratified sequence of material thrown into it over the centuries. Thus not only could the primary silt possibly peg the Clerks' Quarters site sequence but the ditch deposits as a whole might provide an alternative sequence. To the west the innermost city wall took a right angle bend in the vicinity of the palace. North-east of this bend large sections of the

TABLE 13

CLERKS' QUARTERS SITE CUTTING IV

A — LOCATION OF SMALL FINDS

ARCHAEOLOGICAL CONTEXT	IRON	'BRONZE'													GLASS			MISCEL-LANEOUS		ORGANIC REMAINS		
	Hoe blade	Segments of cast hinged armlets	Cast openwork rings	Cast double gongs	Cast pendant	Cast miniature snake	Other fragments of cast	Fragment of decorated bowl of sheet	Fragments of decorated sheet	Narrow tube of sheet	Wide tubes of sheet	Decorated wide tubes of sheet with one end closed	Fragment of strip	Wire	Beads	Fragments of trade-gin bottles	Other fragments	Indigenous smoking-pipe	Stone rubbers	Animal bones	Partly burnt wood	Tree resin
Feature 1	—	14+1?	2	14	—	—	1	1	—	—	26	2	—	—	1	X	—	—	—	—	1	—
Spits 1–5	—	—	—	1?	—	—	—	—	X	—	—	—	1	4	23	—	1	—	1	X	—	1
Spits 6–10	1	—	—	—	1	1	—	—	1	1	—	—	—	—	3	—	—	1	2	—	—	—

B — LOCATION OF POTTERY FORMS

ARCHAEOLOGICAL CONTEXT	FORMS																										
	1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Feature 1	1	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spits 1–5	6	—	—	—	—	6	1	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Spits 6–10	7	—	—	1	—	6	1	14	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—

C — LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

ARCHAEOLOGICAL CONTEXT	DECORATIONS															OTHER CHARACTERISTICS										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
Feature 1	—	—	—	—	—	—	5	2	—	1	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—
Spits 1–5	38	7	—	11	—	—	4	15	1	3	5	—	—	—	—	1	1	—	—	—	—	—	10	—	—	—
Spits 6–10	37	6	—	7	—	—	1	8	2	—	5	—	—	—	—	8	—	—	—	—	—	—	5	—	—	—

NOTES:
1. In Table (A) figures record number of whole items or identifiable fragments and X records an occurrence of a quantity which is unspecified.
2. In Table (B) figures are number of sherds.
3. In Table (C) figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses.

wall had been destroyed and the ditch had silted almost flat. It seemed certain that much of this destruction and silting must have resulted from modern activity. To the south-east, however, the wall had survived, at least partially, and the ditch was not nearly so heavily silted. Also this part of the ditch usually held water from late March to November each year (Plate 14) and it was felt that damp non-aerated conditions might well have preserved organic remains. Immediately to the north-west of Ogba Road was a conveniently accessible portion of this stretch of ditch. This is the part shown in its flooded condition in Plate 14. Excavation was commenced there at the beginning of March 1963.

(a) CITY WALLS, CUTTINGS I, III, AND IV

A profile was surveyed across the wall and ditch, through a point in the ditch centre 274 ft. north-west of the edge of Ogba Road. Cutting I was sited in the centre of the ditch on the line of this surveyed profile. Subsequently it was found that this cutting was not in the original centre of the ditch. A modern rubbish dump on the outer side of the ditch had completely masked its outer edge and as a result the apparent centre of the ditch did not lie over its true centre (Fig. 20). Therefore Cutting III was sited over the presumed position of the centre and subsequently even this was found to be slightly to one side. Cutting IV was dug on the other side of Cutting I in order to furnish an interrupted half section of the ditch. All these cuttings were 6 ft. square.

Both technically and archaeologically these cuttings were a failure. Technically, because the ditch silt proved to be wet and unstable. Archaeologically, because the greater part of the ditch silting was found to be modern. Digging to a depth of up to 15 ft. 6 in. in these deposits was difficult and dangerous. A good deal of timbering was necessary to hold the sections up and finally, when only Cutting III remained unfinished, a rainstorm flooded Cuttings I and III in the course of a single night. The two cuttings were successfully pumped dry, but by then the lower parts of the sections had literally dissolved. Although Cutting III was very close to finishing and although the section had not been drawn (see Fig. 20) it was decided to abandon work for reasons of safety.

The greater part of the deposits consisted of water-laid clays and sands. Scattered throughout them was an incredible collection of modern refuse. A 1941 tenth of a penny was found at a depth of 2 ft. 8 in. and a 1939 shilling at 6 ft. 2 in. As will be seen in Fig. 20 there was a little primary silt beneath these modern deposits.

The location of finds in Cuttings I, III, and IV will be seen in Table 14. The primary silt produced very little. A few lumps of iron slag testified to iron smelting. Pottery Form 1A was absent, but there was so little pottery of any kind that its absence meant nothing. The modern deposits do not concern us, but a cast 'bronze' bracelet found in Cutting I at a depth of 1 ft. 9 in. is illustrated (Fig. 51, 20) out of general interest.

Although none of these cuttings sounded the depth of the primary silt at its central and deepest point, it is apparent (Fig. 20) that its quantity was small. It is thought that a rapid vegetational recrudescence after construction was the means of retarding weathering and limiting the amount of primary silt which was deposited. At this stage

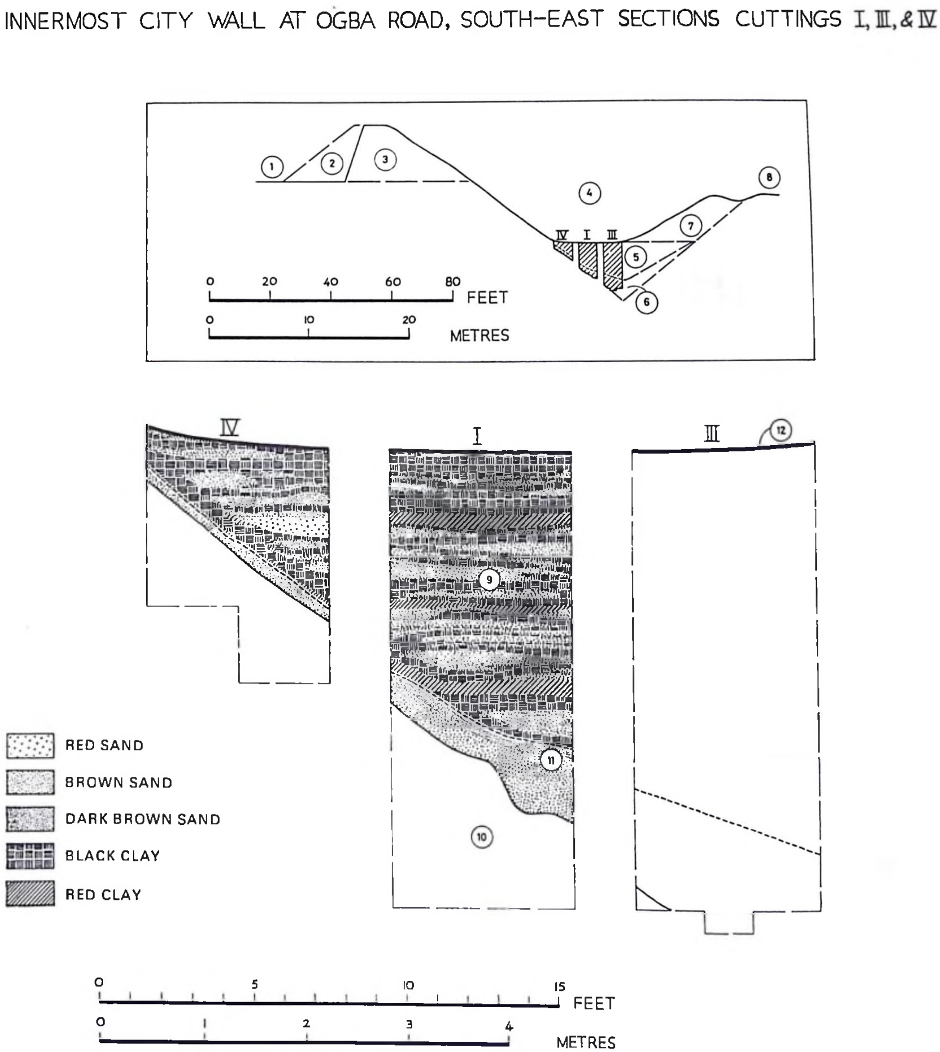

FIG. 20. Encircled numbers indicate: **1**. house compound. **2**. recent damage to wall. **3**. wall. **4**. ditch. **5**. modern silt. **6**. primary silt. **7**. modern rubbish dump. **8**. local government police barracks. **9**. modern water-laid silts. **10**. natural sand. **11**. primary silt. **12**. bottom of the ditch at the time of excavation.

TABLE 14

INNERMOST CITY WALL AT OGBA ROAD

A — LOCATION OF SMALL FINDS

ARCHAEOLOGICAL CONTEXT		IRON	'BRONZE'	MISCELLANEOUS	ORGANIC REMAINS		MODERN	
		Slag	Cast bracelet	Indigenous smoking-pipe	Charcoal	Wood	Rubbish	Coins
CUTTING I	Modern deposits	—	1	—	—	—	X	—
	Primary silt	—	—	—	X	1+X	—	—
II*	Modern deposits	—	—	—	—	—	X	—
III†	Modern deposits	—	—	—	—	—	X	2
	Primary silt	1+X	—	—	X	—	—	—
IV	Modern deposits	—	—	1	—	—	X	—

B — LOCATION OF POTTERY FORMS

ARCHAEOLOGICAL CONTEXT		FORMS																										
		1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CUTTING I	Modern deposits	3	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Primary silt	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
II*	Modern deposits	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

III†	Modern deposits	P+9	—	—	—	1	2	1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
	Primary silt	—	—	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
IV	Modern deposits	1	—	—	—	1	1	—	—	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—

C — LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

ARCHAEOLOGICAL CONTEXT		DECORATIONS															OTHER CHARACTERISTICS										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
CUTTING I	Modern deposits	4	—	—	—	—	—	—	8	—	—	—	—	—	—	—	21	X	—	—	—	—	—	1	—	—	—
	Primary silt	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
II*	Modern deposits	8	—	—	1	—	—	—	1	—	—	—	—	—	—	—	15	X	—	—	—	—	—	—	—	—	—
III†	Modern deposits	P+30	3	—	—	—	—	—	P+15	—	1	—	—	—	—	—	26	X	1	—	—	—	—	5	—	—	—
	Primary silt	7	—	—	3	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IV	Modern deposits	5	—	—	3	—	—	5	4	—	2	1	—	—	—	—	18	X	1	—	—	—	—	1	—	—	—

NOTES:
1. In Table (A) figures record number of whole items or identifiable fragments and X records an occurrence of a quantity which is unspecified.
2. In Table (B) figures are number of sherds. In Tables (B) and (C) 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.
3. In Table (C) figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses. X records an occurrence of a quantity which is unspecified.

* Flooded and collapsed soon after commencement of excavation of modern deposits.

† Flooded and collapsed before completion of excavation of primary silt.

the ditch bottom was almost certainly dry and when the silting reached an equilibrium a thin layer of humus formed over it. What then produced the change of circumstances leading to the deposition of such a thick overburden of water-laid silt? Discussion with people in Benin supplied the answer. Ogba Road had been cut through the pre-1897 palace site; its origins were colonial not traditional. At the point where it now passes through the innermost city wall it was necessary to breach the wall specially, the material from the breach being used to build a causeway to carry the road across the ditch. This causeway acted as a dam. South-east of Ogba Road little water collected in the ditch. North-west of it the ditch had become a sump for the silt-burdened surface water from the nearby streets. Hence the great depth of modern deposits.

(b) CITY WALLS, CUTTING II

Before the rainstorm which led to the abandonment of Cutting III, the excavation of another cutting was attempted some yards to the north-west. This was sited in the apparent centre of the ditch bottom but had only reached a depth of 2 ft. when it flooded and collapsed.

4. THE RESERVATION ROAD SITE (Plate 15 and Fig. 21)

The excavations at the Ogba Road site had demonstrated that soundings in the ditch near the heavily populated parts of the city were likely to have to cope with serious water problems and with thick overburdens of modern deposits. Therefore a search was made for a more suitable site amongst the less built-up areas of the town. A well-preserved length of the innermost wall and ditch south-east of Reservation Road was chosen. Here the earthworks were covered with a secondary growth of bush and the ditch was quite dry. Also, by excavating at the Reservation Road end of this length, access could be obtained direct from the road. The virtual sterility of the primary silt at Ogba Road had made it apparent that the wall itself would have to be sectioned sooner or later and, whereas a large part of the back of the wall at Ogba Road had been dug away for brick-making, that at Reservation Road was apparently complete (compare Figs. 20 and 21). Excavations at the Reservation Road site were carried out in the late dry season of 1963.

(a) CITY WALLS, CUTTING V

A profile was surveyed across the wall and ditch. On the inner side of the wall its end lay at 151 ft. from the edge of Reservation Road, but the curve of the wall and of the road was such that at the point which subsequently became the outer end of the wall section, Cutting VI, the same measurement had increased to 157 ft. After the surveying of the profile, difficulty was found in laying out the cuttings owing to the number of trees present. Eventually a compromise was reached by placing Cutting V to the north-west of the line of the profile and Cutting VI to its south-east. In order to present the sections of both cuttings that can be seen in Fig. 21, it was necessary to reverse one of the section drawings. That of Cutting V, as the one of lesser importance, was turned round, resulting in a 'north-west' section. In Fig. 24, however, where all the surveyed profiles of the Benin City walls are placed together for comparative purposes, the drawing of Cutting VI has been reversed.

Cutting V (of 6 ft. in width) was excavated to provide a section of the ditch silting. This proved to be remarkably slight. At its greatest depth there was a little over 5 ft. of primary silt composed of red/brown sand. This was overlain by a thin layer of black humus. As will be seen from Table 15, Cutting V contained no small finds but it did contain a small quantity of pottery amongst which was a solitary sherd of Form 1A. This lay in the primary silt.

As with the Ogba Road site, the relatively small quantity of primary silt in the ditch bottom is thought to indicate that the wall and ditch were allowed to relapse into bush immediately after construction.

(b) CITY WALLS, CUTTING VI

This cutting proved a major earth-moving task. It was of 72 ft. 4 in. basal length and 6 ft. in width, except in the centre where the south-east section had to be staggered in order to support a large tree. It was excavated to a depth of 23 ft. 6 in. below the highest point on the profile. As will be seen in Plate 15 it was necessary to batter the sides and to support them with timbering. The body of the wall contained little material and there was little stratification either in the body of the wall or in the former surface soil beneath it. Excavation was therefore carried out in spits dug on a horizontal plane right across the wall, so that, as the depth increased, each spit lengthened slightly. The humus and the surface disturbances that were encountered at both ends of each spit were excavated separately.

A thin layer of black humus mantled the wall. Beneath this humus the bulk of the wall consisted of an almost featureless red/brown sand. On both the front and back slopes of the wall were areas where the red/brown sand had been loosened by animals and tree roots and had drifted down the steep slopes. Indeed, it is likely that a quantity of sand had been dug away from the back of the wall at some time in the past so that there the disturbed material may have resulted from the slumping of sand into an artificial depression. Confirmation that material had been removed from the back of the wall is provided by a comparison of the cross-sectional area of the present wall above the level of the former surface soil with that of the present ditch below that same level. The first figure is only 855 sq. ft. as compared with 1,189 sq. ft.

The body of the wall contained tip-lines which were very difficult to see. Most commonly they were of dark brown sand and in the south-east section there was a large dome-shaped area of similar material. Lying on top of this was a group of sherds of which some were sufficiently large to be counted as whole pots on Table 15. This sherd group was designated Feature 1. Also in the south-east section, near the back of the wall, were three large pit-like features which did not reach the modern surface. Their fillings were loose and were easily distinguishable from the surrounding compact wall-body material. It is doubtful if they were true archaeological features. Most probably they resulted from animal disturbances of some antiquity. Various other animal holes were also found in the body of the wall.

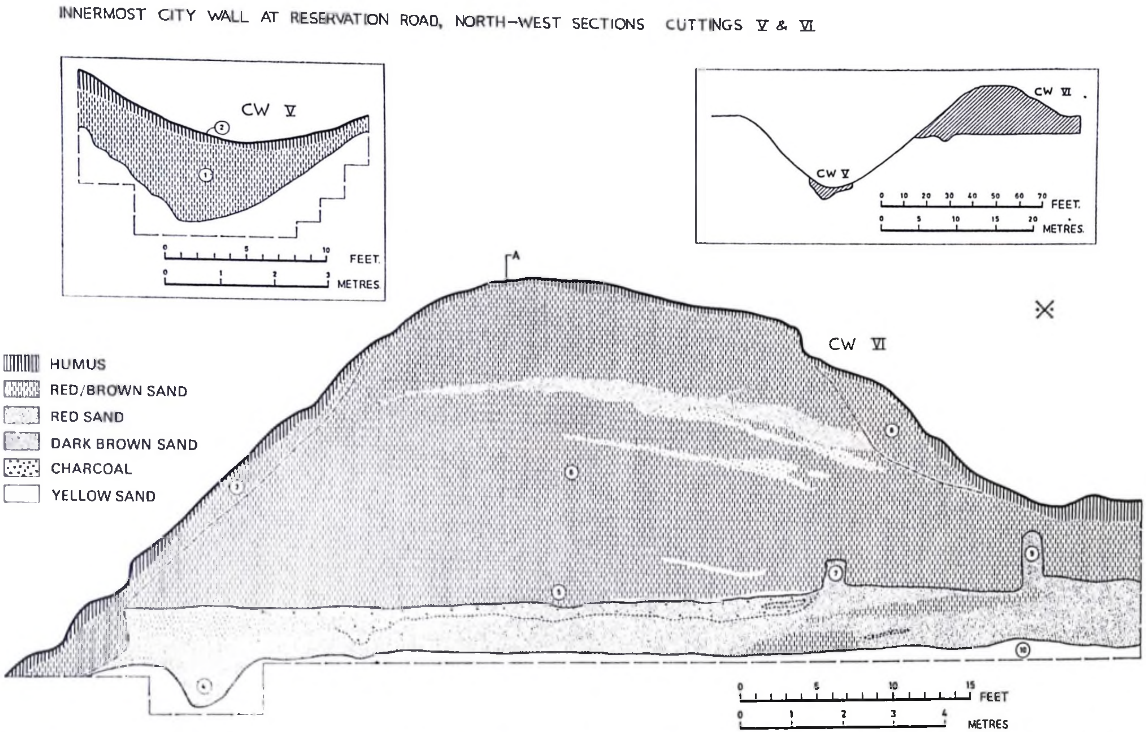

FIG. 21. Encircled numbers indicate: **1**. primary silt. **2**. bottom of the ditch at the time of excavation. **3**. disturbed area. **4**. pit. **5**. former surface soil. **6**. body of city wall. **7**. mud wall. **8**. disturbed area. **9**. mud wall. **10**. natural sand. A — indicates point from which all depths were recorded.

In the surface humus at a point about half-way down the rear slope of the wall, just below the sharp break in that slope which can be observed in Fig. 21, lay a small number of inverted pots whose bases protruded from the ground. The excavator's staff stated that this was a shrine, presumably of fairly recent origin. So far as was possible, Cutting VI was sited so as not to disturb it but one pot (Fig. 30, 9) had to be removed. It was of Form 8 and is included in the humus of Cutting VI on Table 15. On removal it was found to contain two cowries. Another inverted bowl of Form 8 (Fig. 31, 1) was found near the top of the wall-body material, at the north-eastern end of the cutting. It is interesting that the inverted bowls found in the foundations of the late-phase mud walls, on the Clerks' Quarters site, were all of Form 8 also.

Below the body of the wall lay the former surface soil. This consisted of a surprisingly thick deposit which could be split into two: an upper layer which contained a good deal of charcoal, and a lower layer which contained very little charcoal. Rising from the former surface soil beneath the back of the wall were two vertical features of dark brown sand. Their bases merged imperceptibly into the layer beneath them. Both of them were visible in plan running obliquely across the cutting and very roughly parallel. They appeared in both sections; in the south-east section, the south-westerly one rising to a height of 3 ft. 7 in. above the top of the former surface soil and the north-easterly to 2 ft. 6 in. The heights of these features in the north-west section can be determined from Fig. 21. So also can their distance apart, which in the south-east section had widened to 16 ft. between their top centres. It seemed probable that these features represented the stumps of mud walls. Two stratigraphic factors reinforced this opinion. Firstly, the former surface soil was of a thickness far greater than had been expected and of greater complexity. The most likely explanation for this seemed to be that at least its upper parts resulted from occupation predating the city wall. It is probably significant that the upper layer of dark brown sand with the substantial charcoal content terminated against the south-western face of one of the walls. Secondly, it seemed that the mud walls had indeed constituted upstanding features at the time that the city wall was being constructed. In the south-east section a tip-line of red and yellow sand curved downwards for many feet through the wall body and ceased abruptly against the south-western face of the north-eastern wall. Clearly, material being tipped onto the earthwork in the course of its construction had rolled down its back slope and come to rest against the stumps of extant mud walls. Eventually, continued tipping had resulted in the stumps being completely overwhelmed.

As can be seen in Fig. 21, there was a shallow pit in the natural sand underneath the front of the city wall. This pit would have been of little significance had not Dapper described and illustrated a timber-revetted city wall (Hodgkin, 1960). Because of that, very careful consideration was given to the possibility of the pit having held an upright timber forming part of a revetment. The possibility was rejected, however, on the grounds that the pit was neither deep enough nor of a suitable shape to have been used in this way. In addition, it was observed that the pit was filled with material belonging to the layers of the former surface soil, in which there was no sign of any post socket. Yet the possibility that timber revetting existed is not entirely disproved. It is possible that the post-holes, along with the berm which must have existed between them and the ditch, could have occupied a position beyond the present forward slope of the wall. If this was the case then erosion and superficial disturbances by animals and tree roots might have removed the evidence. On the other hand the relatively slight silting of the ditch argues against erosion on the scale that this possibility would suggest. On balance, the writer is of the opinion that this earthwork was probably not revetted.

After excavation was completed, charcoal was collected from the former surface soil in the sections of the cutting. This was submitted for radiocarbon dating. The result was A.D. 1340 $\pm$ 105 (N–379).

Table 15 shows how little was found in this cutting considering the very large quantity of earth removed. Apart from two pieces of iron slag in the body of the wall, indicating that iron-smelting had been practised, the only other small find of any significance was a stone rubber from the former surface soil. Even the amount of pottery recovered was small, yet amongst it were nine sherds of Form 1A from the body of the wall itself. Two of these formed part of Feature 1 (p. 85). Thus Cuttings V and VI had jointly produced ten of these sherds; all from contexts referable at the latest to the time of construction of the earthwork.

The form of the earthwork indicates that it was a dump rampart, the character of the tip-lines within it substantiates this still further. It was constructed by digging earth from the ditch and heaping this earth into a bank along the inner side of that ditch. It seems unlikely that the bank was ever revetted in any way. During its construction part of a mud building was overwhelmed by the dumped earth, so that sealed beneath the city wall lay evidence of a former occupation. Thus although the finds from this cutting were relatively few they were probably more numerous than might have been expected.

The evidence of oral tradition and of written history (pp. 99–101) suggests that a construction date for the innermost city wall of *c.*1450–*c.*1500 is quite possible. The radiocarbon date, when its standard error is taken into account and also the fact that it relates to a pre-wall occupation, is not in conflict with this. At most it might suggest that a date nearer the beginning of the fifty-year period would be more acceptable than one nearer its end. Thus Egharevba's construction date of *c.*1460 could well be very near the truth (Egharevba, 1960, p. 85). The finding of Form 1A sherds in contexts which must have contained material as old as the construction date, and could have contained appreciably older material, is at least suggestive that part of the early phase of the Clerks' Quarters site does date from before the end of the fifteenth century (p. 77).

It might be expected that 500 years of erosion would have considerably modified the height and shape of the city wall. This is certainly a factor of importance but the relatively slight silting of the ditch suggests that it would be easy to over-emphasize its extent. Indeed the earthwork was found to be so well preserved that its immediate relapse into bush after construction, which has already been suggested in discussing the ditch primary silting both here and at the Ogba Road site, would seem very likely. Tree roots and burrowing animals, on the other hand, did cause a certain amount of disturbance over the centuries; man himself probably removed a large volume of sand from the back of the wall. Indeed, examination of the earthwork in the vicinity of Cutting VI showed that Reservation Road had breached the wall in modern times and that the material from the breach had been used to form a causeway across the ditch.

5. THE USAMA SITE (Fig. 22)

This excavation was an attempt to locate deposits earlier than any previously excavated in Benin. Usama was said to have been the palace site of the first four Obas of Benin, prior to the removal of the palace to its present site by Ewedo at a date put by Egharevba at *c.*1255. It was situated outside the innermost city wall in what was, in 1964, a suburb of the city (Fig. 23). Surrounded on all four sides by roads, the site remained unbuilt-on, neither was it farmed nor used in any way except by visiting Hausa herdsmen as a temporary cattle pasture. Although there was no shrine on the site, it was clearly a place of great importance in Benin ritual for it is here that each Oba of Benin is still crowned. Indeed, it was said that during his lengthy coronation ceremonies each Oba had to live for some days and nights in a temporary building erected on the central and slightly elevated part of the site. Other than this the site was said never to have been built on since the time that Ewedo had abandoned it.

Excavations were carried out at this site during the first few weeks of 1964 and were limited to one cutting measuring 40 × 6 ft.; this was located across the highest point of the site, at right angles to the long axis of the slightly elevated central area (Fig. 22, inset). It was thought that this area might mark the position of collapsed mud buildings. Excavation was done in spits. As will be seen from Table 16, the recognized stratigraphic units for this cutting consisted only of six pit-fillings and some superficial deposits. Examination of Fig. 22 will show that the situation was rather more complex than this. However, the units given in Table 16 indicate the limits of stratigraphic comprehension that were possible as the excavation proceeded.

A humus of black sand partially overlay the area of the cutting but had been eroded from its highest part to reveal the top of a mixed deposit of red/brown sand and dark brown sand which tilted downwards towards the south-east. This formed the filling of Pit 1 which comprised a large portion of the north-east section. It contained a large quantity of sherds and charcoal and was clearly a rubbish pit. The deepest part of Pit 1 penetrated the surface of the natural sand; yet most of this pit was cut into a deposit consisting mainly of red/brown sand with only a little dark brown sand admixture and containing very little in the way of charcoal or sherds. This made up the rest of the north-east section and the whole of the south-west section. It seems quite likely that it consisted of an accumulation of mud-walling debris. In the north-west half of the cutting part of this deposit had been disturbed by a modern pit, but beyond this a series of roughly horizontal lines were probably the remnants of floors. In several cases these lines were emphasized by a scattering of red sand. These features

Table 15

INNERMOST CITY WALL AT RESERVATION ROAD

A — LOCATION OF SMALL FINDS

Cutting	Archaeological context	Iron: Slag	Miscellaneous: Stone rubber	Organic remains: Cowries	Organic remains: Charcoal
VI	Humus	—	—	3	X
	Body of wall	2	—	—	X
	Former surface soil	—	1	—	X

B — LOCATION OF POTTERY FORMS

Cutting	Archaeological context	1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
V	Humus	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	10	—	—
	Primary silt	P+5	1	—	—	—	P+24	5	—	—	—	—	3	2	—	—	—	1	1	—	—	—	—	1	—	7	—	—
VI	Humus	9	—	—	—	—	4	1	—	—	3P+5	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
	Body of wall	P+4	9	—	2	—	7	1	—	1	P	—	1	—	1	—	—	—	—	—	2P	—	P+22	—	—	—	—	—
	Former surface soil	8	—	—	—	—	8	1	1	4	—	—	—	1	—	1	—	—	—	—	—	—	—	1	—	—	—	—

C — LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

ARCHAEOLOGICAL CONTEXT		DECORATIONS															OTHER CHARACTERISTICS										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
CUTTING V	Humus	5	—	—	4	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Primary silt	P+35	—	—	P+23	—	—	—	1	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VI	Humus	38	3	—	3	—	—	—	8	1	—	11	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
	Body of wall	53	3	—	8	—	—	2	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	15	—	—	—
	Former surface soil	25	2	—	—	—	—	1	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	11	—	—	—

NOTES:
1. In Table (A) figures record number of whole items or identifiable fragments and X records an occurrence of a quantity which is unspecified.
2. In Table (B) figures are number of sherds. In Tables (B) and (C) 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.
3. In Table (C) figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses.

were, however, only recognized in section, and neither in plan nor section was it possible to distinguish the remains of any mud walls.

Beneath the possible mud-walling debris the surface of the natural sand was extremely uneven. Its north-western end gave the appearance of having been lowered by artificial levelling. About 6 ft. from the end of the section this surface rose slightly, then fell away abruptly into an angular depression, in the centre of which was a large post-hole about 1 ft. wide and 2 ft. deep. In this post-hole and in part of the depression lay a little occupation material. At a point about half-way along the cutting the surface of the natural sand rose again. At this higher level another, but smaller, post-hole had been cut into it. Beyond this, the surface fell steeply into a pit nearly 5 ft. in depth. During the excavation this pit was designated Pit 2, but it is apparent that its filling consisted of possible mud-walling debris and was not in any observable way a separate entity from the material extending to the north-western limits of the cutting. In Table 16 all of this material not forming part of the filling of Pit 2 has been entered as 'superficial'.

At the bottom of Pit 2 was a narrow channel which was designated Pit 3 and can be seen in the north-east section (Fig. 22). In the partial cutting plan contained in Fig. 22 this feature will be observed extending at right angles from the section and then bending sharply to terminate in a well-like cistern designated Pit 6. It seems reasonable to compare the relation of Pits 3 and 6 with that of Features 14 and 21 in Cutting II of the Clerks' Quarters site (p. 66). It seems that Pit 3 was a drainage channel and Pit 6 a sump for that channel. Yet the filling of Pit 3 was as indistinguishable from that of Pit 2 as that of Pit 2 had been from the possible mud-walling debris above it and to the north-west of it. To the south-east of Pit 3 the surface of the natural sand, which here formed the bottom of Pit 2, rose slightly, began to dip again, and then became the bottom of Pit 1, which has already been described.

Although the relationship of Pits 3 and 6 has been compared to that of Features 14 and 21 in Cutting II of the Clerks' Quarters site, Pit 6 did not have the banded filling of the latter feature. Its filling was on the contrary a homogeneous yellow/grey sand, much of which was almost sterile. Towards its bottom there was an increase in the number of sherds, however, and two pots of form 1B were found. One of these can be seen in Fig. 27, 4. Closely adjacent to Pit 6 was another well-like cistern of rather less depth, which was designated Pit 4. The natural sand separating these two cisterns was never more than a few inches thick, while at the bottom of Pit 4 the side had in one place been cut into the filling of Pit 6 demonstrating that Pit 4 was clearly the later in date. Its filling was very different: consisting mainly of dark brown sand with charcoal and sherds, with an even darker brown sand at the bottom, in which was a large quantity of sherds and two intact pots. One of the latter was of Form 7 and the other, of Form 10, is illustrated in Fig. 31, 6. Pit 4 was only identified at the lower limit of excavation in this part of the cutting.

One more feature was located whilst cleaning the bottom of the cutting at its lowest level of excavation in the south-eastern end. This was another well-like cistern, designated Pit 5. All that can be said of its stratigraphic location is that it predated

Pit 1. It differed in plan from the circular Pits 4 and 6, being an irregular oval. Its filling was distinctive also; it consisted of concave bands of yellow/grey and red/brown sand, the latter containing some charcoal. Sherds were scattered throughout the filling. Near the top of the pit was a pot of Form 1B (Fig. 27, 2) and about half way down were two other pots: one of Form 1B (Fig. 27, 3) and the other of Form 4 (Fig. 29, 2).

USAMA, NORTH-EAST SECTION & PLAN OF CUTTING

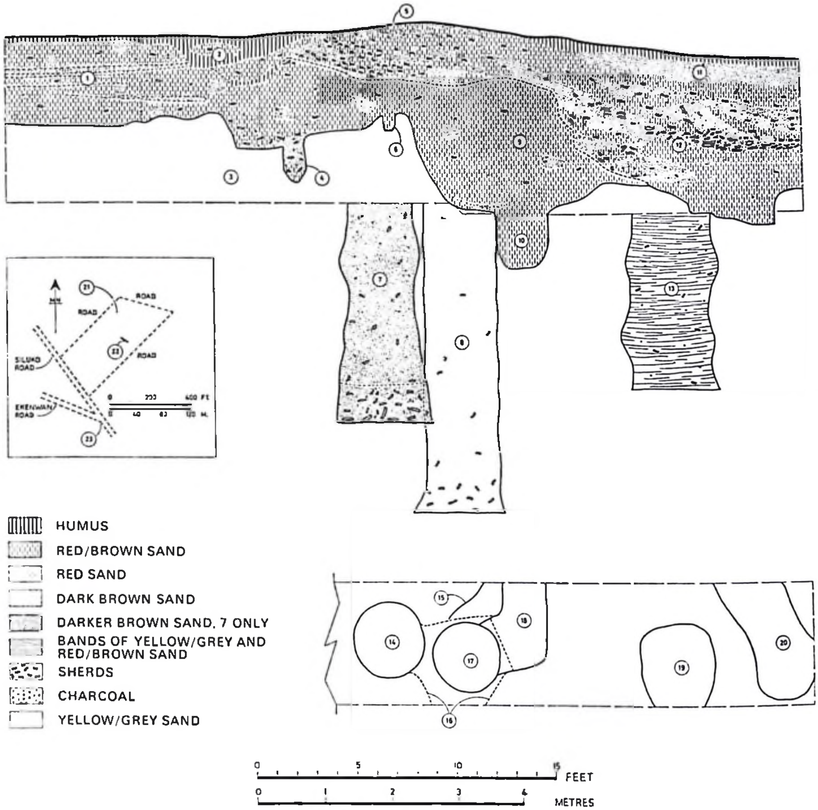

Fig. 22. Encircled numbers indicate: **1.** remnants of floors. **2.** modern pit. **3.** natural sand. **4.** post-hole. **5.** termitarium. **6.** post-hole. **7.** Pit 4, projected onto this section. **8.** Pit 6, projected onto this section. **9.** Pit 2. **10.** Pit 3. **11.** lower humus. **12.** Pit 1. **13.** Pit 5, projected onto this section. **14.** Pit 4. **15.** bottom of side of Pit 2. **16.** fine broken lines show edges of area cut away in excavation. **17.** Pit 6. **18.** Pit 3. **19.** Pit 5. **20.** bottom of Pit 1. **21.** area known as Usama. **22.** cutting. **23.** position of junction of roads is uncertain.

TABLE 16

USAMA SITE CUTTING

A — LOCATION OF SMALL FINDS

ARCHAEOLOGICAL CONTEXT	IRON				'BRONZE'			GLASS	MISCELLANEOUS			ORGANIC REMAINS		
	Knives	Nail	Slag	Bellows' nozzle	Smithed bracelet	Chain	Other fragments	Bead	Burnt clay	Stone rubbers	Fragment of grindstone	Animal bones	Charcoal	Oil-palm nuts
Superficial	1	1	3	—	—	—	—	—	—	—	1	X	—	—
Pit 1	1	—	6	1	1	1	1	1	X	3	—	—	—	—
,, 5	—	—	—	—	—	—	—	—	—	—	—	X	X	X
,, 4	—	—	1	—	—	—	—	—	X	1	—	—	X	—
,, 3	—	—	—	—	—	—	—	—	X	—	—	—	X	—
,, 6	—	—	—	—	—	—	—	—	—	—	—	—	X	—

B — LOCATION OF POTTERY FORMS

ARCHAEOLOGICAL CONTEXT	FORMS																															
	1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Superficial	2P+115	—	—	—	—	20	7	5	P+15	187	—	—	P	—	1	—	—	—	1	P+2	—	—	2	—	10	—	33
Pit 1	2P+82	—	—	—	—	P+25	—	2	12	P+156	—	2	—	—	—	—	1	—	—	2	3P	—	—	—	2	—	34
,, 5	—	2	2P	—	—	2P+16	—	1	—	—	—	5	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
,, 4	11	—	—	—	—	2	—	8	P+10	—	—	P+3	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—
,, 2	6	—	—	—	—	5	—	6	2	2	—	1	5	—	—	—	—	—	1	—	—	—	—	—	—	—	1
,, 3	1	—	—	—	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
,, 6	P	—	2P	—	—	2P+1	—	—	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

C — LOCATION OF POTTERY DECORATIONS AND OTHER CHARACTERISTICS

ARCHAEOLOGICAL CONTEXT	DECORATIONS															OTHER CHARACTERISTICS										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11
Superficial	P+497	26	—	141	15	1	47	5	3	12	P+200	3	—	—	—	—	—	—	—	—	—	—	29	—	1	—
Pit 1	552	P+44	—	P+190	34	2	88	4	10	P+10	P+166	—	—	—	—	—	—	—	—	—	1	—	2P+37	—	—	—
,, 5	2P+70	2	—	40	2P+5	—	2	—	10	—	P+4	—	—	—	—	—	—	—	—	—	—	—	6	—	—	—
,, 4	108	5	—	—	6	21	P+41	—	P+7	P+1	P+17	—	—	—	—	—	—	—	—	P	—	—	29	—	—	—
,, 2	35	4	—	8	1	—	—	—	—	1	2	—	—	—	—	—	—	—	—	—	1	—	4	—	—	—
,, 3	17	5	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
,, 6	4P+29	—	—	2	P+4	—	P+13	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—

NOTES:
1. In Table (A) figures record number of whole items or indentifiable fragments and X records an occurrence of a quantity which is unspecified.
2. In Table (B) figures are number of sherds. In Tables (B) and (C) 'P' indicates a whole pot or a sufficiently large portion of a pot to reconstruct its whole profile.
3. In Table (C) figures are number of occurrences not of sherds. For example the same sherd appears once for each decoration that it possesses.

Charcoal from about half way down this pit was radiocarbon dated A.D. 1500 ± 105 (N–380).

Table 16 gives details of the finds from this cutting. Most of the evidence of iron came from the superficial deposits or from Pit 1. This evidence included two iron knives (Fig. 48, 4 and 7) one of which (from Pit 1) had a 'bronze' ring around it, presumably surviving from a handle of otherwise perishable material. Iron slag, most of which indicated smelting rather than smithing (p. 231), was recovered from both the superficial deposits and Pit 1, whilst a bellows' nozzle was found in Pit 1. The only evidence of iron from other deposits was a piece of smelting slag from Pit 4. The only evidence for 'bronze' was from Pit 1. Apart from the ring mentioned above, there was only a fragment of a smithed bracelet and a short length of chain made from grooved strip. There was no evidence of any kind for the casting of 'bronze'.

In the whole of these deposits only one bead was found. This came from Pit 1, is of glass and is thought to be probably Venetian. Some lumps of lightly burnt clay from Pit 1 retained part of a curved surface and may be compared with similar pieces from the early phase of Cutting III on the Clerks' Quarters site (p. 75). Like them, these had possibly formed part of a mud structure of some sort. Lastly, it may be noted that some oil-palm nuts were found in the upper part of Pit 5.

A few comments are needed on the pottery from this cutting. Two sherds of the rare Form 1A were found in Pit 5; also from this pit came two pots of Form 1B and from Pit 6 came two more. The only other example of this form to be excavated in Benin during the course of the 1961–4 excavations, was an intact pot from near the bottom of Feature 21 in Cutting II on the Clerks' Quarters site (Fig. 27, 1). Owing to a minor error in the statistical analysis of the pottery, which was noted too late to correct, this latter pot was not included in Fig. 60 (p. 189). In view of the chronological implications of these pottery forms, the radiocarbon date for Pit 5 is of considerable interest. With respect to its pottery, Pit 1 was peculiar because, together with the superficial deposits, it produced almost all the examples of Form 8 in this cutting, and produced great quantities of them in a variant form found nowhere else in the 1961–4 excavations, although some examples were found as the result of field-work (p. 107). This was designated Form 8A and an example can be seen in Fig. 31, 3. It was subsequently decided that there were insufficient reasons for regarding this form as a separate entity. Pit 1 was also anomalous in that, together with the superficial deposits, it produced almost all the examples of Form 25 found during the 1961–4 excavations.

The interpretation of this cutting must concern itself with the major problems of chronology and of function. The stratigraphy indicated that Pit 6 was probably contemporary with Pit 3. It also seemed likely that Pit 2 was of much the same date, and from this it followed that at least the lower parts of the possible mud-walling debris were also of that date. Pit 4 was demonstrably later in date than Pit 6, therefore Pit 4 must also have been later than Pits 2 and 3 and the lower parts of the possible mud-walling debris. Unfortunately it is unknown from what level Pit 4 was originally dug and in addition the precise character of the Pit 6 filling is uncertain.

That the accumulation of the possible mud-walling debris must have extended over some time is suggested by the presence of a number of floor remnants at different levels. The lower parts of the debris seem to have resulted from the occupation to which Pits 2, 3, and 6 belonged, and which left levelled surfaces, post-holes and cultural material on the top of natural sand in the north-west part of the cutting. Pit 4 presumably belonged to one of the later levels, as the enigmatic Pit 5 may have done. Pit 1 was later in date than all the other pits and all the levels of possible mud-walling debris. Finally humus had accumulated over the archaeological deposits and a small modern pit had been cut into them in one place.

A consideration of the relative sequence in this cutting encounters difficulty over the stratigraphic position of Pit 5. All that can be said with certainty is that it predated Pit 1. Theoretically, Pit 5 could belong to any earlier point in the sequence; indeed it could be the earliest feature in the cutting. Curiously enough this is the very thing that the statistical analysis of the pottery seems to indicate (Fig. 59) but Daniels has advised against placing too much significance on the order in which the Usama pits appear in Fig. 59 and is of the opinion that to assume from this alone that Pit 5 was the earliest feature on the site would be unjustified. Indeed, Pit 5 may have belonged to one of the later levels within the possible mud-walling debris. If this was the case then the radiocarbon date becomes a chronological pivot for this cutting. A date of about 1500 would be most logical for a point amongst the later levels of the possible mud-walling debris. Although this is an occupation site, no European imports were found except for one glass bead which occurred in the latest filling, that of Pit 1. The lack of beads is significant. The absence of 'bronze' from contexts other than Pit 1 and the total absence of any evidence of 'bronze' casting may also be significant. It may be that the earlier deposits of this site do indeed date from around the thirteenth century, and that the rest of the deposits, with the exception of the filling of Pit 1, belong to periods before any appreciable European contact. The statistical analysis of the pottery would suggest that Pit 1 was of a similar date to the middle phase of the Clerks' Quarters Site (Fig. 59).

It remains to consider the function of the excavated deposits and features. They seem to constitute evidence of a basic occupation followed by a number of later occupations. In view of the traditions about this site it is interesting to observe that it is the earliest occupation which seems to have left the most substantial remains. Although the excavated cutting was dominated by pit-fillings, it is clear that the site as a whole consists of an accretionary stratification made up of the remains of collapsed structures. It is possible indeed that the pits themselves were important elements within those structures. Certainly in Pits 3 and 6 can be seen features analogous to the drainage channel and sump investigated in the early phase of Cutting II on the Clerks' Quarters site. Only with Pit 1 is there a significant difference in probable function: that pit is quite clearly just a rubbish pit. Lastly it may seem that the accretionary deposits of this site are noticeably shallow for the length of time suggested for their formation. Assuming that the suggested dating is correct, then this shallowness might be treated as a further indication that, after the earliest occupation, the site was used only in the spasmodic and temporary manner suggested by the traditions.

D. FIELD-WORK 1961-4

1. THE BENIN CITY WALLS (Figs. 23 and 24)

MANY cities and towns in Nigeria were at one time enclosed by walls and Benin was no exception. It is necessary to draw two distinctions with respect to city walls in Nigeria. The first is the difference between the free-standing mud-built wall and the earthen rampart of the type known to archaeology as a dump rampart. In general the built wall seems to be a savannah form, whereas the dump rampart is a high-forest one. Thus Kano, Zaria, Bida, and Bauchi have built walls, whereas Sungbo's Eredo at Ijebu Ode (Lloyd, 1959), and Ife, Owu, and Benin City have dump ramparts. The basic reason for the difference is probably rainfall. Free-standing mud walls in any form do not survive long in the South. Even a compound wall which is to stand for any time must be roofed. The compound walls of the palace of the Oba of Benin are roofed to this day, although now in aluminium or galvanized iron sheet rather than the traditional thatch (Plate 1). However, in 1861 Captain Arthur Trefusis Jones described a free-standing defensive mud wall around Ijaye which was thatched (Ajayi & Smith, 1964, pp. 25 and 137) and it is clear that the picture is complicated by other factors of which geology is probably the most important. Furthermore at various places in both the North and South there are enclosures of dry-stone walling. In addition it should be pointed out that free-standing mud-built walls can be backed by an earthen dump rampart. This was apparently the case at Kano and probably at some other northern cities. Indeed it is possible that some dump ramparts were retained by timber revetments which would have given them much the same vertical exterior as is presented by a mud wall. Dapper (Hodgkin, 1960) seems to have thought this to have been the case at Benin.

The second distinction to be drawn is between a city wall, that is to say a defensive structure, and a linear earthwork concerned more with the delineation of boundaries. In the latter case the enclosing structure probably serves to delimit the agricultural territory of a settlement or group of settlements rather than to constitute a practical military barrier. The survey of the Benin City 'walls' conducted in 1962–4 indicated that, except for the innermost 'wall', they were not really 'city walls' so much as linear earthworks consisting of dump ramparts.

If such an extensive system of walls is lost in the dense vegetation of the Benin district, does this imply that at one time a very much larger area was cleared than now (Rees discusses this on p. 239)? It might be argued that if the Bini were capable of constructing such an enormous system of earthworks they could equally well have managed to clear the bush from them at least once a year by burning. The whole problem becomes largely irrelevant, however, when it is realized that most of the walls represent an earthwork complex concerned with matters other than defence. In that case it is the mere existence of the barrier, whether it is overgrown or not, that is relevant. Yet, even the innermost wall, for which a strong case can be made for its having been a formal defensive structure, was probably not kept clear of regrowth. Ajayi & Smith (1964, p. 23) in discussing nineteenth century Yoruba defences state: 'Most towns in the south were situated within a belt of forest . . . which was deliberately allowed to retain its thick undergrowth and was pierced only by narrow paths leading to the gates.' Evidence from the excavations (pp. 80–85) seems to indicate that the innermost wall at Benin was allowed to relapse into bush immediately after construction. Indeed as early as *c.*1600, as will be seen below, D.R. was describing its ditch as being 'full of high trees'; in 1778 Landolphe observed that on the wall 'a thorny hedge has been planted so thick, that not even an animal can get through' (cited by Roth, 1903, p. 163); and Roupell in 1897–8 (cited by Roth, 1903, p. 190) observed 'immense trees growing inside' the ditch.

(a) HISTORICAL SOURCES

The Benin City walls have been known since *c.*1500 when Duarte Pacheco Pereira described them as follows: 'This city is about a league long from gate to gate; it has no wall but is surrounded by a large moat, very wide and deep, which suffices for its defence. I was there four times.' (Cited by Hodgkin, 1960, p. 93.) It is difficult to explain where all the earth from such a large ditch could have gone if there really was no wall. Presumably the writer was mistaken or considered that a bank of earth was not a wall in the sense of the Europe of his day. Roth (1903, p. 190) seems to have thought that this description referred to Gwato not Benin but Ryder, who is familiar with Pereira's Portuguese text, is of the opinion that it was Benin that was referred to (personal communication). A sounder description was given by the Dutchman D.R. (thought to have been Dierick Ruiters) in *c.*1600:

> At the gate where I entered on horsebacke, I saw a very high Bulwarke, very thick of earth, with a very deepe broade ditch, but it was drie, and full of high trees . . . That Gate is a reasonable good Gate, made of wood after their manner, which is to be shut, and there alwayes there is watch holden. (Cited by Hodgkin, 1960, p. 120. Roth (1903, p. 158) cited a slightly different version but Ryder, who has examined the original Dutch text, is of the opinion that the Hodgkin version is the more accurate (personal communication).)

Unfortunately Olfert Dapper, a writer who had never visited Benin, in 1668 published a now famous illustration which portrayed the walls in a far different fashion. They were represented as earth banks revetted in front with heavy timbers, with intermediate members fixed in a curious criss-cross fashion. Furthermore there was no sign of a ditch. Roth (1903, Fig. 160) left no doubt of his opinion of this illustration when he reproduced it with the remark in his own caption: 'This is another fancy picture'. Dapper's description was as follows: 'The town is enclosed on one side by a wall ten feet high, made of a double palisade of trees, with stakes in between interlaced in the form of a cross, thickly lined with earth.' (Cited by Hodgkin, 1960, p. 123 from the French edition of Dapper, *Description de l'Afrique*, Amsterdam, 1686.) Barbot's account of *c*.1732 (Roth, 1903, p. 163) agrees with Dapper's but Roth (p. 2) thought that he had merely copied Dapper without acknowledgement. In 1778, however, Landolphe seems to have seen both a wall and a ditch, the latter being, he said, more than 20 ft. wide and as deep. Legroing accompanied Landolphe to Benin on one of his visits (in 1787) and gave a similar account. (Both cited by Roth, 1903, p. 163.) It seems likely that Dapper's picture was, in respect of the walls, not accurate. This impression is supported by such archaeological evidence as is available (pp. 87–88). There is, in addition, a possibility that if the wall and ditch were overgrown, and the account of D.R. suggests that this had already happened by his time, Dapper's evidence was based on mistaken identity. Samuel Blomert was one of Dapper's principal sources and he or an informant had presumably been to Benin. Whoever it was might well have observed the wooden gate and the timber revetting which would have been necessary to retain the earthen wall at the point where the gateway breached it, and presumed this was a general feature along the whole length of the wall. The thickness of Bini vegetation shrouding the wall at each side of the gate and completely filling the ditch might have obscured the rest from his inspection. If this was the case it is still more unfortunate that Dapper's illustration should have shown hardly any vegetation at all.

The important thing to notice about these historical references is that they probably refer to the innermost wall which, as already stated, the present writer believes to be atypical of the complex as a whole. It was not until much later that visitors began to notice other walls. Cyril Punch, in the early 1890s, noticed a big ditch crossing the road between Benin and Ugwini at a point about seven miles from the city (cited by Roth, 1903, p. 191). H. L. Roth's brother, F. N. Roth, with the Punitive Expedition in 1897, recorded a 'deep trench about three miles from the king's compound', along the Ologbo road. This must have been the stretch of wall which crosses the present Sapele road at Evbuo-Riaria (Fig. 23). He further remarked that at about twelve miles from the king's compound some members of the expedition marched for several miles in a ditch of similar formation (cited by Roth, 1903, pp. 190–1). Immediately after the occupation, Roupell noticed that travelling north towards Ekiti country, several ditches were passed, at right angles to the road, which he thought may have formerly surrounded towns and villages (cited by Roth, 1903, p. 190).

The oral traditions of Benin, as interpreted by Egharevba (1960) who collected his information early in this century from informants who had grown to maturity before 1897, also provide information about the city walls. Egharevba refers to the walls in several places in his book but reference to his appendix on the subject of 'The Moats' gives a summary of his conclusions on the subject (Egharevba, 1960, p. 85):

There are three main moats or ditches (iya) surrounding the City. The first and second moats were dug by Oba Oguola, about 1280 and 1290 A.D. respectively to serve as barriers to keep off the invaders in time of war, especially against Akpanigiakon, the Duke of Udo, who was then harassing the City. By the order of Oba Oguola, all the important towns and villages in

Benin copied the example and dug similar moats or ditches round their villages as ramparts against enemies.

The third moat which is in the heart of the City was dug by Oba Ewuare about 1460 A.D. when the City was depopulating as a result of his inhuman mourning law over the deaths of his two sons . . . on the same day.

There are several observations which should be made concerning this. Firstly, it is misleading in its insistence on 'ditches'. Except in a few places where the wall has been destroyed in recent times there is always both an earthen bank, rampart, wall, or whatever one chooses to call it, and a ditch. Secondly, the whole description gives the impression of an integral defensive work of three concentric elements—otherwise why use the terms 'first', 'second', and 'third' with respect to them? The present writer has elsewhere used the same terms, although for his own reasons he reversed their order so that the 'first' was the innermost, and so on, in contrast to Egharevba where the 'third' was the innermost (Connah, 1963). It is now proposed that all such numberings of the Benin City walls should be abandoned. The briefest of inspections of Fig. 23 will show why.

(b) MAPPING THE WALLS

In 1962 it was found that the available survey maps of Benin City (Benin City 1:12,500 of *c.*1931 and Sheet 1 of Benin 1:4800 of 1952) showed very little of the walls—in fact, as is now known, only a little more than 10 per cent of the total. Work started on a detailed survey in November 1962. It continued, with some interruptions, until February 1964. It became a task far bigger than had been envisaged at the beginning. So thickly overgrown were the walls in most parts that probably no one in recent times had actually walked their length, as the survey teams had to. The task became more complicated when it was discovered that the available aerial photographs of the area were of little help, as the walls and ditches seldom showed up in the dense bush covering the country around Benin City. Furthermore, the method of merely correlating whatever aerial-photographic evidence was available with fixed points on the ground where the wall was cut by roads or tracks was found to be unreliable. It was only by conducting a most laborious chain-and-compass survey along the top of every wall that anything like an accurate map could be made. To do this it was necessary to matchet through many miles of dense vegetation.

Benin City is 'a populated enclave surrounded on nearly every side by well-grown forest of considerable age' (Allison, 1962). As Allison has shown, however, most of this forest has probably 'been farmed at one time or another during the past few hundred years'. Also, since the beginning of this century it has been subject to extensive timber exploitation. The result is that in the areas immediately around the city a dense tangle of secondary growth has taken over, frequently of no great height, but usually of uniform impenetrability. From place to place this is relieved by farms, or by rubber plantations whose density and degree of maintenance vary. In general, however, the city wall is heavily overgrown and the ditch usually filled with a thorny tangle.

The survey of the Benin City walls has been described by Connah (1963, 1965, 1967)

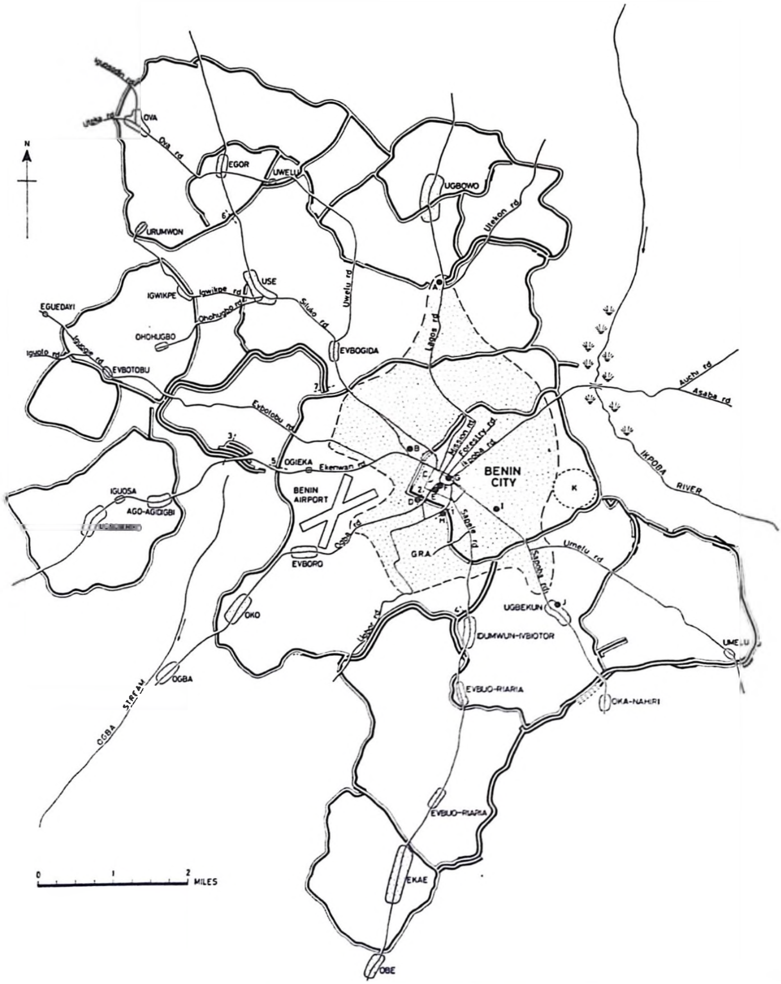

FIG. 23. Map of the Benin City walls: The walls are represented by solid black lines and the ditches by open lines. The widths of the earthworks have been exaggerated in order to show their details. Modern Benin and surroundings are shown in the shaded area. Village names are as ascertained from the occupants. Spellings of both village and road names vary. A—site of Edaiken's Palace at Uselu. B—Usama site. C—area of Oba's Palace before 1897. D—Ogba Road site. E—Clerks' Quarters site, Cutting IV. F—Clerks' Quarters site, Cutting I–III. G—Benin Museum site. H—Reservation Road site. I—Chief Ogiamien's House. J—alleged Ugbekun Ogiso Palace site. K—alleged later Ogiso Palace site. 1–7. surveyed profiles, see Fig. 24.

in which the methods employed are explained in detail. Over ninety miles of walls were surveyed, although a little over 10 per cent of this total had only to be walked and checked as it already appeared on the established survey maps. (The extent of the mapped walls before the survey can be seen by comparing the map in Connah (1963) with Fig. 23.) It may be questioned whether a map constructed in the way outlined can be very accurate. Such accuracy, however, is largely a relative matter. In order to show the relative positions of ditches and walls it has been necessary to multiply their widths several times compared with the over-all scale of the map. The road widths are not to scale either and although the distances that villages are disposed along the roads were measured, their shape and lateral extent are purely conjectural and representational. Features other than the walls and roads were merely sketched in from air photographs. Taking all this into account, this map is probably fairly reliable as an archaeological record, but a recent attempt to add contours to it from the 1:50,000 map (Sheet 298 NW.), which has only become available since the field-work was completed, was frustrated when it was found that all the features surveyed in 1962–4 seemed to have a 15° Easterly error as against those taken from the extant survey maps and against True North. The source of error is uncertain but its presence should be borne in mind when making use of the map.

There is difficulty in deciding to what extent the map is complete so far as the Benin City walls are concerned. Any traveller in the Mid-West who is observant will see many walls, cut by the roads, which have apparently nothing to do with the Benin complex. At the Nigerian Institute for Oil Palm Research, over ten miles beyond the northern boundary of Benin City, clearance of large tracts of land for oil palm plantations has revealed a complex of walls apparently separate from those of Benin. These have been mapped by Rees (pp. 237–242 and Figs. 65 and 66). Even as close to Benin as a little way beyond the eastern side of the Ikpoba River, the Asaba road is said to cut through large earthworks at a number of places. No account of these features has been taken in compiling the map. The reason for this is that from quite early on in the survey it became obvious that unless a rule was made to survey only those earthworks conjoined into the immediate Benin complex it would become impossible to complete the task.

(c) SECTIONS AND SURVEYED PROFILES OF THE WALLS

The distinction that has been drawn between the innermost city wall and the rest of the walls is most clearly appreciated by examining Fig. 24. In this figure five surveyed profiles from the outer walls are compared with the two excavated sections of the innermost wall. The latter are simplified versions of Figs. 20 and 21, although it will be noted that the Reservation Road section has been reversed in order to fit it into Fig. 24 (see p. 84 for explanation).

Although no excavation has been done on the outer walls, the profiles and sections in Fig. 24 indicate the far more massive and more military aspect of the innermost wall compared with the others. The two drawn sections of the innermost wall have a vertical height of over 52 ft. (Reservation Road site) and over 57 ft. (Ogba Road site)

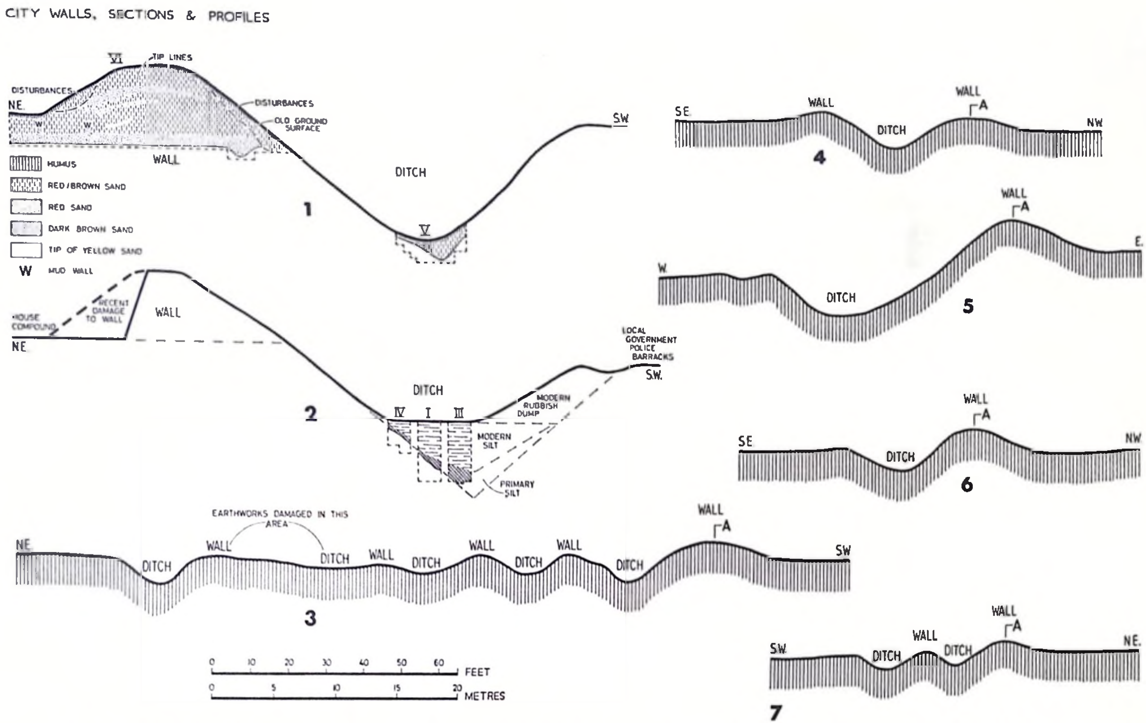

FIG. 24. The locations of these sections and profiles are marked **1–7** on Figure 23. For the exact locations of **1** and **2** relative to the nearest road see pages 84 and 80 respectively. The locations of the remainder are measured to point A in each case: **3**. 1,180 ft. north-west of Ekenwan Road. **4**. 72 ft. south-west of Sapele Road. **5**. 87 ft. north of Ekenwan Road. **6**. 230 ft. south-west of Siluko Road. **7**. 112 ft. north of earthwork junction to west of Siluko Road.

from the bottom of the ditch, as ascertained by excavation to the present top of the wall; as against the greatest height of any surveyed profile on the outer walls of over 25 ft. from present ditch-bottom to present wall-top. The average proportions of the outer walls are, as Fig. 24 shows, usually considerably less than this. Even the depth of accumulated silt in their ditches, which has never been checked by excavation, would only account for a part of this difference. Indeed the very obvious difference in width between the innermost and the outer ditches cannot be explained even partially by such means. A still more outstanding contrast is that between the innermost wall, with its consistently external ditch, and the outer walls, where, although the ditch is continuous, the wall is sometimes on one side, sometimes on the other (Fig. 23).

(d) TIME AND MANPOWER

One of the most interesting speculations concerning structures like the Benin City walls relates to the time and manpower that would have been required for their construction. Daniels has estimated some interesting figures for the innermost wall at Benin. This is the only wall which is sufficiently regular to make it susceptible to this sort of examination. Furthermore, it is a structure which both historical and archaeological evidence indicate was possibly planned and built at one particular time. The details of the calculation are given in Connah (1967) where it is concluded that 2,500 men could have completed the digging of the ditch in one dry season, but this does not take into account the time and labour taken to heap the earth up into a high bank, nor to extract it from a progressively deepening hole. Yet even if this extra labour doubled the present estimate it would still be possible to construct the inner wall in one dry season given 5,000 men continuously employed for ten hours a day.

(e) DISCUSSION

It has already been argued that the Benin City walls do not as a whole comprise a defensive system. The over-all pattern of walls portrayed on the map should not, in fact, be thought of as any sort of 'system'. It is perhaps rather the result of many different events spread over a long time—an earthen record of a long process of fusion of semi-dispersed communities which by the time of Ewuare had grown into an urban society requiring defence at an urban level. In a forest culture, dependent on the scattered plots of shifting cultivation, the nascent city might well have been merely a concentration of distinct settlements owing allegiance to a common authority. The possible process of development is apparent if the map is examined closely. Inspection of the relative position of wall and ditch at different points, and of the exact nature of different junctions, will perhaps confirm a suspicion that a series of separate enclosures has gradually become linked up to form a pattern within which Ewuare developed his fortified boundary.

This interpretation is merely a suggestion, for chronology remains a problem. Except for the innermost wall, there is no dating evidence other than Egharevba's traditional attribution of the outer walls to Oguola. Attempts to build a chronological sequence with the various elements of the wall pattern are probably not justified without careful excavation of a large number of wall-junctions in order to establish priorities. The writer has elsewhere (Connah, 1963) stated that Ewuare's wall could well be earlier rather than later than the outer walls as tradition asserts. He no longer thinks this, but would point out that there is no real reason why at least some of the outer walls should not post-date the inner one. It is also just possible that the innermost wall itself replaced an earlier inner wall of which no trace has yet been recorded. Whilst working in Benin the writer never found any evidence of this but Bradbury has said that he has seen fragments of earthworks within the area enclosed by the innermost wall (personal communication). As this area is being rapidly absorbed by the expansion of the modern city, the identification and survey of such remains would probably present some difficulty.

The value of the map is reduced by the lack of contours but it is clear that the general pattern of walls conforms to the edge of the rather steep-sided Ikpoba valley, and that both the Ikpoba River and the Ogba Stream are excluded from the enclosed areas. Judging from the previous existence of well-documented waterpaths in Benin City (p. 63) it would seem that the city was in the past partly dependent on water from the Ikpoba, carried from a place near the present road bridge. It is not surprising, therefore, to find just north of the bridge the short spur wall which, branching from one of the outer walls, runs due east to disappear in marshy ground by the river. Its ditch faces north and to claim for it a function as a protective cover of some sort for the watering place is perhaps not unreasonable. South of the Ikpoba River bridge, near the point where the innermost wall is joined by an outer wall, the latter has dependent from it a small triangular enclosure whose scale has had to be considerably exaggerated for it to appear on the map. This might well repay archaeological examination at some time in the future, as it has almost the appearance of a fortified camp.

2. CASUAL DISCOVERIES AND MISCELLANEOUS FIELD-WORK (Plate 16)

(a) DISCOVERIES NEAR THE BENIN GENERAL HOSPITAL

During July 1962, a piece of undeveloped land lying on the side of the Sapele Road opposite to the Benin General Hospital was examined. A few hundred feet away from the road were a number of shallow pits which had been dug in modern times, probably to obtain sand for brick-making. In one of these was found a complete segment of a hinged armlet of 'bronze' which compared closely with those found in the hoard in Cutting IV on the Clerks' Quarters site. It is shown in Fig. 44, 5. This object lay in the sand talus at the base of the side of the pit. Examination of the rough section provided by this side showed a great deal of pottery in what were almost certainly pit-fillings. About 2 ft. below the surface a particularly large pot protruded from the side. It was upright and lacked its rim and part of its base. It is shown in Fig. 32, 1.

This area was said to be part of the site of the former Ewedo Prison, supposedly named after the Oba who founded it, which remained in use until 1897.

(b) SMOKING-PIPE BOWLS FROM THE IKPOBA RIVER

In March 1962 the bowls of five indigenous clay smoking-pipes were donated to the Benin Museum. They are illustrated in Fig. 49, 1–5. They were donated by Mr. G. J. Eddoh of 8, Oza Lane, Benin City, who said that they were 'dug out from the bed of the Ikpoba Stream by my labourer who digs the river sand for buildings'. The bowls were largely intact and, although they were a little weathered, a dottle, presumably of tobacco, remained inside one of them. Also, Figure 49, 4 had traces of a red coating.

(c) SMOKING-PIPE BOWL FROM A 'PLANTATION' IN BENIN CITY

In January 1962 the bowl of an indigenous clay smoking-pipe was donated to the Benin Museum by Mr. Samuel A. Osaghaede of 27, Ikpema Street, Benin City. It is illustrated in Fig. 49, 7. It had a red coating, and its base was broken. The donor said it had been found about 3 ft. 6 in. deep 'whilst digging a rabbit's hole' in his father's 'plantation'. The position of this 'plantation' was not ascertained.

(d) POTTERY FROM THE FOUNDATION TRENCHES OF THE PRISON WARDERS' CLUB

In December 1961 foundation trenches were being dug for a Prison Warders' Club which was subsequently erected. This was situated some 50 ft. or more north-west of Reservation Road, on the city side of the innermost city wall, quite near to the Reservation Road site excavated in 1963.

Narrow trenches had been dug to a depth of about 2 ft. Below the modern ground surface there was an apparently homogeneous red sand which looked natural, yet sherds were being found in it. They were also being found in areas of relatively soft black soil flecked with charcoal, the tops of which did not extend to the modern ground surface. These were probably pit-fillings. The writer inspected the site and collected some of the sherds. Later, one of the warders donated three pots which he had found in the trenches to the Benin Museum and one of them is illustrated in Fig. 31, 2. This is interesting as it is the only other known example of the variant of Form 8 found in Pit 1 at Usama (p. 96). A date somewhere around the eighteenth century has already been suggested for that pit (p. 97).

(e) OTHER FIELD-WORK

Late in the 1961–2 dry season a visit was made to Gwato to assess its archaeological potential. Because of its long history as a trading station, excavations at this village could yield indigenous material, especially pottery, stratified with imported material of European origin. The writer was not encouraged, however, by the very heavy growth of bush which surrounds this village and completely masks any archaeological features which may exist. Any excavation would necessitate considerable expenditure on clearance.

In order to have an understanding of the processes by which Benin traditional pottery had been produced, a visit was made to Use, a village near Benin City which produces most of the pottery in domestic use in the city. This visit took place on

5 July 1962; subsequently the writer found that Willett and Goodwin had also visited the village for the same purpose on 14 February 1957. Willett and the present writer have elsewhere pooled their observations and photographs in a joint paper (Willett & Connah, 1969).

Use is situated a little over three miles from Benin, along the Siluko road. It lies to the north-west of the city, within the area covered by the complex of the city walls, but strangely enough not actually enclosed by any part of them (Fig. 23). It is probably an old settlement, being traditionally held to have been the place where Eweka I, the first Oba of Benin, was brought up (Egharevba, 1960, pp. 8–9 and plate).

The pottery forms produced at Use seem to be confined to a large round-based waterpot with a short neck and a strongly everted rim (Plate 16), a wide-necked variant of this, and a similar pot, without neck or everted rim, but with a grooved shoulder. These forms correspond, in the first instance to Form 1 of the excavated material, and in the last instance to Form 2. The wide-necked variant was never recognized amongst the excavated material. This may have been largely because no examples capable of reconstruction were recovered, and because the rim sherds could have been comparatively easily mistaken for Form 1 sherds.

All the Use pottery is handmade without any sort of wheel, and decoration is of the impressed type, with the exception of multiple groovings which decorate the inside of the neck of the first form mentioned or the outside of the shoulder of the last. The impressed decoration is all carried out by rouletting.

During the course of the work at Benin some attention was given to the surviving traditional architecture of the city. Traditional building techniques in Benin are based on the construction of coursed mud walls. The making of sun-dried mud bricks seems to have been a recent development. Walls are often decorated with horizontal grooves (Plate 17) and are always roofed to protect them from damage by rainstorms. The basic plan of Benin traditional architecture is that of the impluvium, the room with the wide central opening in the roof, through which comes the light, and the rain. The latter falls into the sunken cistern in the centre of the floor and runs away through underfloor drains. Starting, it would seem, with Burton (1863), there has been some discussion as to whether this design owed something to the Mediterranean ancient world, but Goodwin (1957*b*) has argued that it can be explained in terms of local factors and that there is no need to suggest any exotic origin. Plate 1 gives a good idea of the pattern of impluvia and compounds which must formerly have characterized Benin City as a whole.

By the early 1960s there was probably relatively little traditional architecture surviving in the city from before the 1897 punitive expedition. The life of any mud building is geared very much to the continuity of its maintenance, and the advent of European materials and techniques with their lesser requirements in this respect has led to a good deal of replacement. Furthermore the events of 1897 undoubtedly affected the situation. Abandonment of the palace following the exile of the Oba, clearance by the British authorities of some of the buildings in the centre of the city, the disastrous fire which swept through the city shortly after its occupation—all these things must have contributed to the relatively low survival rate of buildings whose materials were anyway hardly of the most durable character. Added to this is the very real problem of determining the age of the whole or of part of such a structure. Yet, of the relatively little architecture surviving from before the British occupation, the most outstanding example seems to be Chief Ogiamien's House, the position of which will be found marked as 'I' on Fig. 23. This is a fine example of a Benin-style house, with an elaborate system of courtyards and altars. It seems to be the only important chief's house which was built before 1897 and which escaped the fire at that time. It has been declared a national monument, as has also Chief Enogie Aikoriogie's House at Obasagbon (for both see Murray, 1967), about 6 miles south-east of Benin, where a courtyard survives of a building probably built in the second half of the nineteenth century containing features indicating direct links with the traditional architecture of Benin. These include horizontally grooved walls, central impluvium and the carved decoration of the timber-work. There are, however, two other features no longer known in Benin: a symmetry of plan whereby the main entrance and the main altar are on the building's long axis, and eight very heavy mud pillars supporting the side lintel walls. This building probably gives an idea of what some interiors in Benin might have been like prior to 1897.

3. GROUND STONE AXES IN BENIN CITY (Plates 17–19 and Figs. 52–6)

The occurrence of ground stone axes in Benin, their use in Benin ritual, their representation in Benin art, and their copying in metal have already been described in Connah (1964) but it is worth making a brief re-examination of the subject. These axes came to the writer's attention whilst purchasing, in Benin, further items for the Benin Museum collections.

It has been known for many years that stone axes, locally revered as 'thunderbolts', have survived on shrines in Benin and can be found depicted in Benin art. Similar beliefs to those held by the Bini with respect to these items are widespread in West Africa (Shaw, 1944). Indeed such ideas have had a wide distribution in space and time, being not unknown at one time in Europe. The objects of veneration themselves are important because of their value as archaeological material; comprising the only known examples of Late Stone Age technology in the immediate Benin area. Such non-provenanced material can only provide information of very doubtful significance, but the fact that no site producing such tools is known as yet in the Benin area somewhat enhances their interest. Furthermore, the discovery and excavation in recent years of the Late Stone Age occupation site at Iwo Eleru, in the Akure area and within the forest belt, in which ground stone axes are associated with a microlithic industry in quartz and chalcedony (Shaw, in press), raises hopes that the Benin tools might well have come from sites in the immediate Benin area, some of which might eventually be discovered.

During 1961–4 it was observed that ground stone axes were to be seen on the Oba's shrines to Eweka II, Overamwen, and Adolo (Plate 17), and also on household shrines in the city. The Bini call such objects *ughavan*, a word meaning thunderbolt, whereas *ughamwan* is the word normally used for axe. His Highness Akenzua II, the present Oba, states that *ughavan* is a contraction of *ughamwan* prefixed to *avan*, the word for thunder, so that the literal translation is thunder axe, probably arising, he says, from the fact that these objects looked like axes. When held in the Oba's left hand as depicted in Plate 19 *ughavan* is known as *isavan*, meaning 'faeces of thunder' (Melzian, 1937), because it is fulfilling a different function, a function wherein it is used to increase the potency of a cursing or blessing.

In spite of the literal translation of *ughavan* there is no realization in Benin that these objects had a functional origin. To the Bini they are thunderbolts and any suggestion that they could be stone tools made at a time before the availability of iron in West Africa is met by polite disbelief. The stone *ughavan* have been picked up at varying times on farms carved out of the bush, and the circumstances of their discovery is held to confirm the fact that they are thunderbolts. 'We only find these things where lightning has struck the ground' is the usual explanation given. It is also alleged that *ughavan* are sometimes found embedded in trees which have been struck by lightning, particularly, it is stated, in iroko trees.

In 1961 the present writer found only one example of a ground stone axe in the museum collection (Fig. 52, 1). The remainder of those shown in Figs. 52–5 have been collected by purchase, with the exception of two (Fig. 55, 7 and 8) loaned by Chief Jacob Egharevba. It was in the course of making these purchases that the metal skeuomorphs (Fig. 56, 1–4) were obtained. It should thus be clearly understood that none of the objects under discussion have known provenances but their immediate place of origin was Benin City itself and it seems likely that the stone axes came from the area around Benin. There is a possibility that their use in Benin ritual may, at a relatively late date, have stimulated a trade in stone axes from further afield, or that some of them may have been specially manufactured for such use. However, the latter, at least, seems rather unlikely. In contrast, the metal copies of stone axes, or metal skeuomorphs as they are called in this discussion, must be of relatively recent date. They are lost wax castings, three of which are embellished with human faces in the Benin art style.

By 1964 a total of twenty-two stone and five metal axes were in the Benin Museum collection. Also known were one stone axe on the Oba's shrine for Adolo, his great-grandfather, four on the Oba's shrine for Overamwen, his grandfather, and five on the Oba's shrine for Eweka II, his father, plus one stone pestle and three doubtful items of general axe-like shape on the same shrine. The following examination is based on these forty-one items, plus two in the Oba's personal possession (apart from those on his shrines) which were examined for a few moments only. Figs. 52–5 illustrate all but one of the stone axes in the Benin Museum and Plate 18 illustrates those on the Oba's shrine for Eweka II.

(a) TYPOLOGY

1. Large heavy axes of roughly flattened-oval section, approximately 6 in.–10 in. long, with sharp blades. These could have been used in felling forest trees of moderate size. (Plate 18, second and third from front of those lying flat, and Fig. 52, 1 are examples.)

2. Smaller axes (less than 6 in. long) of roughly flattened-oval section, showing some occasional tendency to splayed blades. These have rather blunt edges, admittedly sometimes showing heavy wear but the blades themselves were originally made with rather obtuse faces. These were probably a general purpose tool, perhaps even hafted transversely, and used for hacking out roots and roughly turning the surface of the soil after bush clearance. One hesitates to call them hoes, but their uses may have included such a function. (Figs. 52, 3; 53, 1, 2 and 4; 54, 1–4; and 55, 2 are examples.)

3. Small axes or tools of axe form, of variable section, some fragmentary but probably all those known were less than 6 in. long, the smallest known is only 1¾ in. long (Fig. 55, 8). These items are generally smaller than Type 2 but this is not always the case. Usually they are better made, however, and have more carefully prepared cutting edges with more acute faces. They were probably woodworking tools, some probably being a sort of adze whilst others may have been meant as small chisels. Others are just small sharp axes which can hardly be allocated to either of the previous categories. (Figs. 52, 2; 53, 3 and 5; and 55, 1 and 3–9 are examples.)

4. Extremely long, parallel-sided, oval-sectioned tools with a narrow blade at one end, and a rounded point at the other. The blades are nicked centrally. The largest of these tools is about 2 ft. 3 in. long, two others are about 1 ft. 11 in. long. The only practical function that seems likely is as digging tools, used without hafts, held in both hands whilst the user assumed a stooping posture. It is difficult to explain the nicked blade, however. (Plate 18 shows examples leaning against the front of the Oba's shrine for Eweka II.) Compare these long tools with Shaw's basically similar ones from Ghana (Shaw, 1944) and also compare remarks on their possible use. The present writer has also seen two specimens similar to those of Benin, in the Fort Lamy Museum, although he does not know their provenance.

5. Miscellaneous items: (*a*) A medium-sized axe, one face of which is ridged longitudinally. Not illustrated, it is the only one on the Oba's shrine to Adolo. (*b*) A cylindrical stone pestle, rounded at both ends. Only one known, see nearest of stone tools in Plate 18. This may not belong to the same general period as the axes; it might be considerably later in date. (*c*) Two axe-shaped stones, one possessing a hole countersunk into one surface but not penetrating the stone. It is doubtful if these are tools. Second from the back in Plate 18, one lies on top of the other. (*d*) A very roughly axe-shaped piece of stone which is not an artefact—first from the back in Plate 18. When purchasing *ughavan*, stones similar to (*c*) and (*d*) were brought in for sale (although none with a countersunk depression). These were not artefacts but water-smoothed pebbles from stream-beds. They were not brought along for sale with intent to defraud, however. From the old crusted blood and other materials on some of them it was obvious that in Bini eyes these passed well enough as *ughavan*. The fact that some of the *ughavan* on the Oba's shrines are not artefacts gives confirmation that

discrimination in deciding what is or is not an *ughavan* is not quite bounded by the same limits as the archaeological decision as to what is or is not a tool or an artefact. Beasley's comments on this aspect should be referred to (Beasley, 1937).

(b) TECHNIQUE

The Benin tools have a general tendency towards pointed butts. Presumably they were first roughed-out by flaking and Figs. 52, 3; 53, 3; and 55, 1 show remains of this flaking which were not ground away, as was the more usual practice. It seems possible, however, that minimal amounts of flaking were carried out in some cases; Fig. 53, 4, in particular, and perhaps some others, look as though conveniently shaped and sized water-worn pebbles or natural flakes of rock have been selected and ground into the finished product. It is of course not easy to extend these remarks to tools still in use on shrines; it would necessitate temporary removal from the shrines and the scrubbing away of the encrusting blood before reliable comments could be made. It is, however, clear that the Type 4 tools on the Oba's shrine to his father Eweka II are a superb technical achievement.

Although previously (Connah, 1964) these tools were called 'polished stone axes', it is now felt that 'ground stone axes' is a more accurate description. Some of them are probably not polished in the proper sense of the word but merely ground. In addition, although it has been suggested above that the axes were roughed-out by flaking, the possibility should not be overlooked that pecking might have been employed in some instances.

(c) INTERPRETATION

In Connah (1964) will be found an appendix reporting on the petrology of the stone axes actually in the Benin Museum collection, together with the two loaned by Chief Jacob Egharevba. This appendix, written by R. A. Reyment and N. K. Grant, both at that time of the Department of Geology, University of Ibadan, included the following statement: 'The petrological evidence does not insist that the stones used for these axes *must* have come from within the high forest belt. It does allow that they *may* have come from within it, however. They could have originated from an area around Owo, near the northern limits of the high forest.'

Probably these tools did derive from a forest-belt ground stone axe tradition but any hopes that they can give a picture of a whole *industry* are obviously ill-founded. The evidence at both Bosumpra and Iwo Eleru would lead us to expect a microlithic assemblage to be associated with such tools but the manner of collection of the Benin material leaves it an open question whether these heavier tools were part of an industry containing microliths. Yet it should be observed that the Benin stone axes might be interpreted as indicating the main aspects of an early forest *economy*. Type 1 could show that some trees and bush were already being cut, Type 2 and perhaps Type 4 could show that a simple form of cultivation was being practised and Type 3 could indicate that some woodworking, of however simple a kind, was in progress.

(d) THE METAL SKEUOMORPHS

Only five of these are known to the writer, all of which have been purchased for the Benin Museum. The Oba has, however, in his personal possession a long and narrow stone axe, the rear half of which appears to be encased in sheet brass, and he says that *ughavan* can be of stone, or metal, or stone partly covered with metal. Here a 'bronze' lattice-work enclosed axe described by Balfour (1903) should be remembered, as should the pair of river pebbles described by Beasley (1937), which were similarly enclosed and attached together by a chain.

It is interesting that ground stone axes, having been found accidentally in the bush and allotted a place in Bini beliefs, should then have been copied so faithfully in metal. Fig. 56, 1, is so good a portrayal of a stone axe as almost to deceive the researcher when first handled. Cast by the lost wax method it has obviously been modelled on an actual stone axe. It is of brass and there are two possibly copper core-pins in each face and one in the pointed end. Thus there must be a clay core enclosed within the item.

Fig. 56, 2, is also of brass and has a naturalistic human face on one side. It is a lost wax casting and although no core-pins can be seen it probably still has a clay core within it.

Fig. 56, 3, also with a face, is of lead and is of rather crude appearance compared with the two items just described. Some of the crudity of the effect is due to the softness of the material having resulted in quite a lot of damage. The face is portrayed in high relief, as also is the lower border of a criss-cross beaded head-dress, the bands of which were incised into the lead, probably with a knife after the casting was made. In the pointed end is an iron pin surrounded by a thin, possibly brass, collar, presumably a core-pin, but no others are visible. This item also probably has a clay core.

Fig. 56, 4, is of brass. It represents a devolution of form further from the original stone axe model than Figs. 56, 1–3. There is little pretence of an edge to the blade; only the general form betrays the origin of the inspiration. The face, in high relief, is reversed on this axe, so that the blade is at the head instead of the butt being there. The face has a crudely portrayed beard and a double-headed snake surrounding it (or two single-headed snakes with looped tails—the casting is damaged at the crucial point). There are four vertical marks over each eye, this being a common facial mark in Benin art. There is a decorative motif on the centre of the forehead which is common in the carved roulette decoration (Decoration 8) of late Bini pottery. Technically this axe is a rather poor piece of work. Two holes in the back betray the sites of core-pins, an ugly bump above the bridge of the nose is the end of an iron core-pin still *in situ*, whilst below the nose, below the beard, and at the other side of the butt, there are holes where the metal has failed to run properly during casting. These holes do enable one to confirm that a clay core is still *in situ*. This was also confirmed in the fifth metal skeuomorph, Benin Museum Store number 324, which is not illustrated here. This was a plain, undecorated axe of flattened-oval section with a sharp blade and a squared-off butt. The brass casting had failed at the two shoulders of the butt, and through these gaps one could see the clay core.

In Connah (1964) will be found an appendix reporting on the chemical analyses of the metal skeuomorphs. This was contributed by D. R. Goddard of the Department of Chemistry, University of Ibadan, and has been used as the basis of the above descriptions of the metal of each specimen. The core-pins were not separately analyzed, however, and their description has been based only on the present writer's personal observation.

E. THE FINDS

1. POTTERY (Plates 20–36 and Figs. 25–34)

THE Benin City excavations and associated field-work produced large quantities of pottery, mostly in the form of sherds. The material was examined twice: once to decide on a typological framework and a second time to record the stratigraphic incidence of the various types. An effort was made to keep the typological divisions as broad as possible in the belief that a simple analysis might have more practical value than a highly complex one. The examinations of the pottery were carried out in 1963–4 in Benin itself. Time and facilities were limited and the writer would stress that were he to tackle this material now (1971) he would probably proceed in a rather different fashion.

(a) FORMS

Form 1: Necked waterpot. Large spherical pots of a type still in wide use for carrying water. Variation of the form is mainly in the neck and rim. Decoration 1 is common on the body and sometimes extends over the base. One of the Decorations 4–7 is often used on the base but is sometimes found on the body also. Decoration 2 can be used on the body. Decoration 9, in zones of wavy lines, is common on the upper part of the bodies of pots which seem otherwise largely plain. Decorations 10, 11, and perhaps 12, can also occur. Also necks can be grooved. The fabric is buff to black, gritty, and fair or even good. (Figs. 25, 1–4, and 26, 1–3.)

Form 1A: Cordoned waterpot. This is only known from isolated sherds but it is assumed that it was of a form related to Form 1, and with a tendency to be thin-walled. It is characterized by a slight cordon around the belly of the pot, often with Decoration 2 to one side of it and Decoration 4 to the other. Usually, beyond the Decoration 2 is Decoration 9 in wavy lines, above which it is thought there was a strongly everted rim. The cordon is constricted at frequent intervals and sometimes broken altogether. A distinctive feature is the fabric, which is of a buff colour, often with a reduced black interior, and of an unusually sandy feel and appearance although it does have some grit in it. (Fig. 26, 4–10).

Form 1B: Ellipsoidal waterpot. A pot, usually of small size, the height of the body of which (excluding the neck and rim) has a tendency to exceed its greatest width. Rim always tends to be everted. All the known examples have been found in well-like cisterns and this fact, together with the neck and rim forms, might suggest that, with a rope tied around the neck, these pots were used to hoist water out of the cisterns.

Decoration 1 is normal but it is usually applied more haphazardly than on Form 1 pots. Where there is enough of the pot surviving, it is carried over the bottom of the pot also. One pot has Decoration 7 on the body. The fabric is buff, gritty, and fair. (Fig. 27, 1–4.)

Form 2: Neckless storage-pot. A wide and deep pot, with a wide aperture. A type of pot still in use for water storage, grain storage, and so on. Decoration 1 is used on the body where body sherds are recognizable. The type of decoration used on the base is unknown. There is always a band of decoration around the top of the pot, consisting of grooves with varying forms of additional decoration: Decorations 8, 9, 10, or 11. The fabric is buff to black, gritty and fair. It should be noted that rim sherds of Form 2 are easily confused with those of Form 4. (Fig. 27, 5 and 6.)

Form 3: Flask-necked pot. A type of pot still in use for carrying drinking water when working on the farm. It is characterized by its narrow aperture and elongated neck. The shape of the body is unknown but was probably spherical. The length of neck can vary considerably. So far as is known, Decorations 9, 10, and 11 are employed and the junction of the neck and body is sometimes decorated with grooves. The fabric is buff to black, gritty, and fair or even good. (Fig. 27, 7–10.)

Form 4: Grooved bowl. A rather heavy and coarse, large bowl of a shape now used for general purposes. Characterized by an incurving upper side which has external grooves. The main variations are in number or depth of grooves, the latter varying from deep to very slight. Also there is one variety of this form which is of an extremely coarse character: very heavy, thick-walled, and crudely grooved. A characteristic feature of the form as a whole is that the raised bands between the grooves are commonly covered with Decoration 1 or 2. This decoration of the bands can consist of Decoration 10 or 11, but this is rare. Rarer still is Decoration 10 or 11 within the grooves which are as a rule plain. The raised bands can themselves be plain also but this is not usual. The decoration of the bands does not extend much below the grooved zone, the rest of the body being sometimes plain, although often having one of the Decorations 4–7 or more rarely Decoration 1 or 2. A common feature is the presence of Decoration 11 in the form of one or even two horizontal bands of thumb-printing immediately below the grooved zone, in some cases with thumb-nail impressions within the prints. The fabric is buff to black, gritty, and fair. (Figs. 28, 1–8, and 29, 1 and 2.)

Form 5: Fine grooved bowl. This is a finer version of Form 4 and is rather smaller in size. It has a finer fabric, is thinner-walled and better fired. In general its grooves are shallower and slighter than is usually the case with Form 4. As with Form 4, the main variations are in number or depth of grooves. The raised bands between the grooves are commonly covered with Decoration 2, but quite often they are left plain. Usually there is no decoration within the grooves but sometimes Decoration 9 is found in them. A common feature is the presence of Decoration 11 directly below the grooved zone. This is usually in the form of a row of thumb- or finger-printing but sometimes it consists of rectangular impressions made with some sort of a tool. The rest of the body either has one of the Decorations 4–7 or sometimes Decoration 2. It can also be left plain. The fabric is buff to black, gritty and good. It is well fired with a hard smooth surface. (Fig. 29, 3 and 4.)

Form 6: Flat-rimmed heavy bowl. This is a coarse, heavy, thick-walled, small bowl. It is crudely made. It has a wide, usually flat-topped rim which tends to overhang on the inside. An informant claimed three possible uses for it: for washing one's hands before eating food, as a lamp on the shrine of the god of medicine, or as a container for wax used by the brass-workers when modelling. As the statistical analysis of the pottery (Fig. 60) has clearly shown that this is an old form, the incidence of which has very much declined with the passage of time, it may be that the informant was merely guessing. Use as a lamp with a floating wick could be a possibility, however. Also the possibility of its being used on shrines is supported by the presence of Bini 'chalk' adhering to many basal fragments. This form is normally round-based as with all other Benin pottery but two fragments of the distinctive fabric used for this form showed parts of flat bases. Otherwise this form varies in depth and in wall thickness but in little else. Decoration 1 applied to the whole exterior is normal but largely because of the poor fabric the decoration is in general difficult to recognize. Decoration 2 is sometimes used instead, and Decoration 4 has been recorded. Decoration 10, in the form of criss-cross incised lines, also occurs; Decoration 11, in the form of a group of two or three finger-tip impressions, occurs sometimes on top of the rim, or even on the inside or outside of the pot wall. The fabric is buff to red but red is the most common. Some fragments with buff surfaces have a black interior. It is gritty, badly fired, soft, and generally poor. (Fig. 29, 5–14.)

Form 7: Ledged bowl. A large bowl now used for general purposes. It is characterized by a continuous ledge around the bowl's greatest circumference, which is at the base of the rim. The ledge is usually horizontal and the rim leans inwards, has an internal bevel, and is grooved externally, although usually only slightly. One sherd which was examined had the ledge partially broken away and it appeared to have been made as a separate piece, which was then stuck onto the body of the pot. Whether this technique was the one generally employed is impossible to say, however. The main variations in this form concern the width, angle, position, and treatment of the ledge. This can vary from a wide, pronounced feature some distance below the edge of the rim, to a narrow one which almost coalesces with the rim itself. Sherds of Form 7 having the latter type of ledge can be confused with rim sherds of Form 8 or 13. The decoration is focused principally on the ledge, which may carry Decoration 8, 9, 10, or 11. It is particularly common for the edge of the ledge to have Decoration 11 in the form of 'piecrust' treatment of various kinds. The body of the pot usually has one of the Decorations 4–7 but it can be left plain, or, rarely, have Decoration 1. The fabric is buff to black, gritty, and fair or even good. (Figs. 29, 15–17 and 30, 1–8.)

Form 8: Shouldered bowl. Now used for general purposes or for cooking, probably depending on its size, which varies a good deal. As is apparent from the Benin excavations, pots of this form were formerly placed in the bottom of walls as foundation deposits, and are still to be found on shrines of fairly recent date. This form is characterized by a marked shoulder from which the rim leans inwards. The rim sometimes has a tendency to thicken towards its top and to attenuate towards the shoulder. The extremity of the shoulder usually runs smoothly into the body of the pot below it but occasionally it is stepped back and can resemble the ledge of some of the variants of Form 7. One variant has the rim and shoulder deeply grooved and then cut vertically or diagonally. This was formerly designated Form 8A and two examples of it appear in Fig. 31, 2 and 3. Subsequently, however, it was decided that there were insufficient reasons for regarding it as a separate entity. The only other significant variation is that the rim of the form as a whole may be everted at its top extremity. The rim and shoulder of this form are usually left plain but they can have Decorations 2, 9, 10, or 11. The body of the pot normally has one of the Decorations 4–7 but can have Decoration 8 or be left plain. The fabric is buff to black, gritty, and fair or even good. (Figs. 30, 9 and 10; and 31, 1–3.)

Form 9: Inturned-rim bowl. A simple bowl of which the only significant characteristic is an inturned rim, usually with an internal bevel. Identification of some of the decoration was found to be difficult, it belonging to either one of the Decorations 4–7 or perhaps to Decoration 1. Decorations 2, 9, and 11 were certainly present, however. Also, surfaces could be left plain. The fabric was buff to black, gritty, and fair. (Fig. 31, 4.)

Form 10: Flared-rim bowl. A normally heavy, large bowl, characterized by a relatively small body and a very large flaring rim which meets the body at a sharp angle. Said to be now used either for washing one's hands before eating food, or for covering 'medicine' when in certain circumstances this is placed in a hole in the ground within the house. The main variations in this form concern the rim, the length of which varies considerably and which can take on a pronounced everted curve. One example of this eversion of the flared rim, to be seen in Fig. 31, 6, belongs to a much thinner-walled version of this pot than is usual. The body of the form as a whole usually has Decoration 4, although it can have Decoration 5, and one occurrence of Decoration 1 has been observed. The upper portion of the body often has a narrow horizontal band of Decoration 11. The rim is usually plain except for a faint groove or grooves just below its top, on the outside. The inside of the top of the rim usually has a narrow horizontal band of Decoration 4 or 2. The shorter rims usually have the same band, but in Decoration 9. One rim has Decoration 10 on the upper inside surface and another has Decoration 9 on the lower part of the outside surface. One unusually large example of this form has Decoration 2 on the exterior of the rim, Decorations 10 and 11 at the junction of the rim and body, and Decoration 2 on the lower body and the base. On its inside is a low relief representation of a snake. (Fig. 32, 1.) The fabric is characterized by a purple/brown outer surface and a buff/red inside surface. The outside can lighten to buff/red, however, or darken to black. The inside can also darken to black. Fabric is gritty and fair. (Figs. 31, 5–8, and 32, 1.)

Form 11: Rusticated-band bowl. A bowl characterized by a single band of rustication at its greatest circumference, just below an incurving rim. The variations of this form involve the shortening of the incurve of the rim so that the rusticated band is on the outer edge of the rim itself. Also some varieties are very lightly grooved above the band of rustication so that they become almost indistinguishable from Form 5. The rusticated band, which is basically Decoration 11 but can have Decoration 10 present also, is applied either direct or onto an applied cordon. The rest of the pot is often plain, although Decoration 1 or 2, or one of the Decorations 4–7, or even Decoration 10, can occur. The fabric is buff to black, gritty, and fair or even good. (Fig. 32, 2 and 3.)

Form 12: Rusticated bowl. A bowl characterized by extensive surface rustication and some incrustation, the upper part of the body and the rim being largely covered. The rim form varies from incurving to almost upright and to slightly everted. Apart from the rustication and incrustation (Decoration 11) which is usually applied in orderly horizontal bands, Decoration 9 can be present also and the lower part of the body and the base usually have one of the Decorations 4–7. The fabric is buff to black, gritty, and fair. (Fig. 32, 4.)

Form 13: Overhanging rims. Rims of pots of sometimes uncertain form but probably mostly bowls. The rims vary in the degree to which they overhang the outside of the pot. Some possibly devolved overhanging rims could as easily be considered as devolved versions of Forms 7 or 8. Rims can have Decorations 9, 10, 11, or be grooved or left plain. The body of the pot can have Decoration 2, one of the Decorations 4–7, Decoration 10, or quite commonly be left plain. The fabric is buff to black, gritty, and fair or even good. (Fig. 32, 5.)

Form 14: Heavily ornamented bowl. This is a bowl of a basic shape similar to Forms 7 and 8 but it is characterized by heavy ornamentation of the space between the ledge or shoulder and the rim. Much of this consists of complex appliqué work helped out with heavy rustication. A high relief decoration with spaces left between and behind its constituent elements is achieved. Some of it has a skeuomorphic appearance, drawing perhaps for its inspiration from the richness of Bini metalwork craftsmanship. Apart from this intensive application of Decoration 11, the rest of the body of these pots usually has one of the Decorations 4–7. The fabric is buff to black, gritty, and fair or even good. (Figs. 32, 6, and 33, 1 and 2.)

Form 15: Groove and cordon bowl. A rare form characterized by a single groove beneath a cordon which coalesces with the rim. The groove and cordon vary in prominence and the angle of the rim varies. This form is usually plain but the body can have one of the Decorations 4–7. The fabric is buff to black, gritty, and fair. (Fig. 33, 3 and 4.)

Form 16: Bowl with smoothed-over rim. A simple bowl with its rim casually smoothed over so that it projects a little on the outside. The top of the rim is commonly flat but sometimes there is a groove in it. This form can be plain or can have one of the Decorations 4–7 or Decoration 10. The fabric is buff to black, gritty, and fair. (Fig. 33, 5.)

Form 17: Ledge-rimmed bowl. A simple bowl with a ledge rim, either flat or with an internal step probably for a lid seating. This form is either plain or has Decoration 10. The fabric is buff to black, gritty, and fair. (Fig. 33, 6.)

Form 18: Shallow cups and dishes. These have plain rims or rims with bevelling or flattening. They are usually plain, but can have Decoration 10. The fabric is buff/red to dark brown, gritty, and fair. (Fig. 33, 7 and 8.)

Form 19: Small spherical pot. Said to be now used as a drinking pot or as a child's pot. One of those known has a small hole in its base (Fig. 33, 13). The neck is usually plain but may be grooved. The body can be plain or have Decoration 2, one of the Decorations 4–7, or Decoration 9, 10 or 11. The fabric is buff, red or dark brown, gritty, and fair or even good. (Fig. 33, 9–13.)

Form 20: Baggy pot. A form of pot varying from thin- to thick-walled, but in general of a rather coarse character. It can be plain, or can have one of the Decorations 4–7, or be decorated with grooves. The fabric is usually buff to black, gritty, badly fired, soft, and generally poor, but it can be sandy and it can also be of fair quality. (Fig. 33, 14–16.)

Form 21: Flanged-rim bowl. A form of pot characterized by a groove in the outside of the rim which creates a flange beneath it. In some variations the groove is lower and more accentuated, whilst in others it is higher and not so marked. Usually this form is plain but rarely one of the Decorations 4–7 or Decorations 8, 10, or 11 may be used on it. A feature of this form is that it sometimes has decoration on the inside consisting of geometric patterns of Decoration 9 or 10 and Decoration 11. The fabric is buff to black, gritty, and fair. (Fig. 34, 1 and 2.)

Form 22: Dish. This form usually has a well-developed ledge some way below the rim, but there is a rare variation which has a ledge rim instead. The usual form has blocks of clay positioned between the rim and the ledge at the four quarters of its circumference and there is sometimes heavy ornamentation of the sort found on Form 14. Indeed Forms 14 and 22 are to some extent related. In addition to the Decoration 11 used on the rim and ledge, Decorations 9 and 10 can occur. The body is either plain or has one of the Decorations 4–7 or Decoration 14. The rare variation with the ledge rim has Decorations 10 and 11 forming triangular patterns on top of the rim. The fabric is buff to black, gritty, and fair. (Fig. 34, 3.)

Form 23: Perforated pots. Sherds belonging to pots of unknown and perhaps differing forms. The perforations were made before firing and the pots so treated are more likely to have been used as suspended containers for the drying of meat and fish than as strainers. Modern parallels for such pots are common in Nigeria. The sherds can be plain or can have Decoration 1 or 2, or one of the Decorations 4–7. It is apparent that the decoration was applied first before making the holes, which were made from the outside of the pot. The fabric is red, or dark brown to black, gritty, and fair. (Fig. 34, 4–6).

Form 24: Ring-based pots. Only two sherds were found and the form is unknown. They have one of the Decorations 4–7 and also Decoration 11. The fabric is buff to black, gritty, and fair. Not illustrated.

Form 25: Small dish-bowls. These are known only from the Usama site. Usually they are very shallow but rarely they deepen to a bowl form. Often the top surfaces of the rims are grooved, and sometimes they are bevelled internally. The bodies are usually plain, the only decoration being a band of Decoration 11, or sometimes 10, on the outermost edge of the rims. The bodies can have Decoration 2. The fabric is buff to black, gritty, and fair. (Fig. 34, 7–12.)

(b) DECORATIONS

Decoration 1: Coarse string roulette. A coarse, close-set collection of impressions made with a string roulette. At Use, where this type of roulette is still used, it is said to be made from pieces of fibre from the stem of a palm leaf (Willett & Connah, 1969). This decoration usually consists of close-set diagonal rows of impressions. Sometimes these run in two directions and cross one another. They have also been observed to run in wavy lines. (Plates 20 and 21.)

Decoration 2: Fine string roulette. A smaller variety of Decoration 1. The individual impressions are smaller and often the rows of impressions more widely spaced. The rows of impressions are usually diagonal and a widely spaced variety sometimes has them in two directions so that a diamond pattern results. They have also been observed to run in wavy lines. (Plate 22.)

Decoration 3: Coarse and fine string roulette combined. This usually consists of parallel straight rows of alternate large and small impressions. (Plate 23.)

Decoration 4: Stippling roulette (punctate). Stippling of the surface probably by use of a twig roulette, as described in Willett & Connah (1969) in connection with contemporary pottery manufacture at Use. This decoration is applied either broadcast over a surface or it can occur in bands. (Plate 24.)

Decoration 5: Stippling roulette (cluster punctate). Stippling of the surface as with Decoration 4 but in this case shallower rather blotchy impressions appear in distinct clusters. This decoration is applied broadcast over a surface. (Plate 25.)

Decoration 6: Stippling roulette (circles). Stippling of a surface as with Decoration 4 but here impressed circles are produced. These are usually broadcast over a surface, the circles frequently overlapping, but sometimes they occur in ordered rows. (Plate 26.)

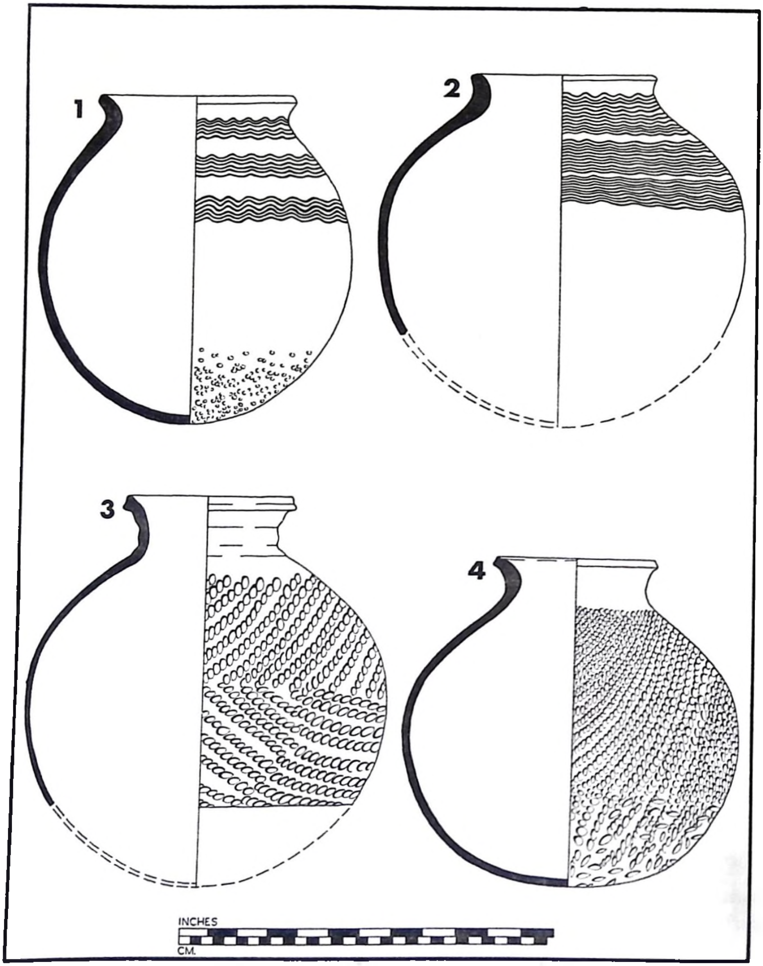

FIG. 25. Pottery: All Form 1. 1. with Decorations 7 and 9. 2. with Decoration 9. 3 and 4. with Decoration 1.

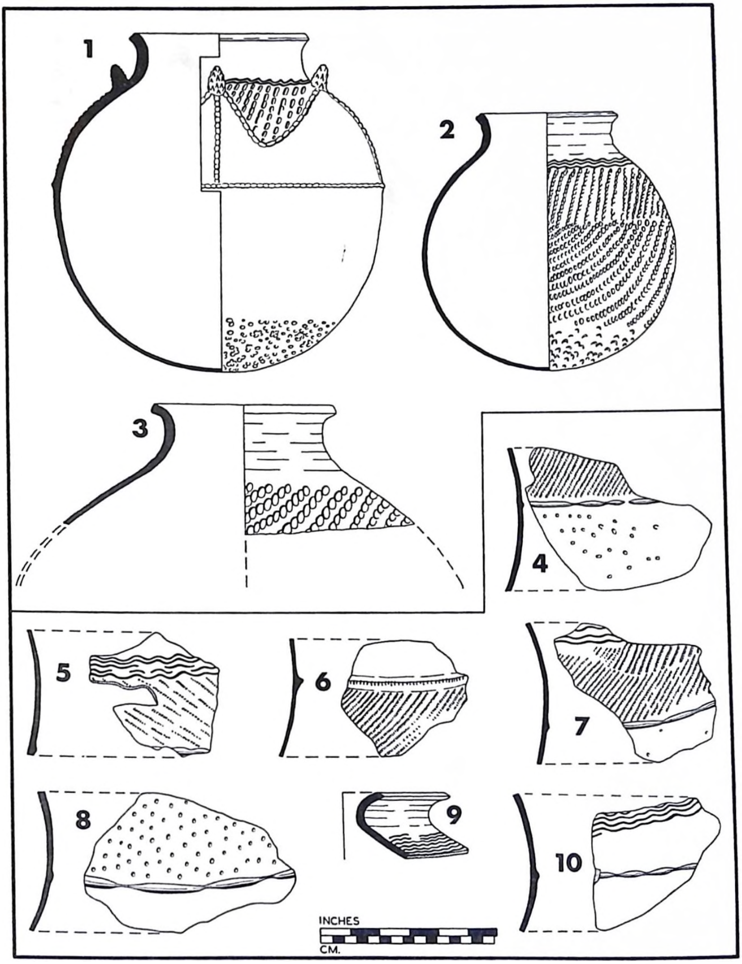

FIG. 26. Pottery: **1.** Form 1 with Decorations 7, 9 and 11. **2.** Form 1 with Decorations 1, 7 and 9. **3.** Form 1 with Decoration 1. **4.** Form 1A with Decorations 2, 4 and 11. **5.** Form 1A with Decorations 2, 9 and 11. **6.** Form 1A with Decorations 2 and 11. **7.** Form 1A with Decorations 2, 4, 9 and 11. **8.** Form 1A with Decorations 4 and 11. **9.** Form 1A with Decoration 9. **10.** Form 1A with Decorations 9 and 11.

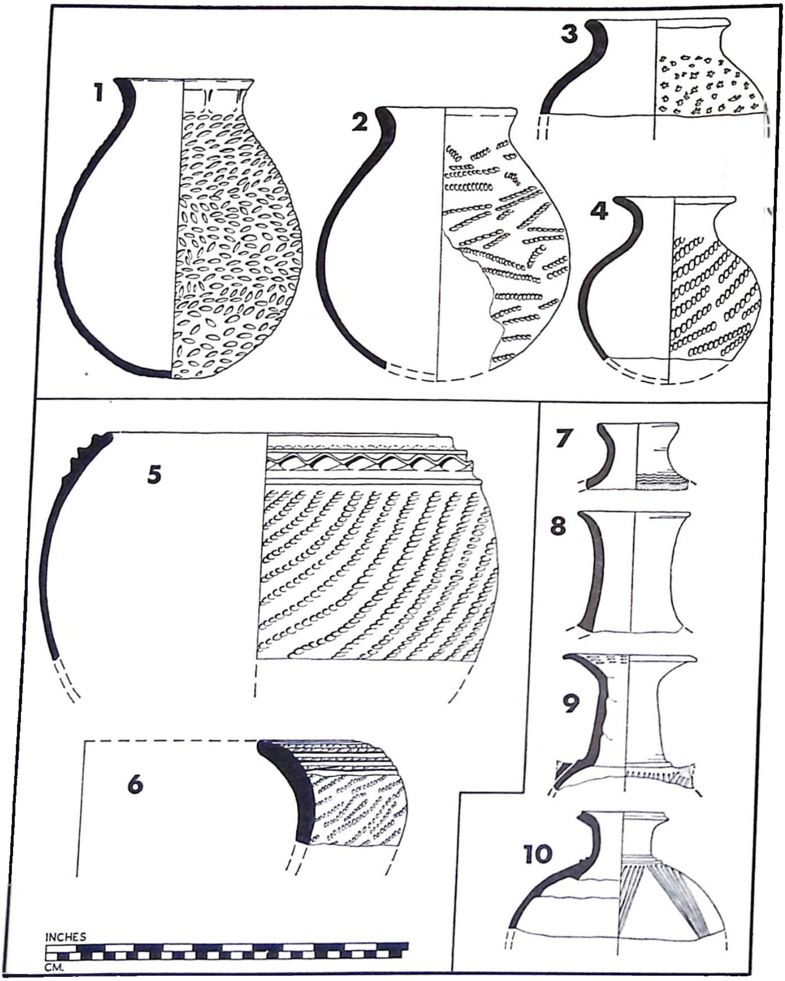

FIG. 27. Pottery: 1 and 2. Form 1B with Decoration 1. 3. Form 1B with Decoration 7. 4. Form 1B with Decoration 1. 5. Form 2 with Decorations 1 and 11. 6. Form 2 with Decoration 1. 7. Form 3 with Decoration 9. 8. Form 3, no decoration. 9. Form 3 with Decoration 9. 10. Form 3 with Decoration 10.

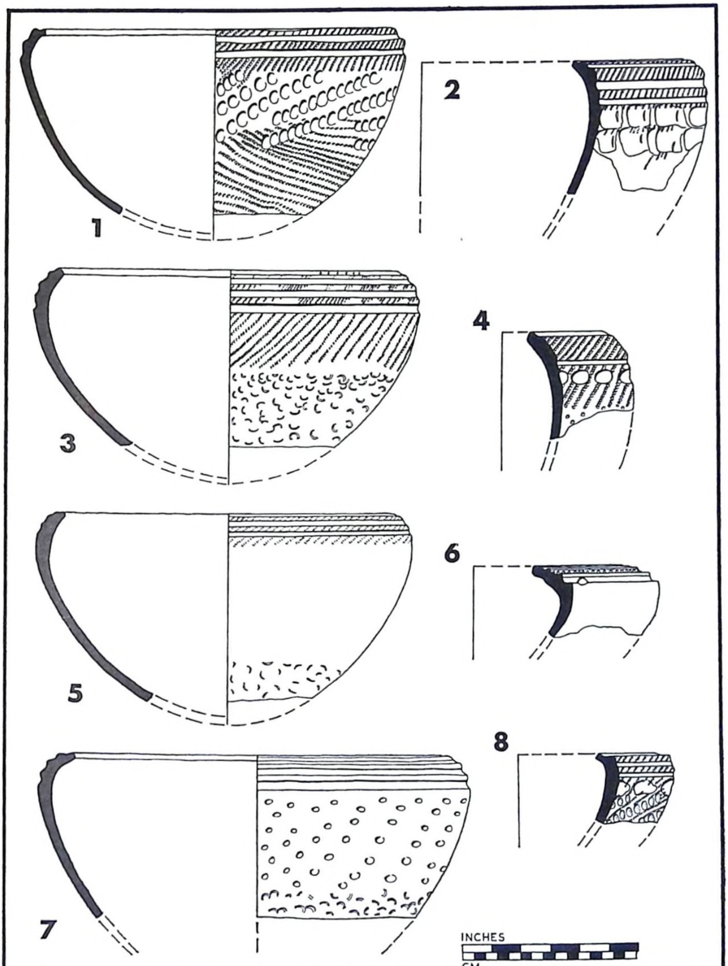

FIG. 28. Pottery: All Form 4. 1. with Decorations 1 and 2. 2. with Decorations 2 and 11. 3. with Decorations 2 and 7. 4. with Decorations 1 and 11. 5. with Decorations 2 and 7. 6. with Decoration 11. 7. with Decoration 7. 8. with Decorations 1, 2 and 11.

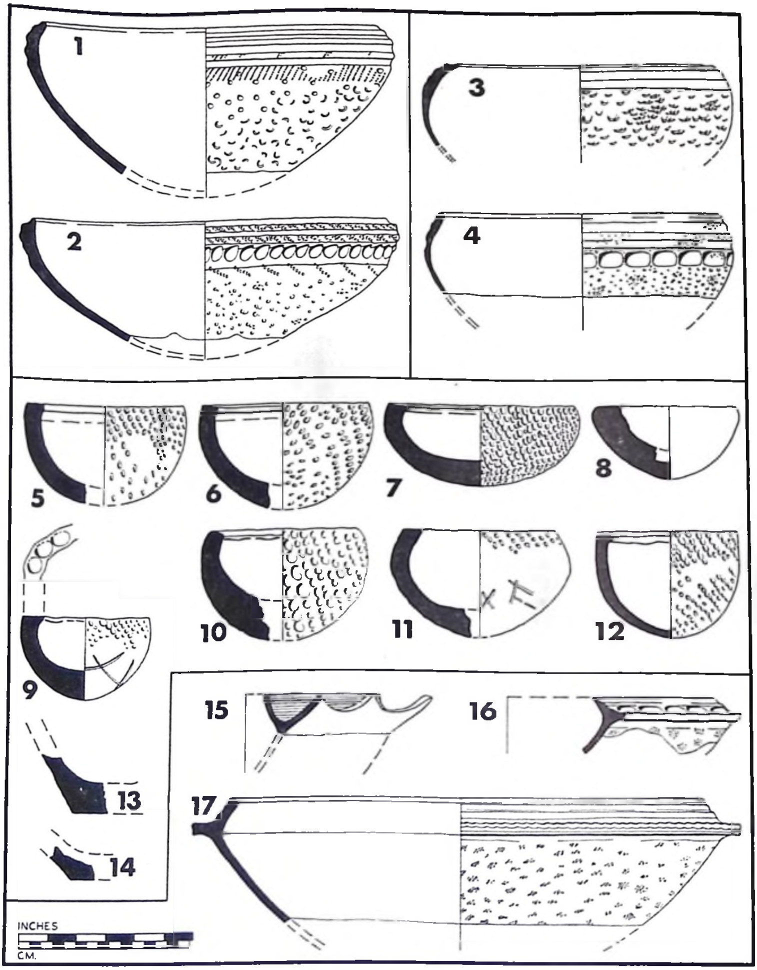

FIG. 29. Pottery: **1.** Form 4 with Decorations 2 and 7. **2.** Form 4 with Decorations 1, 7 and 11. **3.** Form 5 with Decoration 7. **4.** Form 5 with Decorations 7 and 11. **5, 6** and **7.** Form 6 with Decoration 1. **8.** Form 6, no decoration. **9.** Form 6 with Decorations 1, 10 and 11. **10.** Form 6 with Decoration 1. **11.** Form 6 with Decorations 1 and 10. **12.** Form 6 with Decoration 1. **13** and **14.** Form 6, fragments of flat bases. **15.** Form 7, no decoration. **16** and **17.** Form 7 with Decorations 7 and 11.

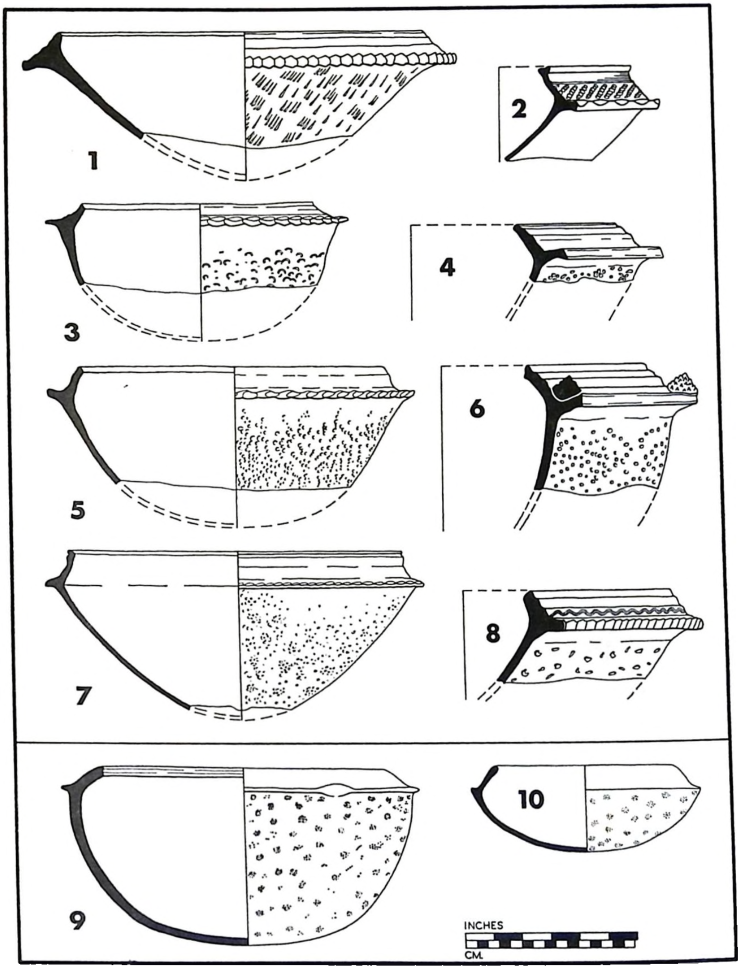

FIG. 30. Pottery: **1.** Form 7 with Decorations 7 and 11. **2.** Form 7 with Decorations 1 and 11. **3.** Form 7 with Decorations 7 and 11. **4.** Form 7 with Decoration 7. **5.** Form 7 with Decorations 7 and 11. **6.** Form 7 with Decorations 4 and 11. **7.** Form 7 with Decorations 7 and 11. **8.** Form 7 with Decorations 7, 9 and 11. **9.** Form 8 with Decoration 7. **10.** Form 8 with Decoration 5.

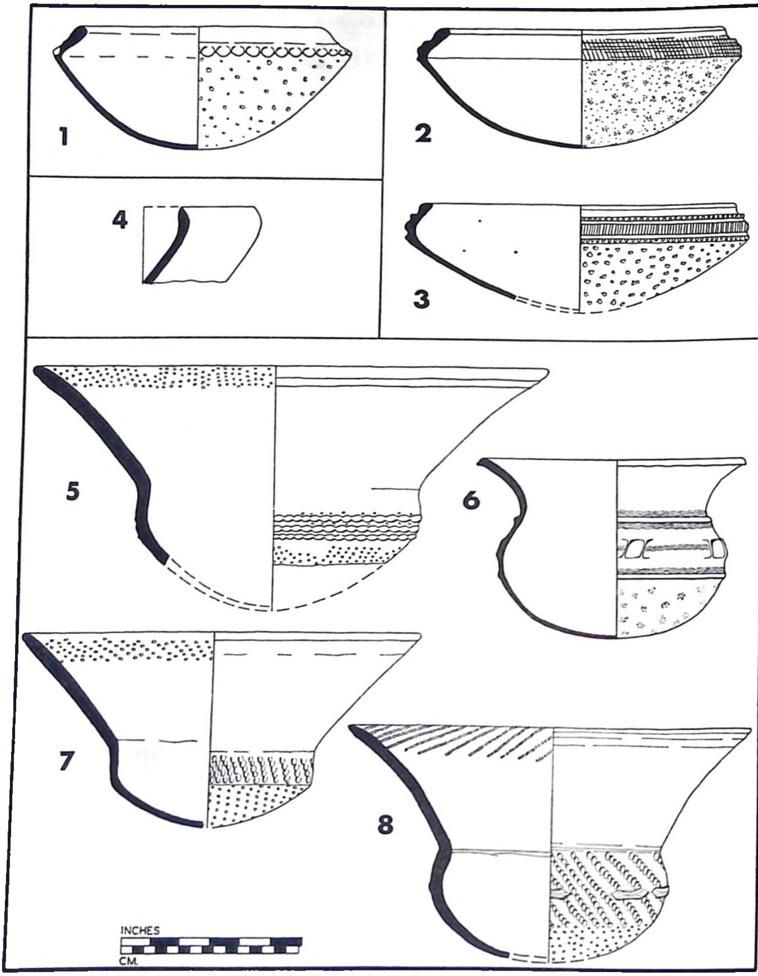

FIG. 31. Pottery: 1. Form 8 with Decorations 7 and 11. 2 and 3. Form 8 (formerly 8A, see page 118) with Decorations 7 and 10. 4. Form 9; no decoration is shown although probably Decoration 1 was present but very indistinct. 5. Form 10 with Decorations 4 and 11. 6. Form 10 with Decorations 5, 9 and 11. 7. Form 10 with Decorations 1 and 4. 8. Form 10 with Decorations 1, 2, 4 and 11.

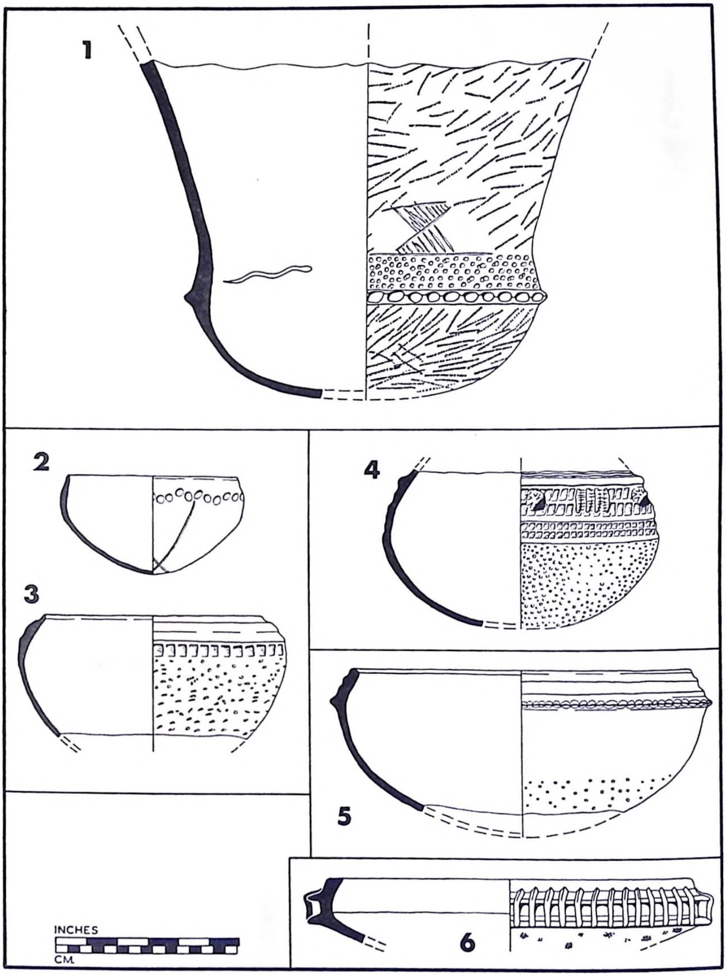

FIG. 32. Pottery: **1.** Form 10 with Decorations 2, 10 and 11, also low relief representation of a snake on inside surface. **2.** Form 11 with Decorations 10 and 11. **3.** Form 11 with Decorations 7 and 11. **4.** Form 12 with Decorations 7, 9 and 11. **5.** Form 13 with Decorations 4 and 11. **6.** Form 14 with Decorations 7 and 11; this drawing is an artist's reconstruction.

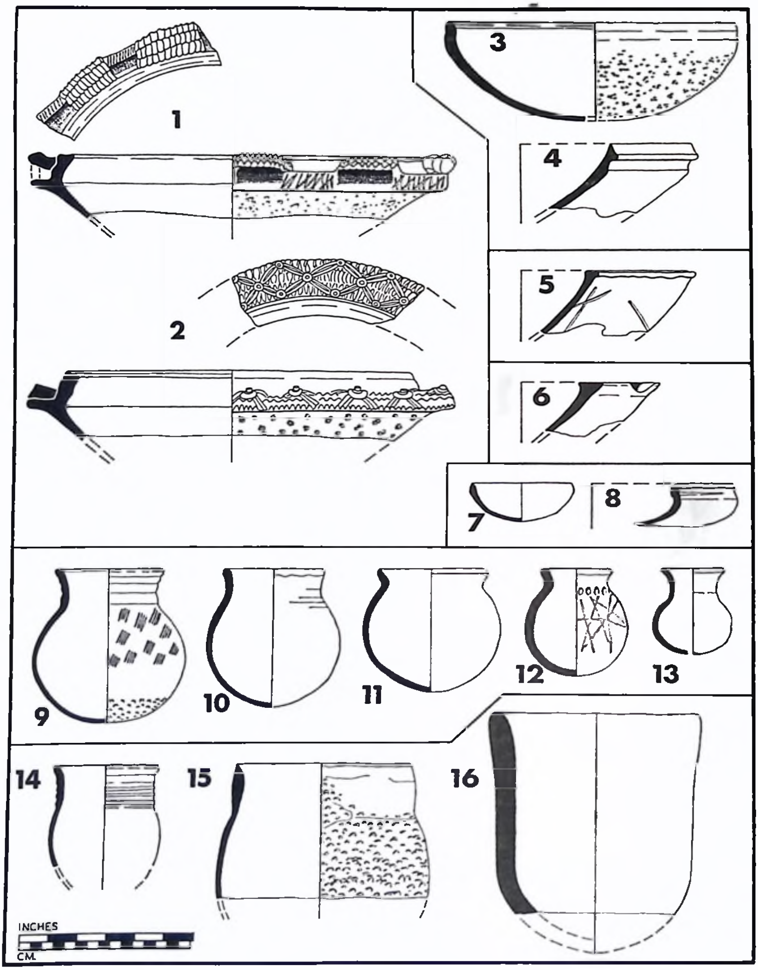

FIG. 33. Pottery: **1.** Form 14 with Decorations 7 and 11. **2.** Form 14 with Decorations 7 and 11; upper drawing shows an artist's reconstruction of the original appearance of the rim viewed from above. **3.** Form 15 with Decoration 7. **4.** Form 15, no decoration. **5.** Form 16 with Decoration 10. **6.** Form 17, no decoration. **7** and **8.** Form 18, no decoration. **9.** Form 19 with Decorations 7 and 9. **10** and **11.** Form 19, no decoration. **12.** Form 19 with Decorations 10 and 11. **13.** Form 19, no decoration. **14.** Form 20, no decoration. **15.** Form 20 with Decoration 7. **16.** Form 20, no decoration.

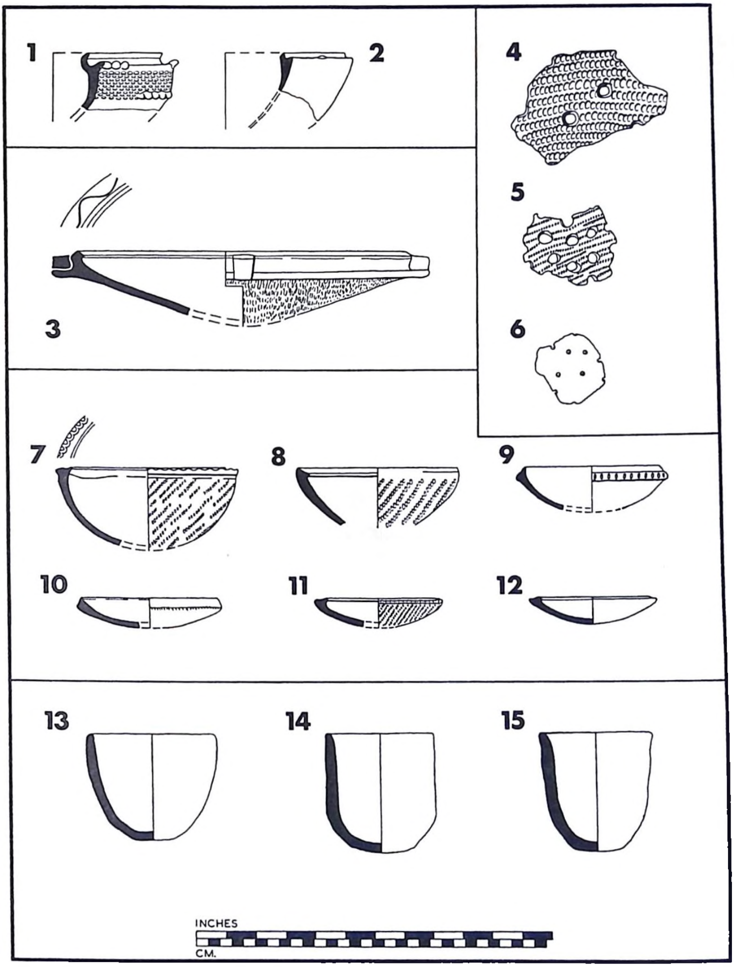

FIG. 34. Pottery: **1.** Form 21 with Decoration 11. **2.** Form 21, no decoration. **3.** Form 22 with Decorations 10 and 14. **4.** Form 23 with Decoration 1. **5.** Form 23 with Decoration 2. **6.** Form 23, no decoration. **7.** Form 25 with Decorations 1 and 11. **8.** Form 25 with Decoration 1. **9.** Form 25 with Decoration 11. **10.** Form 25 with Decoration 10. **11.** Form 25 with Decorations 2 and 11. **12.** Form 25, no decoration. **13** and **14.** reconstructed crucibles for copper-base melting; from the late phase of Cutting I on the Clerks' Quarters site. **15.** modern crucible for copper-base melting.

Decoration 7: Stippling roulette (miscellaneous). Stippling of surfaces as with Decoration 4 but producing a miscellaneous collection of impressions of various kinds. Because stippling roulettes often produce rather indistinct impressions and because many of the sherds which were examined were moderately weathered, identification was often very difficult. Quite often it was not possible to be certain what the decoration was, other than that it was a stippling roulette of some kind. In addition there was a host of clearly perceptible stippled impressions, none of which seemed common enough to recognize as a separately numbered decoration and many of which seemed variants one of another. These decorations are all employed broadcast over a surface. (Plates 27 and 28.)

Decoration 8: Carved roulette. A low relief impressed decoration imparted with a carved wooden roulette. The resultant patterns are of simple geometric design. This decoration is usually applied in horizontal bands. (Plate 29.)

Decoration 9: Combing. This decoration consists of incised parallel lines produced with a multi-pointed instrument. Most commonly it was used to draw wavy lines on the surface of the pot but straight lines also occur. These decorations are usually applied horizontally either to cover a whole area or distinct zones. Rarely the same type of instrument is used as a stamp to produce hyphenated lines. (Plate 30.)

Decoration 10: Incision. This decoration consists of incised lines produced with a knife or with a pointed instrument. Excision of any sort is very rare. The patterns produced by incision are usually simple arrangements of parallel straight lines. The decoration is usually applied generally, over an area. (Plate 31.)

Decoration 11: Rustication and incrustation. Plastic surface treatment including finger-printing, grooving, jabbing, also applied cordons, bosses, horns and other separately moulded motifs. It is usually applied in zones but sometimes becomes an over-all decoration. (Plates 32 and 33.)

Decoration 12: Painting. This is rare being known only from a few small sherds and it is clear that it is alien to Benin. It usually consists of areas of red paint on a buff fabric or a buff-surfaced grey fabric which is itself also alien to Benin. The painted areas are delimited by shallow grooves, and the unpainted areas are decorated with incised lines, impressed circles, and toothed stamp. A minority of sherds are of a red fabric, and these are painted red over-all. The forms to which these decorations were applied were probably varied, some sherds probably belonged to the bodies of large waterpots of some kind, others to some form of shouldered bowl, and the red fabric painted over-all to a sort of inturned-rim bowl. (Plate 34.)

Decoration 13: Unidentified roulette. This is a rare decoration. It has been suggested that the roulette used was of twisted palm fibre but this is uncertain. This decoration is applied over-all on the sherds from which it is known. (Plate 35.)

Decoration 14: Unidentified roulettes. These are rare decorations, originally thought to comprise one distinct decoration. The top three sherds in Plate 36 show a decoration that might be the result of the use of a maize-cob as a roulette, the bottom three are definitely not done this way and must have been produced by some other type of roulette. These two decorations are applied over-all on the sherds from which they are known. (Plate 36.)

Decoration 15: Unidentified roulette. This is a very rare decoration which does not appear in the statistical analysis of the pottery. Only two sherds of it are known, both from Pit 1 of Benin Museum site, Cutting XIV, a context which has been radiocarbon dated to the thirteenth or fourteenth century A.D. It has been suggested that this decoration was made with some kind of carved roulette but the writer is not convinced of this because of fine internal lines which run parallel to the sides of the impressions. This decoration is applied over-all on the two sherds from which it is known. (Plate 36.)

The relation of pottery decoration to form. Amongst the excavated pottery from Benin there were relatively few pots of which enough remained to reconstruct even a partially complete profile. The mass of the material was in the form of broken sherds which could not be rebuilt. A varying proportion of this was diagnostic (see Table 17), depending on the degree to which the sherds were weathered and reflecting the extent to which the matrix material had consisted of structural debris or domestic refuse. Of this diagnostic material, much of it gave information about decoration but only a relatively small proportion of it indicated the forms to which it belonged. Thus it is very difficult to be sure of the correlation of decorations and forms. These limitations must be borne in mind when examining Table 18.

(c) OTHER CHARACTERISTICS

In addition to form and decoration, the pottery possessed certain other characteristics, the incidence of which has been recorded in the appropriate tables although it was not considered in the statistical analysis.

Other Characteristic 1: Ilorin black burnished ware. A fine fabric usually black, sometimes brown or grey, with a shiny, black, burnished surface. The most common form is a lidded bowl with flared rim and with a handle on the lid. This pottery has no ancestry in Benin City, appears only in modern contexts and is apparently made in Ilorin City from where it reaches a wide market. It is often decorated with pattern-burnishing.

Other Characteristic 2: European wares. Sherds of wares of European origin, most of them of nineteenth- and twentieth-century date but a few dating from the seventeenth and eighteenth centuries. A small selection, including the earlier pieces, was submitted to the Department of Ceramics in the Victoria and Albert Museum, London whose report will be found on page 233.

Other Characteristic 3: Handles. These are almost unknown on Benin traditional pottery. A handle-like lug occurs very rarely on Form 8 bowls and one or two examples of strap handles have been observed on sherds of uncertain form.

TABLE 17

BENIN EXCAVATIONS 1961–64: SHERD QUANTITIES

ARCHAEOLOGICAL CONTEXT			TOTAL SHERDS IN LBS	% DIAGNOSTIC BY WEIGHT
BENIN MUSEUM SITE, CUTTING	I	Superficial	22·5	51·1
		Pit 1	14·5	69·0
„ „	II	Superficial	10·0	45·0
		Pit 1	4·5	33·3
		Pit 4	0·0	0·0
„ „	III	Superficial	18·5	54·1
		Pit 1	70·5	54·6
		Pit 2	88·5	67·2
		Pit 3	0·0	0·0
„ „	IV	Superficial	10·5	61·9
		Pit 1	37·5	64·0
„ „	V	Superficial	3·5	42·9
		Pit 1	151·5	67·7
„ „	VI	Superficial	9·5	52·6
		Pit 1	28·5	66·7
„ „	VII	Superficial	2·0	50·0
„ „	VIII	Superficial	11·0	36·4
		Pit 1	225·0	66·7
„ „	IX	Superficial	1·5	0·0
		Pit 1	3·0	33·3
„ „	X	Superficial	2·5	20·0
		Pit 1	11·5	60·9
		Pit 1 contaminated with Pit 2	10·5	66·7
		Pit 2	3·0	66·7
„ „	XI	Superficial	1·5	0·0
		Pit 1	29·0	27·6
„ „	XII	Superficial	0·5	0·0
„ „	XIII	Superficial	1·0	50·0
„ „	XIV	Superficial	24·0	50·0
		Pit 1	404·0	64·6
„ „	XV	Superficial	5·0	60·0
		Pit 1	11·0	72·7
		Pit 2	0·0	0·0
„ „	XVI	Superficial	40·0	70·0
		Pit 1	114·0	77·2
		Pit 2	1·0	100·0

ARCHAEOLOGICAL CONTEXT			TOTAL SHERDS IN LBS	% DIAGNOSTIC BY WEIGHT
BENIN MUSEUM SITE, CUTTING	XVII	Superficial	3·0	16·7
		Pit 1	27·5	12·7
„ „	XVIII	Superficial	12·0	25·0
„ „	XIX	Superficial	2·0	0·0
CLERKS' QUARTERS SITE, CUTTING	I	Superficial	23·0	67·4
		Late	78·5	61·1
		Middle	19·5	59·0
		Early	15·0	50·0
„	II	Superficial	7·5	60·0
		Late	105·0	61·4
		Middle	12·0	66·7
		Early	38·0	71·1
„	III	Superficial	11·0	63·6
		Late	74·5	50·3
		Middle	72·0	64·6
		Early	19·0	71·1
„	IV	All spits	24·5	30·6
CITY WALLS, CUTTING	I	Modern deposits	1·0	50·0
		Primary silt	0·0	0·0
„	II	Modern deposits	2·0	100·0
„	III	Modern deposits	9·0	94·4
		Primary silt	0·0	0·0
„	IV	Modern deposits	3·0	66·7
		Primary silt	0·0	0·0
„	V	Top soil	1·0	100·0
		Primary silt	12·0	79·2
„	VI	Top soil	7·5	53·3
		Body of wall	8·5	52·9
		Former surface soil	4·5	55·6
USAMA SITE CUTTING		Superficial	141·0	61·7
		Pit 1	119·0	72·3
		Pit 5	8·0	100·0
		Pit 4	16·5	75·8
		Pit 2	9·5	47·4
		Pit 3	1·5	66·7
		Pit 6	4·5	100·0

NOTE: Where either total weights or percentages are recorded as 0·0, quantities were too small to be weighed with available equipment (lower limit ½ lb.).

TABLE 18

CORRELATION OF POTTERY FORMS AND DECORATIONS

FORMS	DECORATIONS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	X	X		X	X	X	X		X	X	X	?			
1A		X		X					X		X				
1B	X						X								
2	X							X	X	X	X				
3									X	X	X				
4	X	X		X	X	X	X			X	X				
5		X		X	X	X	X		X		X				
6	X	X		X						X	X				
7	X			X	X	X	X	X	X	X	X				
8		X		X	X	X	X	X	X	X	X	?			
9	?	X		?	?	?	?		X		X	?			
10	X	X		X	X				X	X	X				
11	X	X		X	X	X	X			X	X				
12				X	X	X	X		X		X				
13		X		X	X	X	X		X	X	X				
14				X	X	X	X				X				
15				X	X	X	X								
16				X	X	X	X			X					
17										X					
18										X					
19		X		X	X	X	X		X	X	X				
20				X	X	X	X								
21				X	X	X	X	X	X	X	X				
22				X	X	X	X		X	X	X		X		
23	X	X		X	X	X	X								
24				X	X	X	X				X				
25		X								X	X				

NOTES: 1. ? = Identification uncertain.
2. Frequently it is not possible to identify a particular decoration out of the group 4–7.

Other Characteristic 4: Shaped sherds. Two sherds are known which have been cut into a roughly circular shape, being respectively of $1\frac{1}{2}$ in. and $\frac{7}{8}$ in. diameter. A third shaped sherd, illustrated in Fig. 51, 13, had two holes drilled through it.

Other Characteristic 5: Post-firing perforations. These are very rare.

Other Characteristic 6: Potters' marks. Such things are still employed at Use when a number of potters are working in the same house, so that each may clearly identify her own work. Possible excavated examples were rare, the most convincing consisting of the symbol X incised into the inner surface of an otherwise insignificant sherd.

Other Characteristic 7: Burnishing of traditional Benin pottery. This is rare, perhaps to some extent because excavated sherds are usually weathered to varying degrees.

Other Characteristic 8: Plain sherds. A proportion of the excavated sherds have no decoration of any type. This does not necessarily mean that these sherds come from undecorated pots, although such do exist; probably many of them come from undecorated areas of pots which were otherwise decorated.

Other Characteristic 9: Sherd rubbers. Only one example is known. This is a rim sherd of a Form 1 pot with Decorations 9 and 11. One of the broken edges has been worn flat by abrasion.

Other Characteristic 10: Other alien fabrics. These are alien fabrics other than those already described under Decoration 12 and Other Characteristics 1 and 2. Examples are rare but two unusual fabrics have been noticed: one is characterized by specks of a golden-coloured substance, perhaps iron pyrites or mica; the other contains similar specks of a silver-coloured substance which is almost certainly white mica.

Other Characteristic 11: Scaling of fabrics. A rare phenomenon in which irregular roundels of fabric break away from the surface of a pot. Clearly this occurs because of thermal fracturing.

2. SMALL FINDS (Plates 37–48, Fig. 34, 13–15, and Figs. 35–51)

The incidence of small finds is presented in detail on the location tables (Tables 1, 4, 7, 10, 13–16). As far as is possible, the order in which these objects are described below is the same as that employed on the tables reading from left to right. The following descriptions, however, cover every class of object whereas any one table lists only those which were actually present in the cutting or cuttings concerned.

(a) IRON

All the iron recovered was heavily corroded because of the climate and soil of Benin. Much of it consisted of unrecognizable fragments but the following types of objects were identifiable.

(i) *Door bolt.* One example of one of the distinctive forms of door bolt traditionally used in Benin was found in the late phase of Cutting III on the Clerks' Quarters site. Fig. 48, 6 illustrates it.

(ii) *Hoe blade.* Only one example was recovered. This was found near the bottom of Cutting IV on the Clerks' Quarters site. It was fragmentary and has not been illustrated.

(iii) *Knives.* As can be observed in Fig. 48, these were usually single-edged with blades that tended to curve back towards the point and were in addition sometimes slightly splayed. This is a shape reminiscent of the type of Benin sword known as an *ada*, depictions of which occur on the Benin 'bronze' plaques, see for example Pitt Rivers (1900) Fig. 291. However, it is clear from Pitt Rivers (1900) Figs. 186 and 275 that related shapes were in use for knives. The fact that those shown in Fig. 48, 1–3, of the present text, were found in a pit-filling (Benin Museum site, Cutting XIV) radiocarbon dated to the thirteenth/fourteenth century A.D. suggests some antiquity for such forms.

One of the knives (Fig. 48, 4) was found with a 'bronze' ring around it. Judging from its position this must have formed part of the handle.

Except in the case of Fig. 48, 5, which seems to have been a double-edged knife, the cutting-edges of the knives recovered were on the convex side of the blade.

(iv) *Chain*. Only one example was found. This was from the late phase of Cutting III on the Clerks' Quarters site. It comprised seven elongated-oval links each of 2–2$\frac{3}{8}$ in. length which had been made from circular-sectioned iron rod of about $\frac{1}{4}$ in. diameter. It is not illustrated.

(v) *Nails*. These were the most numerous type of identifiable iron object. The majority of them came from Cuttings I–III on the Clerks' Quarters site where they were found in all three phases but particularly in the late phase. Fig. 48, 8–11 illustrates a small selection showing the general tendency to bulbous heads and rectangular-sectioned shanks. They had probably been used in roofing timbers or for spiking together the large slabs of timber of which doors were made. It is interesting to note that Fig. 48, 8 and 9 have been clenched after being driven through wood of similar thickness and that Fig. 48, 8 has in fact been clenched a second time indicating that it was turned over the edge of the wood.

(vi) *Sheet*. This was rare and the only examples were fragmentary. They came from the late phase of Cutting III on the Clerks' Quarters site and, as suggested on page 68, may have originated from the imported galvanized iron sheets with which a portion of the palace had been roofed by 1897.

(vii) *Wire*. This was rare and the only examples came from the late phase of Cutting III on the Clerks' Quarters site.

(viii) *Evidence for smelting and forging iron*. Two types of finds are concerned here: firstly slag and secondly fragments of clay bellows' nozzles, often known as tuyères, of uncertain type. Fig. 51, 7 and 9 illustrates two fragments of bellows' nozzles. Examination of the tables showing the location of small finds shows that finds of slag occurred throughout the Benin sequence although bellows' nozzles were only found in later contexts. A metallurgical report on samples of the excavated slags will be found on page 228. Some indication of the ores possibly used for smelting in Benin will be found in the geological report on page 225.

(b) 'BRONZE'

Throughout this book, the term 'bronze', set in inverted commas, has been used to describe any object of copper or copper-base alloy of which no analysis has been made, and also as a generic term for all such objects. In instances where an analysis has been available, and the metal has been shown actually to constitute a bronze, the word has been used without inverted commas.

No discoveries were made of outstanding artistry in 'bronze'. However, a large quantity of varied items were found which, although often of minor artistic significance or of fragmentary character, are nevertheless of considerable importance in being the only examples of Benin 'bronze'-work ever to be recovered from adequately recorded stratified contexts by controlled excavation.

It will be noticed that the 'bronze' finds from the middle and late phases of Cuttings I, II, and III on the Clerks' Quarters site are usually either small in size or fragments of larger objects. In the case of the fragments of imported sheet, there may be special reasons for this comminution (pp. 71–72), but in other cases it is more difficult to understand. Analysis done on a variety of Benin castings (Shaw, 1967, 1969) shows that leaded brass was often the metal in use and this does tend to be brittle. Accidental breakage might thus explain some of the fragmentation. Yet a visit to a modern Benin brasscaster suggests that something more than mere accident may have been involved. The crucibles in use are small, and were also small in the past, witness Fig. 34, 13–15. The most common raw material is now scrap, and this may have been used to a certain extent in the past also. To get the scrap into the crucibles it has to be broken into moderately small fragments, although it is interesting that the crucibles illustrated would all accommodate manillas of the size of that shown in Fig. 42, 26. Perhaps, then, the fragmentary 'bronze' items under discussion result at least partly from the loss of stray fragments after intentionally breaking up objects for remelting.

In the tables showing the location of small finds, items of 'bronze' have been divided into no fewer than thirty-eight categories of those of indigenous origin, plus a number of imported articles. In order to simplify the following descriptions, these have been regrouped into seven sections based principally on the methods of manufacture employed.

(i) *Cast.* 'Bronze' objects made by casting, almost certainly by the lost wax technique, were fairly numerous in the middle and late phases of Cuttings II and III on the Clerks' Quarters site. They were also found in a chronologically analogous context in Cutting IV of the same site, in the late phase and in superficial deposits in Cutting I of that site, in superficial deposits on the Benin Museum site and in modern deposits in Cutting I of the City Walls excavation. The stratigraphic contexts of these finds all appear to belong to a period covered at most by the last 250 years or so. Probably most of the objects were deposited in the eighteenth or nineteenth centuries A.D. It should be noticed, however, that much of the material was already fragmentary before deposition and may well already have been of some antiquity.

Most important of these cast items are the fragments of plaques illustrated in Fig. 42, 1–7 and possibly 12. Most of these came from the middle and late phases of Cuttings II and III on the Clerks' Quarters site and one fragment from the superficial deposits of Cutting I on that site. Of the five showing background decoration, four are of the circled-cross and only one of the foliate variety. Circled-cross has been described as rarer and perhaps earlier than the other type (Forman, Forman & Dark, 1960). It may be of significance that three of the fragments that have it came from the middle phase and only one, uncertainly, from the late phase (p. 53), while the solitary fragment with the foliate background came definitely from the late phase.

Amongst the cast material there is only one fragment recognizable as belonging to a 'bronze' head. This is illustrated in Fig. 42, 8, and appears to be from the base of a head. It shows a small portion of a 'choker' of beads of the type which lacks a flanged base and which, Forman, Forman & Dark (1960) suggest, predates the reign of Oba Eresoyen (about 1735 to about 1750 according to Egharevba (1960)). The fragment was found in the late phase of Cutting II on the Clerks' Quarters site.

Among the other items of cast 'bronze', are the segments, and fragments of segments, of hinged armlets of which a selection is illustrated in Figs. 43 and 44, 5 and 6. A reconstruction of the type of object of which these were parts is provided in Fig. 45, 1. It can be seen how the segments were hinged together and how they fastened. The writer has been unable to find any published examples of this sort of armlet in Benin, although of course simple hinges are known in Benin castings and the object illustrated in Plate 91 of von Luschan (1919) has not only such a hinge but also a ribbed form comparable with the armlets under discussion. All but one of the items concerned came from the probably nineteenth-century hoard found in Cutting IV on the Clerks' Quarters site (pp. 75–77). The odd one was a surface find from near the Benin General Hospital (p. 106). Two of those from the hoard have been analyzed and found to consist of leaded brass (p. 232). No trace was found of the pins of the hinges; presumably these were removable and have been lost. On the inner surface of the segment of hinged armlet from near the hospital there are six cuts on adjacent parts on each of the two central internal ribs. They are at right angles to the ribs and grouped closely together. They appear to have been made after casting and were perhaps intended to denote ownership.

Two fragments of openwork rings were recovered from the hoard found in Cutting IV on the Clerks' Quarters site and are illustrated in Fig. 44, 3 and 4. It is uncertain whether these are fragments of the same object but it appears that they belonged to a class of object of some 4 in. internal diameter, which is as big as that probably attained by the hinged armlets. Perhaps they also were armlets. The decoration of these fragments consists of openwork low-relief patterns, but owing to some failure in the casting technique quite a lot of the openings have filled with metal. Part of the interior of both fragments still contains the remains of the clay core.

The same hoard contained a number of fragments of double gongs, all of which are illustrated in Figs. 38, 5; 39; 40; and 41, 1–3. These pieces belong to a class of object of which a good example is shown in Pitt Rivers (1900) Fig. 341. The fragment shown in Fig. 40, 4, of the present text has the remains of a circular-sectioned iron rod running through its centre. This appears as a solid black circle on the drawing of the object's section. Presumably this rod would originally have extended into the missing handle and given it extra strength. One of the fragments of double gongs has been analyzed and found to consist of leaded brass (p. 232).

Fig. 38, 11–15, shows all five of the *agwe* pendants recovered from the excavations, four from the late phase of Cutting III on the Clerks' Quarters site and one from the superficial deposits on the Benin Museum site. Both Balfour (1903) and von Luschan (1919) assumed that these pendants were miniature models of stone axes, but the present writer was unable to find anyone in Benin who thought this. The objects are called *umanangue* and are said to be for wear during the *Agwe*, or new yam, festival.

Fig. 38, 9 illustrates the only example of a different type of cast pendant. This is made in the form of a miniature gong, this time of the single variety. It comes from the deposits below the hoard in Cutting IV of the Clerks' Quarters site, a stratigraphic context referring to the eighteenth and nineteenth centuries.

A more common type of miniature casting is shown in Fig. 42, 21–5 where six of the seven crotals that were excavated can be seen. These were mostly from the late phase of Cuttings II and III on the Clerks' Quarters site, although one was from the middle phase of Cutting III on that site and one came from the superficial deposits on the Benin Museum site. They may be compared with those in Pitt Rivers (1900), Fig. 222.

Only two fragments and one complete cast bracelet were found in the course of the excavations. The two fragments came from the middle phase of Cutting III on the Clerks' Quarters site. One of them is illustrated in Fig. 38, 4, and shows a sensitively modelled human face with prominently-lidded eyes. The complete bracelet was found in modern deposits in Cutting I of the City Walls excavation, and is shown in Fig. 51, 20.

Three other minor cast items merit separate attention. They are a finger-ring from the late phase of Cutting II on the Clerks' Quarters site (Fig. 42, 17); a miniature snake from near the bottom of Cutting IV on the same site (Fig. 42, 20); and a bead, probably made by casting, which also came from the late phase of Cutting II on that site (Fig. 42, 19). The ring is interesting in that a cone of metal with radial lines in low relief represents both bezel and jewel. The snake was presumably fastened to some larger object.

On some of the tables showing the location of small finds appears a column labelled 'other fragments of cast'. These consist of some fourteen items of which 11 are illustrated and require some comment. The most important object is the bell shown in Fig. 41, 8. Although fragmentary, it is possible to see that this has been a skilful piece of casting, with thin walls and a fine stylized elephant's head in low relief on one side. It came from the middle phase of Cutting III on the Clerks' Quarters site.

The object shown in Fig. 41, 4, has probably been broken from the head-dress of a standing figure such as that in Forman, Forman & Dark (1960) Plates 61 and 62. It came from the late phase of Cutting III on the Clerks' Quarters site. Fig. 41, 5, on the other hand, represents two fragments of a hairpin of which the point is missing. The serrated top is circular in plan and formerly contained some kind of decorative roundel of which disintegrating remnants are all that survive. These suggest that ivory may have been the material employed. This object is not stratified, having been found by the excavators when digging a hole for a fence-post near to Cutting III of the Clerks' Quarters site. From the middle phase of that same Cutting III came the object illustrated in Fig. 41, 6. This appears to be a small handle; intended to be attached by rivets, perhaps to some article of sheet metal or perishable material.

The items illustrated in Fig. 42, 9 and 10, are both from the late phase of Cutting II on the Clerks' Quarters site. The first is a fragment of a base, perhaps of such an object as that shown in Pitt Rivers (1900) Fig. 79–81; the second defies identification. The same is true for the item to be seen in Fig. 42, 13, which came from the middle phase of Cutting III on the same site. Fig. 37, 7, came from the hoard in Cutting IV on that site, and appears to be part of a tube-shaped object. Fig. 38, 3, may not be an indigenous product at all, it may have been part of the guard of a European sword. It came from the late phase of Cutting III on the Clerks' Quarters site, as also did the insignificant piece of apparently cast metal in Fig. 38, 6. A piece similar to the latter came from the baulk between Cuttings II and III, from the late phase also, and is to be seen in Fig. 38, 7. It does not appear on the small finds' location tables. Finally, Fig. 41, 7, from the late phase of Cutting I on the Clerks' Quarters site, appears to be from the edge of a flat casting of some kind.

(ii) *Smithed.* This term is used to describe those processes of shaping a metal in the solid form which derive from its malleable qualities. It can sometimes require expert metallographic examination to determine for certain whether a 'bronze' object has assumed its present shape as a result of smithing or of casting. Unfortunately no such examination was possible in the case of the objects now under consideration and identification of the technique of production is based on the writer's opinion alone.

An examination of the small finds' location tables will show that the smithing of 'bronze' has been generally practised throughout the Benin sequence. Cutting II on the Clerks' Quarters site clearly demonstrates that. Yet the tables suggest that whereas in earlier times it was used for the production of bracelets and objects of similar importance, it was by later times used mainly for making smaller, insignificant objects such as nails, tacks, staples, and so on. In the 'bronze' hoard of late date from Cutting IV on the Clerks' Quarters site there were, for instance, no objects produced in this way. It is of further interest that the little analysis that has been done has shown that whereas three selected items from the cast objects in this hoard were of leaded brass, seven selected items from the smithed objects in the early phase of Cutting II on this site were of tin bronze (p. 232). The former is, in fact, an alloy more suitable for casting, and the latter more suitable for smithing.

Most important of the 'bronze' finds produced by smithing are five heavy penannular objects which were found amongst the mass burial in the early phase of Cutting II on the Clerks' Quarters site. All these objects have been analyzed and found to consist of tin bronze (p. 232). Fig. 44, 1, illustrates one of these, all but one of which are of the same form and decoration, and Fig. 44, 2, shows the very slight variation in decoration which is the only way in which that one differs from the rest. Decoration consists of chasing and punchwork. At the time that these objects were found, the writer had in Benin only the means of weighing objects to the nearest half pound. It is, nevertheless, perhaps of significance that four of these objects weighed 2½ lb. each and one (not the one whose decoration varied) weighed 3½ lb. This apparent tendency to uniformity in appearance and weight, together with their clumsiness for any other purpose, might suggest that these items were some form of ingot/currency, as the later trade manilla was to be. Yet it is not impossible that they might have been intended for wear on the arms or legs.

More aesthetically important of the 'bronze' objects made by smithing, and more numerous, were the bracelets. Bracelets of this sort recovered from all the excavations numbered fifty-six certain and two doubtful. Of these, fifty-three certain ones were found in the early phase of Cutting II on the Clerks' Quarters site: forty-eight coming from amongst the bones of the mass burial in Feature 21, one coming from a few feet above those bones and four coming from amongst the apparently related human bones in the bottom of Feature 14. A representative selection of these bracelets will be found illustrated in Figs. 45, 2–11, and 46, 1–8. Bracelets from other contexts were of later date and do not merit attention except for a fragment from superficial deposits on the Benin Museum site shown in Fig. 46, 10, and a doubtful item from the superficial deposits of Cutting II on the Clerks' Quarters site shown in Fig. 46, 9. The smithed bracelets from the early phase of the latter cutting are, however, so numerous as to require some further comment.

These fifty-three bracelets divide into the following types. Type 1 is an undecorated single circle with overlapping ends and of round section. There are twenty-four examples of this type of which two have been analyzed and found to consist of tin bronze (p. 232). Fig. 45, 2–5, shows a selection. Type 2 is also an undecorated single circle of round section but in this case the ends abut. There are nine examples of this type. Fig. 45, 6 and 7, shows a selection. There are in addition three bracelets of Type 1 or 2 which are so damaged as to be impossible to assign with greater accuracy. Type 3 is an undecorated single circle with overlapping ends and of ribbon or oval section, made of thinner material than usual. There are only three examples of this type and all are illustrated (Fig. 45, 8–10). Type 4 is an undecorated double circle usually with overlapping ends but some do not quite overlap. It is of round or oval section. There are five examples of this type. Figs. 45, 11, and 46, 1, show a selection. The section shown in the latter of these illustrations is triple because it has been drawn within the area of overlap. Type 5 is a decorated single circle with overlapping ends and of round section. There are five examples of this type of which four are illustrated (Fig. 46, 2–5). Type 6 is a decorated single circle with overlapping slightly necked ends and of lozenge section. There are only two examples of this type. Fig. 46, 6, shows one of these, the other one being identical in all respects. Lastly, Type 7 is a decorated triple circle, with overlapping ends which in the case of one of the only two examples overlap so much as to produce an almost quadruple circle. Hence the section shown in the illustration (Fig. 46, 8) is quadruple because it has been drawn within the area of the overlap. The other example is shown in Fig. 46, 7. It will be noticed that both these bracelets are of lozenge section and have pyramidal ends. Decoration of smithed bracelets, when present, consists of chasing and punchwork.

Two other sorts of personal ornament were also made by smithing. Firstly there were finger-rings of various patterns, complete or fragmentary examples of which were found throughout the sequence on the Clerks' Quarters site. The most important type was of spiral form. Three of these occurred amongst the mass burial in the early phase of Cutting II, and two of those three are illustrated in Fig. 42, 14 and 16. The third is identical to that shown in Fig. 42, 14, which is of round section. Fig. 42, 16, is of lozenge section. Three others occurred in the late phase of Cutting III but were of triangular section with a slight, longitudinal internal groove. One of these is illustrated in Fig. 42, 15. Single examples of two other types of finger-rings can be seen in Fig. 38, 2, from the late phase of Cutting II and in Fig. 42, 11, from the late phase of Cutting III. Three other fragments of finger-rings, one from the late phase of Cutting II, and one each from the superficial deposits and middle phase of Cutting III, are of uncertain type. Also made by smithing was a pendant, of which only two differing examples were found (Fig. 38, 8 and 10).

Other types of objects produced by smithing were nails, tacks, and staples. These occurred only on the Clerks' Quarters site, and only in the late and middle phases of Cuttings I, II, and III in the case of nails, and of Cuttings II and III in the cases of tacks and staples, although a solitary tack was found in the early phase of Cutting II. Fig. 47 shows a selection of these three types of objects. On the tables showing the location of small finds an attempt has been made to distinguish between nails, as for example Fig. 47, 3, and tacks, as for example Fig. 47, 16, but it is a meaningless distinction which is not made in detail so far as Fig. 47 is concerned. The staples shown in Fig. 47, 39–46, are of some interest. They seem to have been the principal means of securing sheet 'bronze' decoration to wooden surfaces; see for example Fig. 35, 2, where a piece of decorated sheet still has a number of staples in position. Normally the staples are of the shape shown in Fig. 47, 41–6; the shape shown in Fig. 47, 39 and 40, being a rare variant. The tacks were probably used for a similar purpose as the staples, that shown in Fig. 47, 32, for instance, still has a hollow boss of 'bronze' beneath its head as if to assist in such a use.

Two short lengths of 'bronze' chain were recovered, one from the late phase of Cutting II on the Clerks' Quarters site and the other from a late context on the Usama site. The former is shown in Fig. 51, 11. The latter is not illustrated, but in that case each link is made from a strip of sheet metal which has been grooved down its centre. The links each measure $\frac{3}{16}$ in. across.

(iii) *Sheet metal working.* Evidence for the working of sheet 'bronze' was plentiful in the middle and late phases of Cuttings I, II, and III on the Clerks' Quarters site, and in a chronologically analogous context in Cutting IV of the same site. Only in Cutting II was any evidence found for it in the early phase, and then only in the form of two fragments of undecorated sheet.

Two types of raw material were in use. Most of the sheet metal is remarkably thin and of highly uniform quality. Its appearance suggests that it is the product of machine rolling and that it is of European manufacture. It is known that late in the nineteenth century sheets of European trade brass were brought to Benin (p. 67) and it is quite likely that it had been available for some time before. It was, of course, brought in plain and then cut up and decorated by the Benin craftsmen. It was extensively used to decorate carved wooden surfaces either of structural components within the palace or of small movable objects. The second type of sheet metal is of greater thickness and is not of such a uniform quality. It was presumably locally made and occurred rarely in comparison with the imported material. It was found only in five definite instances in the late phase of Cutting III on the Clerks' Quarters site, but was the only form of sheet metal present in the hoard in Cutting IV of that site. Of the pieces from the former context, three are smooth on one side but on the other have curious striated markings. One of these pieces is illustrated in Fig. 51, 12. The markings were possibly caused by casting molten metal onto a carefully prepared clay surface. They might be impressions picked up from the marks left by the smoothing of such a surface.

Perhaps the most significant sheet metal find is a fragment of a bowl made from the locally produced sheet. This was part of the hoard in Cutting IV of the Clerks' Quarters site and is illustrated in Fig. 38, 1. It is decorated with a geometric pattern of chased lines with punchwork fillings. Only part of the decoration could be drawn because corrosion had made the rest indistinct.

Large numbers of fragments of decorated sheet 'bronze' were recovered. Almost all of these are of the imported raw material and therefore are very likely of brass. The quantity of fragments is largely explained by the fragility of the material. It had originally been so thin that the punchwork, which formed such an important feature of its decoration, had in some cases cut right through the metal. Corrosion had further weakened it, so that in many cases it was difficult to lift from the excavations without fracturing. The over-all scattering of the fragments through the deposits in which they were found, however, would suggest that the collapse or destruction of the buildings, whose timbers had been decorated with this sheetwork, must have been the most important factor. Figs. 35 and 36 illustrate a selection of the more important fragments, all of those shown being of the imported sheet.

The decoration of the sheet metal appears to have been done by the repoussé technique, with backgrounds of fine punchwork and with some punchwork detailing. It is suggested, however, that in at least some cases the effect was produced by hammering a plain sheet over an already carved hardwood surface, gradually stapling the sheet down as the work proceeded. The punchwork would then have been carried out with the metal already firmly fixed to the wood. The use of sheet metal to decorate quite small objects, as well as the timbers of buildings, is indicated by the incidence of small items of cutout work, a few of which can be seen in Fig. 35, 10 and 12, and Fig. 36, 1–4.

The decorative motifs employed are familiar elements in the artistic formula of Benin. As can be seen in Figs. 35 and 36, interlacing patterns, representations of the broad-bladed *eben* and even a leopard and a stylized European head are present.

In addition to the fragments of decorated sheet metal, there were numerous fragments that were undecorated. These appeared to be stratigraphically concomitant with the decorated fragments and usually to be of identical material. A doubtful example from the late phase of Cutting I on the Clerks' Quarters site was possibly of locally made sheet but it was uncertain whether it was merely a waste trimming or an intentionally made tool of the awl variety (Fig. 51, 10).

Sheet metal was sometimes wrapped round into tubular forms. These can be divided into four types. Firstly, narrow tubes were made, probably from imported sheet. Fig. 37, 12 shows an example of one of these from the baulk between Cuttings II and

III on the Clerks' Quarters site, and Fig. 37, 13 shows another from the lower part of the deposits in Cutting IV of the same site. Other examples were found particularly in the late phase of Cutting III and some of them are of smaller diameter than those illustrated, the smallest having an external diameter of $\frac{3}{64}$ in. They may have been used as beads. Wide tubular objects which were made from locally produced sheet comprise the second type. These were found only in the hoard from Cutting IV of the Clerks' Quarters site and a selection of them is illustrated in Fig. 37, 3–6 and 8–11. Possibly they bear some relation to the decorated wide tubes of sheet with one end closed which are the third type of these forms. Only two of these are known (Fig. 37, 1 and 2) and they come from the hoard also. These were made from locally produced sheet and were decorated with lines of punchwork. Perhaps they were intended to be ferrules for the ends of sticks. Fourthly there is the object shown in Fig. 42, 18. This comes from the late phase of Cutting III and is a spiral, narrow tube of sheet. The hole left down its centre is too minute to depict at the scale of the drawing. The sheet metal employed was presumably of the thin imported variety.

Sheet metal was put to one further use: the making of metal strip. The few fragments of this found in the excavations came from late contexts on the Clerks' Quarters site.

(iv) *Wire.* 'Bronze' wire was found in the middle and late phases of Cuttings II and III on the Clerks' Quarters site and in a chronologically analogous context in Cutting IV of that site. It was mainly in the form of scattered fragments but Fig. 51, 17 and 18, illustrates two flat coils made of it and Fig. 51, 19, a bundle of spare pieces which some craftsman must have put aside for future use. Fig. 51, 5 and 6, shows two square-sectioned fragments which have been twisted. It is not known whether this wire was an imported commodity or whether wire-drawing was carried out locally.

(v) *Other fragments.* Fragments of 'bronze' that were too small or too corroded to be classifiable into any of the categories already described are entered on the small finds' location tables as 'other fragments'.

(vi) *Evidence for copper-base melting.* It has already been indicated (p. 139) that items of cast 'bronze' from the excavations all came from stratigraphic contexts belonging to a period covered at most by the last 250 years or so. Indeed, with the exception of the numerous objects from the early phase of Cutting II on the Clerks' Quarters site, most of them smithed and most of them from the mass burial or its associated features, direct evidence of 'bronze' in any form is generally lacking in the earlier stratigraphic contexts so far explored in Benin. This state of affairs is modified a little by various pieces of evidence for copper-base melting.

Droplets, trickles or small pools of 'bronze' found in the middle and late phases of the Clerks' Quarters site and, in one instance only, in its early phase (in Cutting II), probably originated from splashes of molten metal during casting.

Two fragments of 'bronze', which might be parts of casting runners or risers, were recovered from the middle phase of Cutting III on the Clerks' Quarters site. One of them is shown in Fig. 41, 9.

Of far more value as evidence were fragments of crucibles of the sort still used in Benin for copper-base melting. Fig. 34, 13 and 14, shows two reconstructed excavated examples from the late phase of Cutting I on the Clerks' Quarters site while Fig. 34, 15, shows a modern example obtained from a Benin brassworker and numbered Benin Museum Store 349. The metallurgical report (p. 229) confirms that the excavated crucibles were used for non-ferrous melting. Crucible fragments occurred in the late and superficial deposits on the Benin Museum site and throughout the sequence at the Clerks' Quarters site. Particular importance is attached to the crucible fragments in the early phase of Cutting II on that site, especially to the solitary fragment from the lower part of Feature 21 and the other fragment from the associated Feature 14. These discoveries comprise the earliest archaeological evidence at present available for the melting of copper-base alloys in Benin, and perhaps, therefore, for their casting also.

The lost wax casting technique necessarily involves the destruction of the mould or investment. The resulting fragments can survive in archaeological deposits, as was found at Dawu in Ghana (Shaw, 1961). Yet a careful search amongst the pieces of burnt clay recovered from the excavations produced only one possible fragment from the middle phase of Cutting II on the Clerks' Quarters site, and its ascription is regarded as doubtful.

(vii) *Imports.* In addition to imported raw materials for 'bronze' working, a very few 'bronze' objects were found which fairly certainly had been manufactured in Europe. It has already been suggested (p. 71) that the fragment of cast 'bronze' shown in Fig. 38, 3, may have been part of such an object. There are, however, more certainly imported items which merit some attention.

Oddest of these are the objects shown in Fig. 51, 3 and 4. These appear to be tongues from buckles, that is the part of a buckle which swivels and passes through a hole in the strap which is being secured. One of these objects came from the late phase of Cutting II on the Clerks' Quarters site (Fig. 51, 4) and the other from the late phase of Cutting III on the same site (Fig. 51, 3). Also from the late phase of Cutting II on that site came the only two imported manillas excavated in Benin. These were identical, and Fig. 42, 26, shows one of them. A reason for the rarity of these objects, when it is known in what huge quantities they were imported, has already been suggested (p. 2). Several other imported items came from the late phase of Cutting III. Two of these were ferrules for the ends of sticks (Fig. 50, 10 and 11). Another was a European button with, sadly, a plain front (Fig. 50, 12), and the last was a key of European form (Fig. 50, 8).

(c) GLASS

Beads were the form in which glass was most commonly found. They were also the only form in which it was found in an early stratigraphic context. This was in Cutting II on the Clerks' Quarters site. Other instances of glass were all in later contexts and are probably all of imported origin. The origin of the beads is less certain; some are

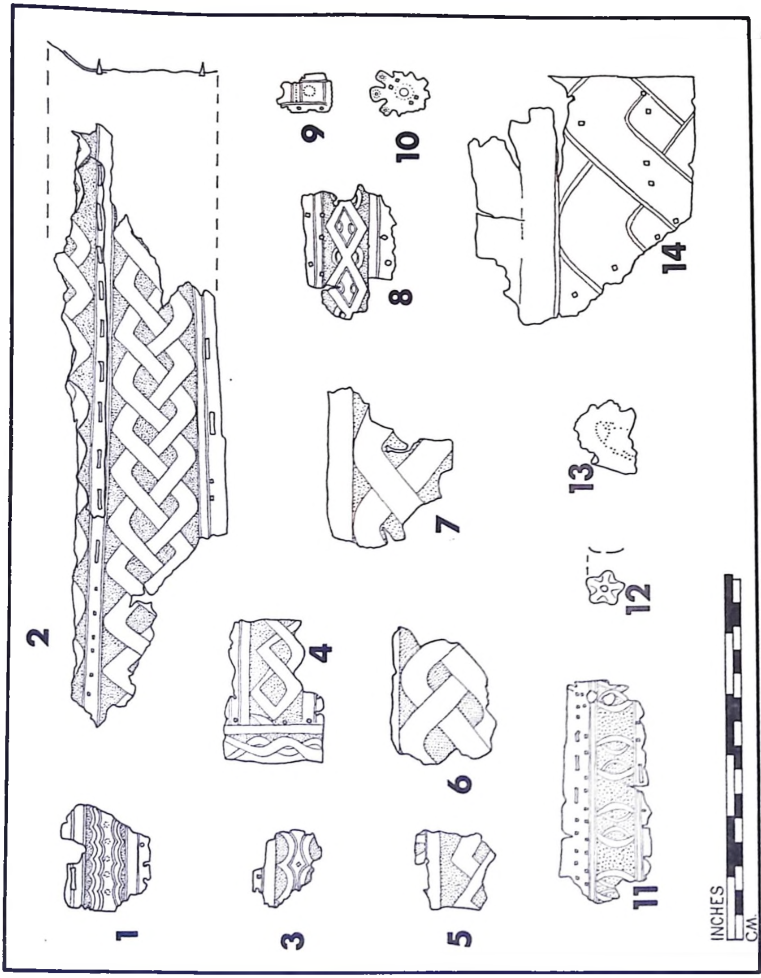

FIG. 35. Fragments of decorated sheet 'bronze'. 13. is from the middle phase of Cutting III on the Clerks' Quarters site and the remainder from the late phase of the same cutting.

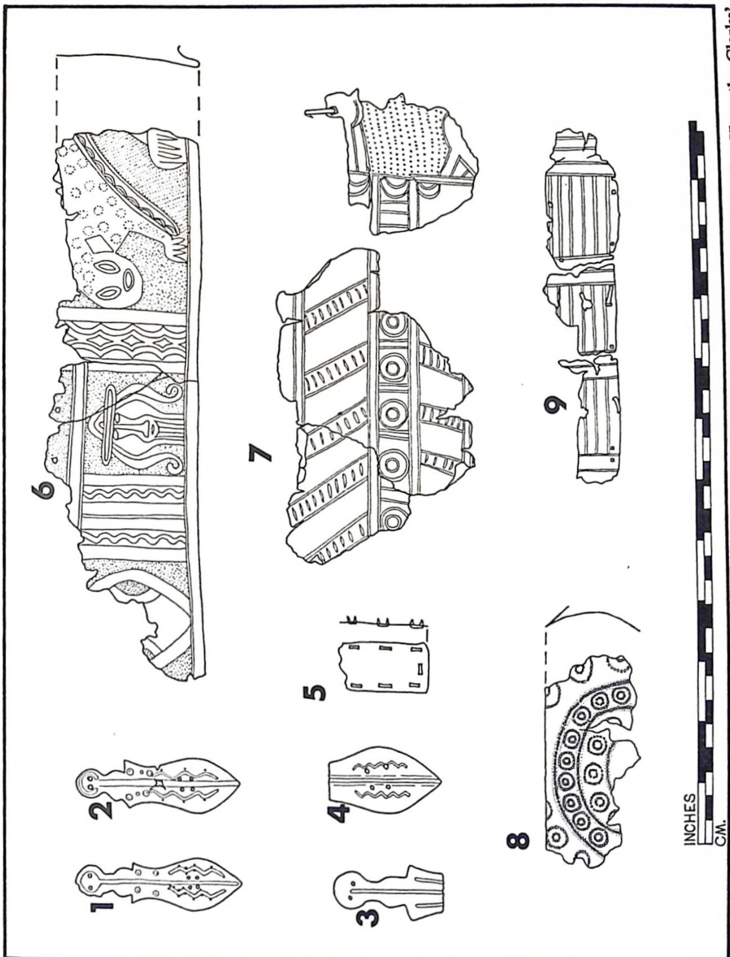

FIG. 36. Fragments of sheet 'bronze', mostly decorated. 5 and 8. are from the late phase of Cutting II on the Clerks' Quarters site; 6. is from the superficial deposits of Cutting III on the same site and the remainder from the late phase of Cutting III.

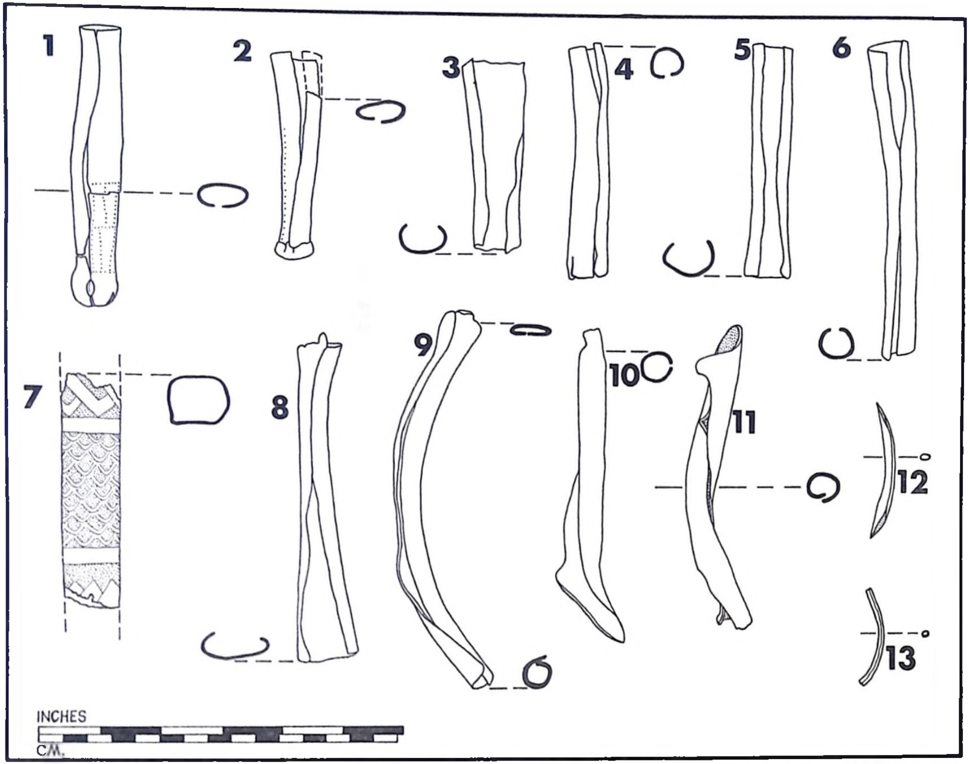

Fig. 37. 'Bronze' objects of tubular form. **7.** cast. The remainder of sheet metal. The decoration on the reverse side of **2.** is similar to that shown on **1. 12.** is from the baulk between Cuttings II and III on the Clerks' Quarters site; **13.** is from the lower part of the deposits in Cutting IV of the same site and the remainder are from the hoard found in that cutting.

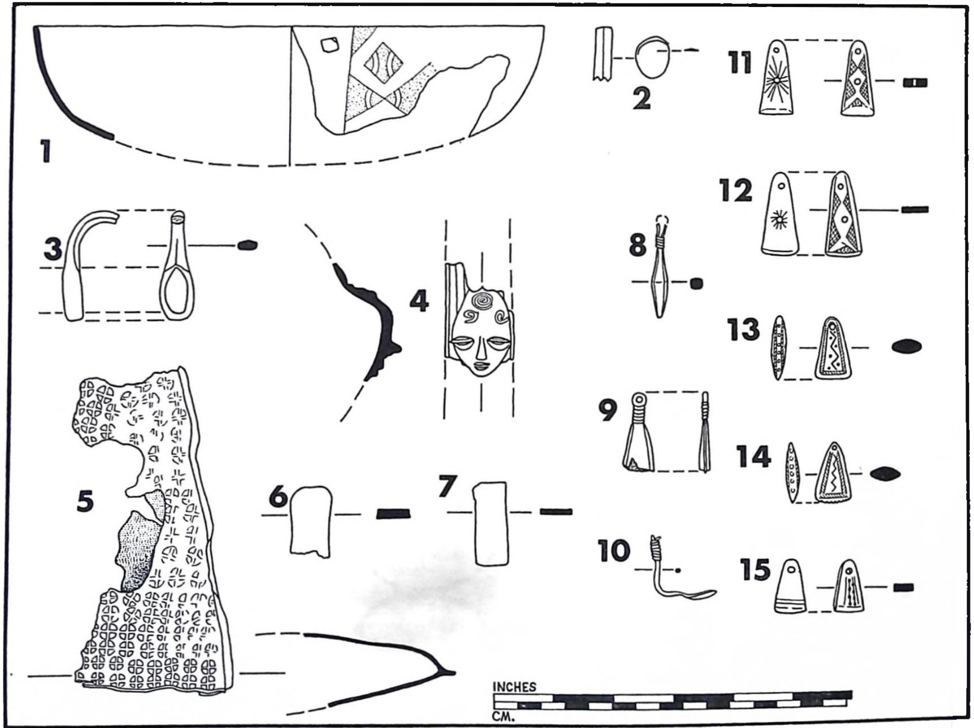

Fig. 38. Miscellaneous 'bronze' objects. **1.** of sheet metal. **2, 8** and **10.** smithed. The remainder cast. For convenience the hole and the decoration shown on **1.** have been moved from the extreme right of the fragment to its extreme left; similar but indistinct decoration on the rest of the piece is not shown here. **14.** is from the superficial deposits of Cutting VIII on the Benin Museum site. **1** and **5.** from the hoard in Cutting IV of the Clerks' Quarters site. **9.** from the deposits below the same hoard. **4** and **8.** from the middle phase of Cutting III of that site. The remainder from the late phase of Cuttings II and III of the same site.

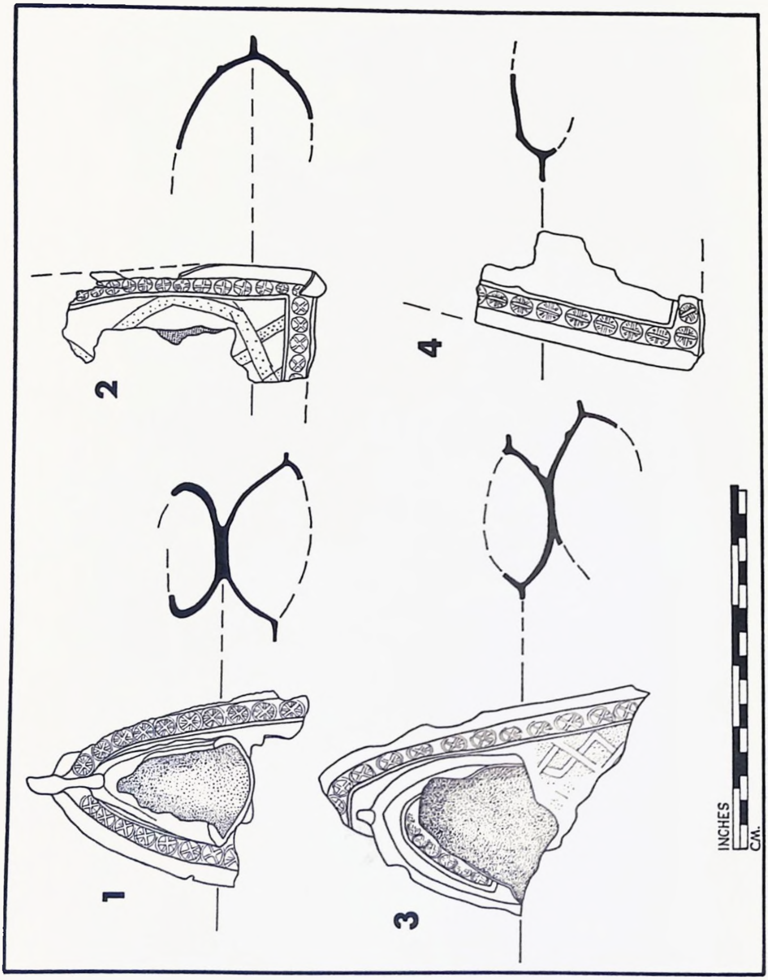

FIG. 39. Fragments of cast 'bronze' double gongs from the hoard in Cutting IV of the Clerks' Quarters site.

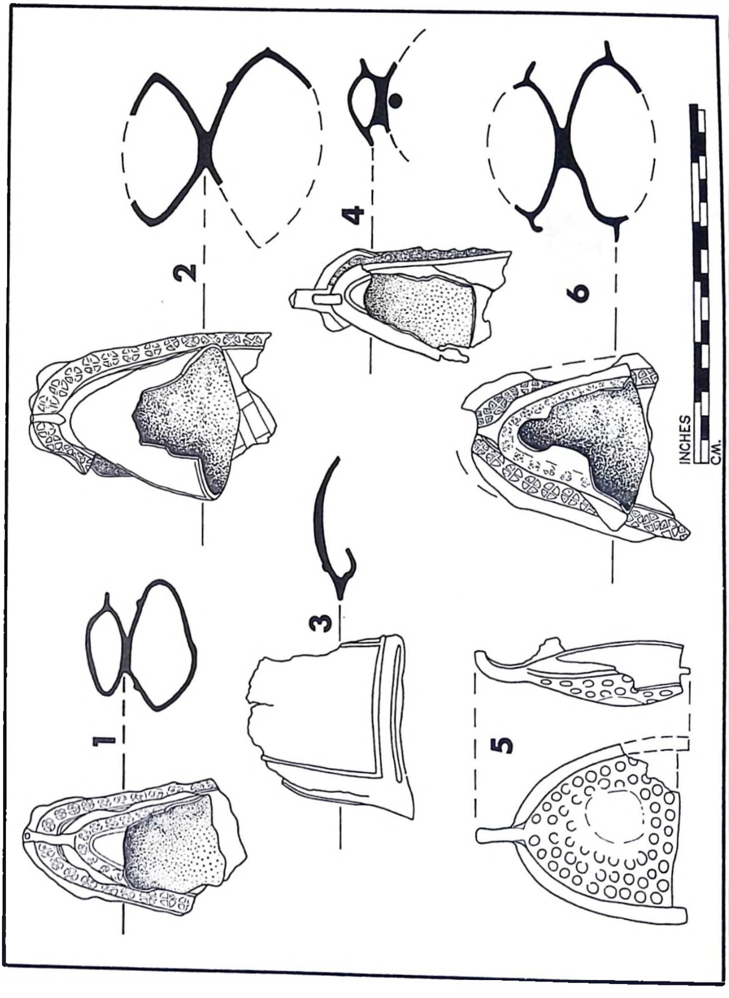

FIG. 40. Fragments of cast 'bronze' double gongs from the hoard in Cutting IV of the Clerks' Quarters site. In the section of 4. is shown the circular-sectioned iron rod which runs through that fragment.

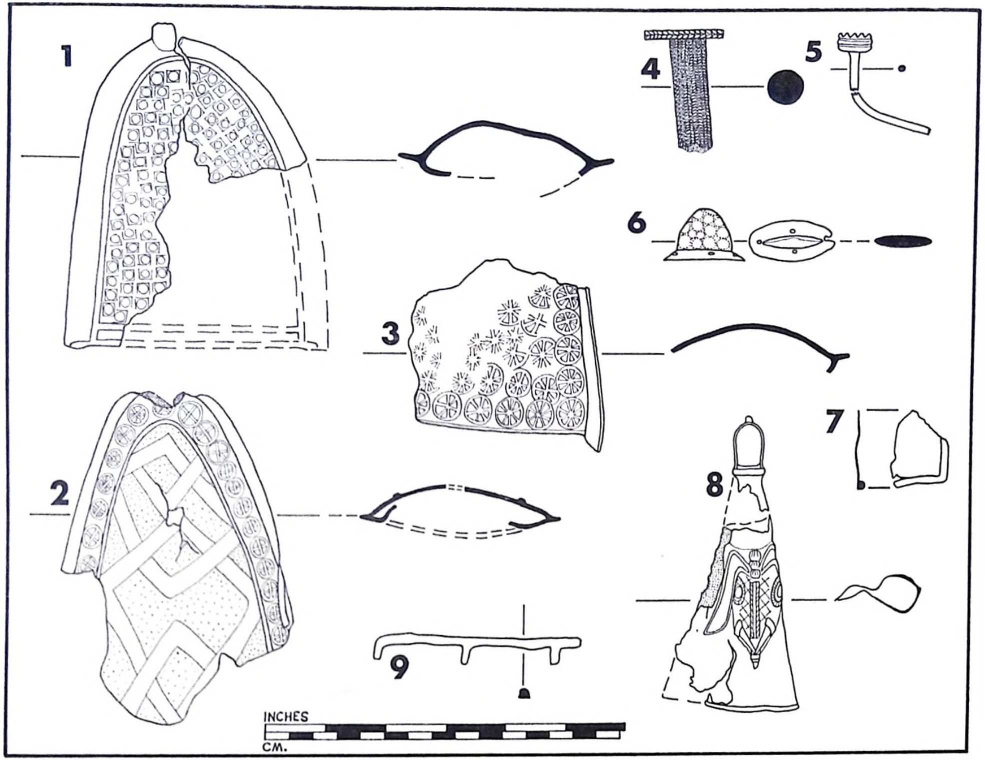

FIG. 41. Fragments of 'bronze' double gongs and other objects of cast 'bronze'. 1, 2 and 3. from the hoard in Cutting IV of the Clerks' Quarters site. 6, 8 and 9. from the middle phase of Cutting III of the same site. 4. from the late phase of that cutting. 5. from near Cutting III but not stratified. 7. from the late phase of Cutting I of the same site.

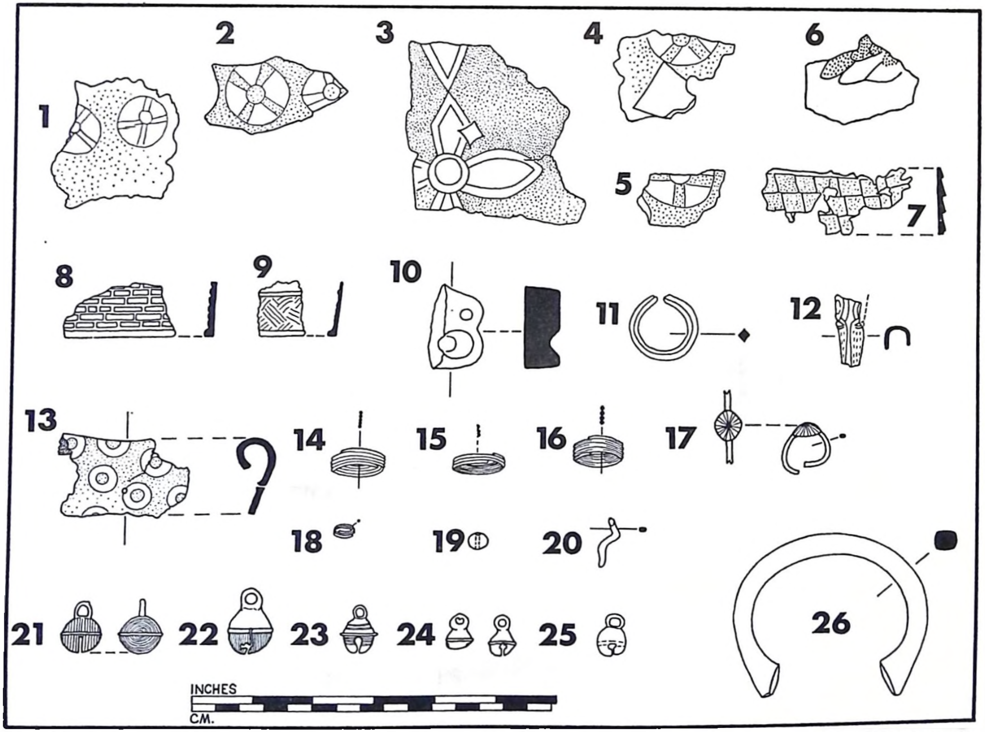

FIG. 42. Fragments of 'bronze' plaques and other objects of 'bronze'. **11, 14, 15** and **16.** smithed. **18.** of sheet metal. The remainder cast. **6.** is a portion of the edge of a plaque. **21.** is from Cutting XVIII on the Benin Museum site but is not stratified. **20.** from the lower part of the deposits in Cutting IV of the Clerks' Quarters site. **6.** from the superficial deposits of Cutting I of the same site. **14** and **16.** from the early phase of Cutting II. The remainder from the middle and late phases of Cuttings II and III of the same site.

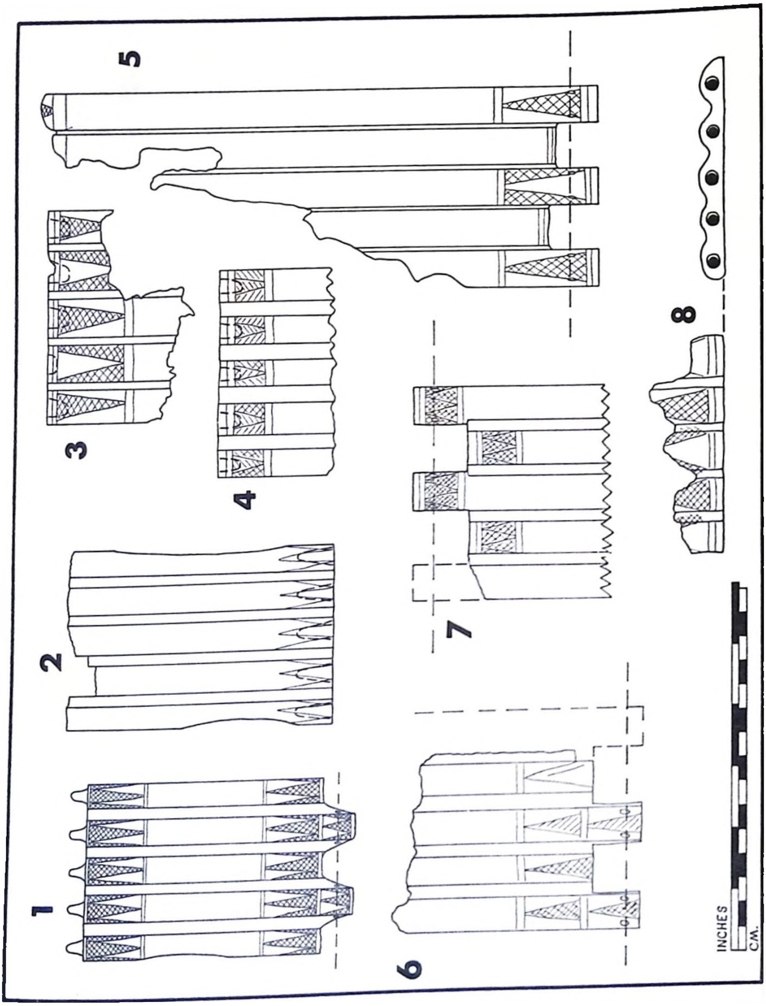

FIG. 43. Hinged armlets of cast 'bronze' from the hoard in Cutting IV of the Clerks' Quarters site. The horizontal broken lines in 1, 5, 6 and 7. indicate the positions of the missing hinge-pins. Each drawing is a flat projection and in the case of 4 and 7. only the ends of the items are shown.

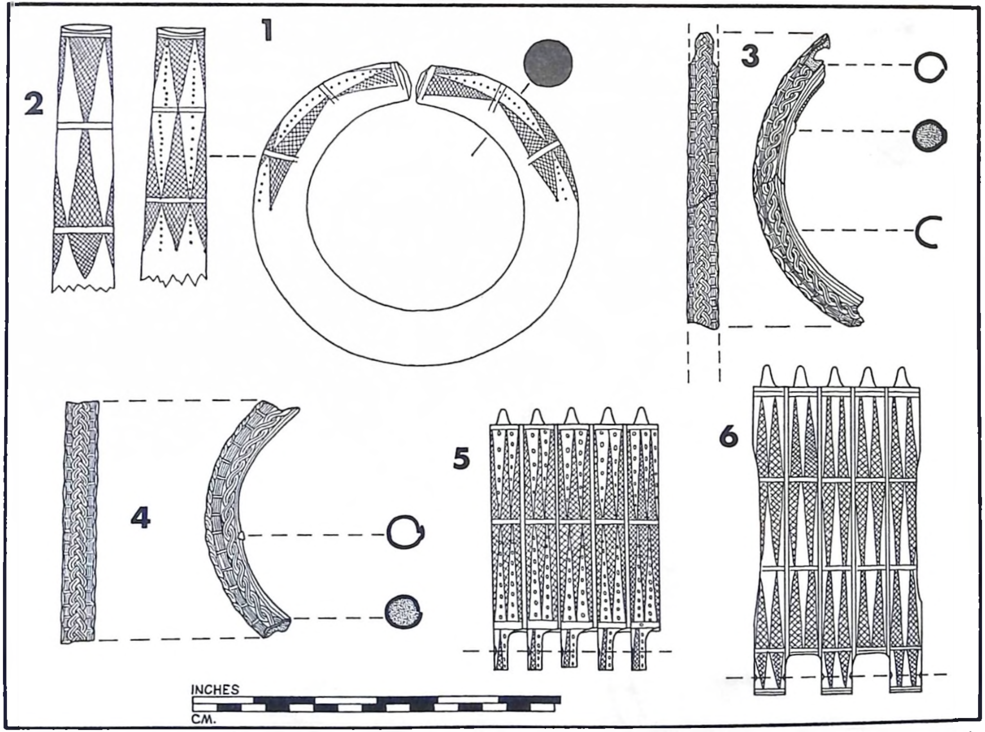

FIG. 44. Smithed (manillas?), fragments of cast openwork rings and segments of cast hinged armlets, all of 'bronze'. A flat projection of the decoration on the ends of **1**. is contrasted with a similar projection (**2**.) from another (manilla?) not otherwise illustrated. The stippling on two of the sections of **3** and **4**. denotes parts of the clay core still intact. **5** and **6**. are flat projections. **1** and **2**. from the early phase of Cutting II on the Clerks' Quarters site. **3**, **4** and **6**. from the hoard in Cutting IV of the same site. **5**. from a borrow-pit near the Benin General Hospital.

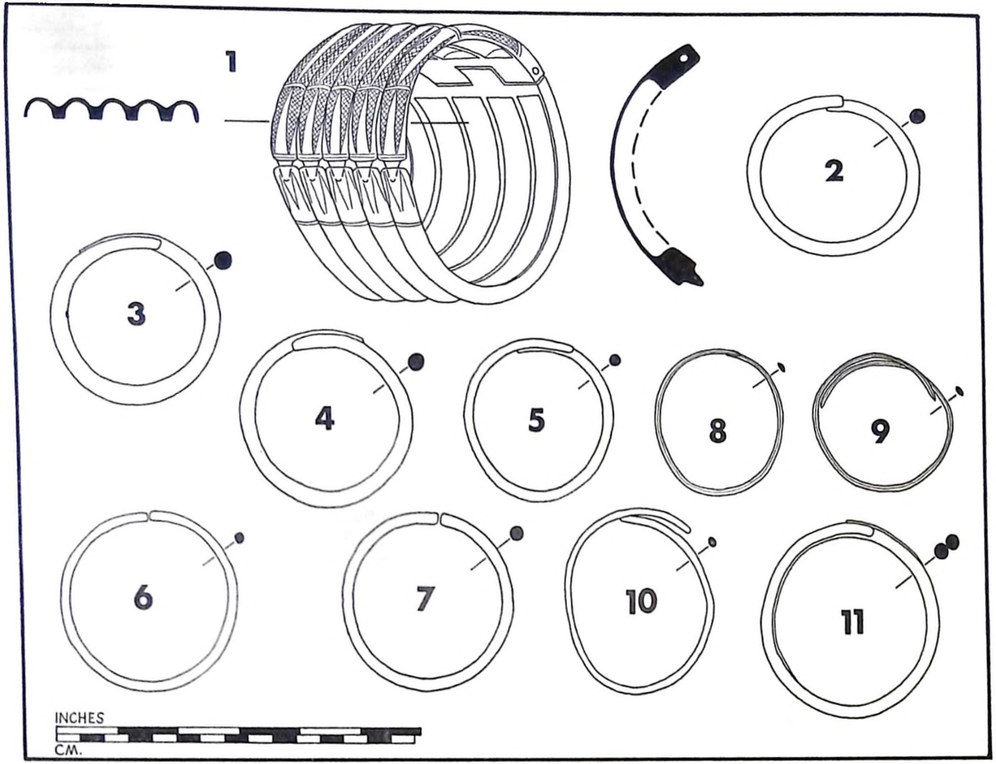

FIG. 45. Artist's reconstruction of hinged armlet of cast 'bronze'. Bracelets of smithed 'bronze'. **1.** is based on Figs. 43, 2 and 44, 6, the cross-section and long-section being taken from the latter. The remainder are from the early phase of Cutting II on the Clerks' Quarters site. **2–5.** are of smithed bracelet Type 1. **6** and **7.** are of Type 2. **8–10.** are of Type 3. **11.** is of Type 4.

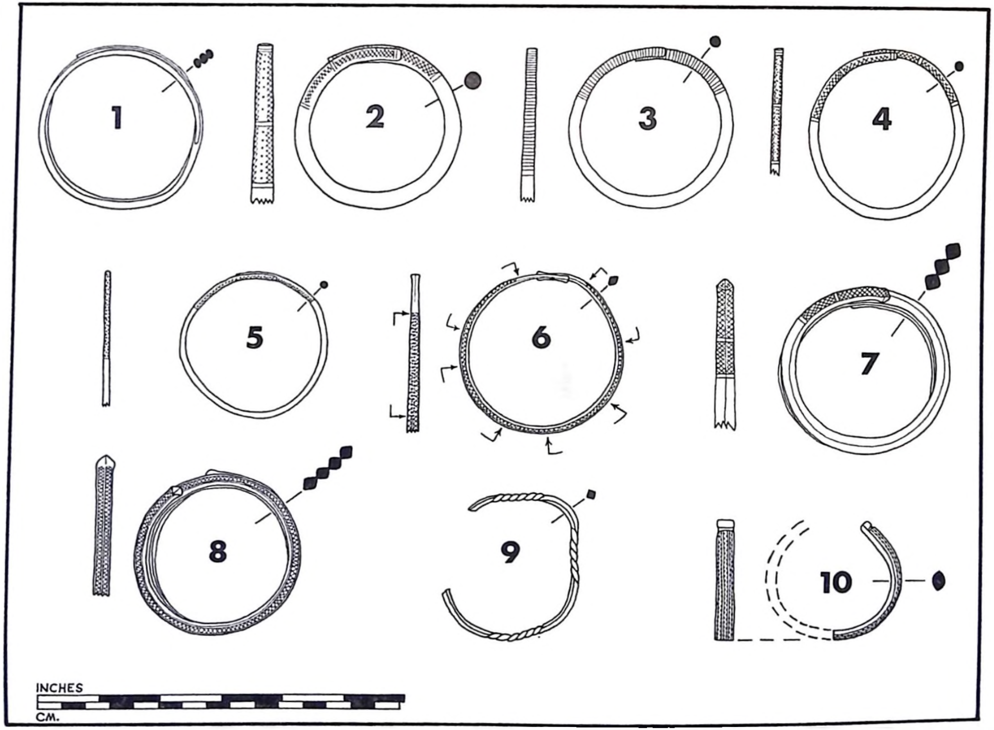

FIG. 46. Smithed 'bronze' bracelets. **10.** from the superficial deposits of Cutting VIII on the Benin Museum site. **9.** from the superficial deposits of Cutting II on the Clerks' Quarters site. The remainder from the early phase of the same cutting. **1.** is of smithed bracelet Type 4. **2–5.** are of Type 5. **6.** is of Type 6. **7** and **8.** are of Type 7. The arrows on **6.** indicate the areas where the cross-hatched decoration is augmented with two lines of punched dots.

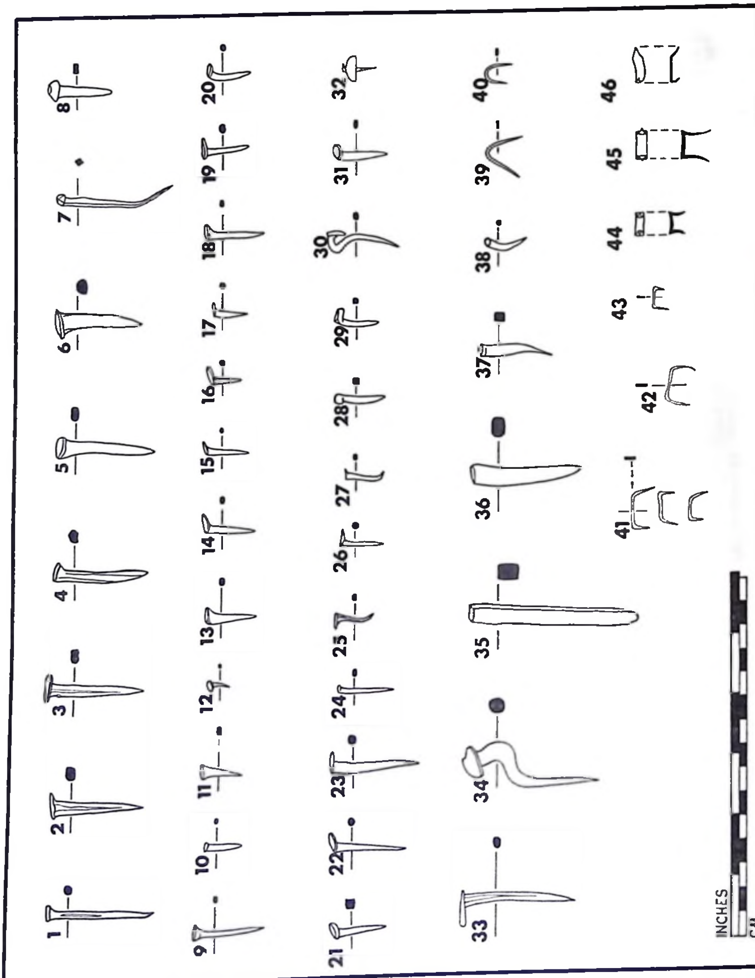

FIG. 47. 'Bronze' nails, tacks and staples from Cuttings I, II and III on the Clerks' Quarters site. 24. is from the early phase of Cutting II and is probably a stratigraphic stray; all the others are from the middle and late phases of Cuttings I, II and III.

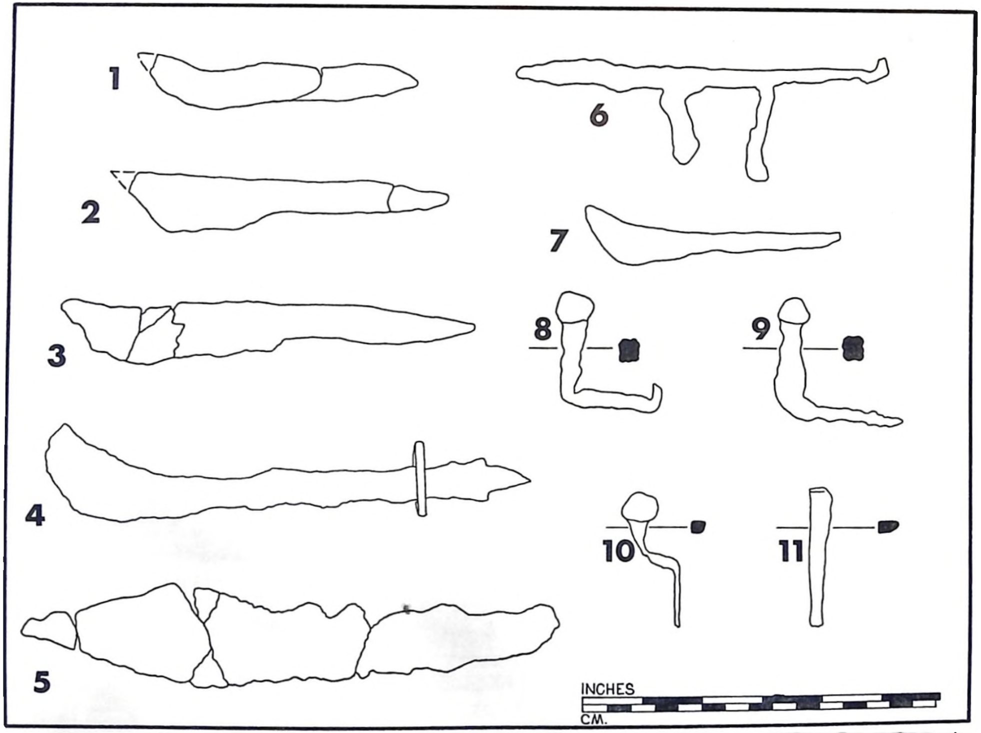

FIG. 48. Objects of iron. **1–5** and **7.** knives. **6.** door bolt. **8–11.** nails. **1–3.** are from Pit 1 in Cutting XIV on the Benin Museum site. **4.** from Pit 1 on the Usama site. **7.** from the superficial deposits of the same site. **5.** from the middle phase of Cutting I on the Clerks' Quarters site. The remainder from the late phase of Cutting III on the same site. **4.** has a 'bronze' ring around it, which must have formed part of the handle.

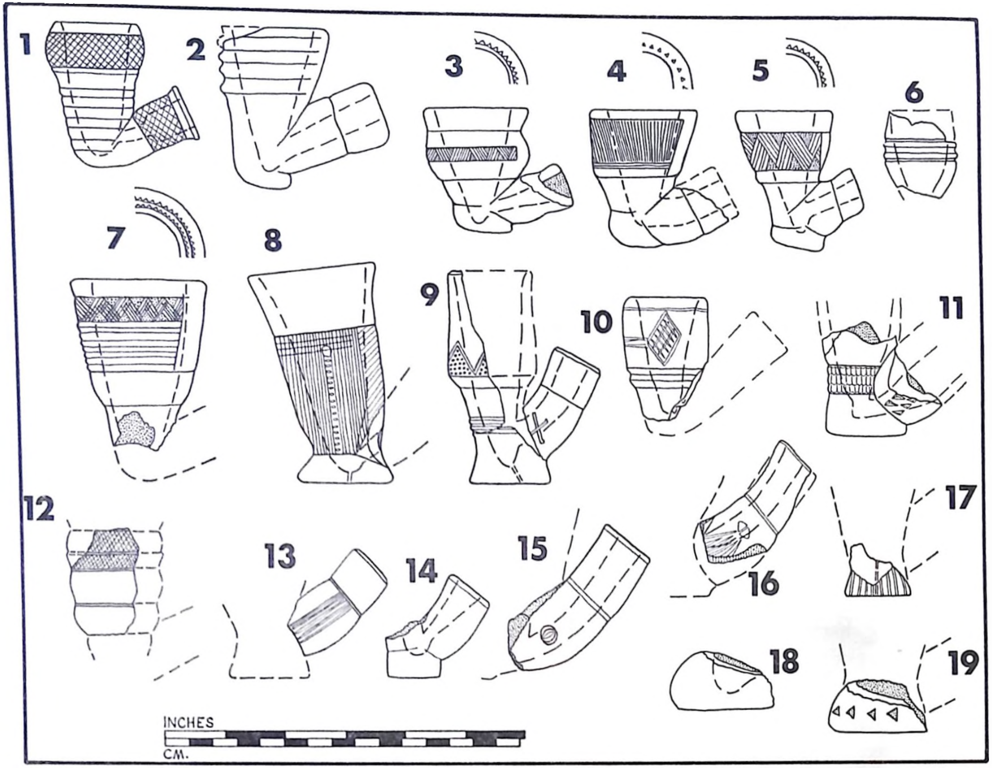

FIG. 49. Indigenous smoking-pipes. **1–5.** are from the Ikpoba River. **7.** from a 'plantation' in Benin City. **8.** from superficial deposits in Cutting XIV on the Benin Museum site. **15.** from modern deposits of the city ditch silting on the Ogba Road site. **14.** from the lower part of the deposits in Cutting IV on the Clerks' Quarters site. The remainder from the middle and late phases of Cuttings I and II of the same site and the middle and late phases and superficial deposits of Cutting III of that site.

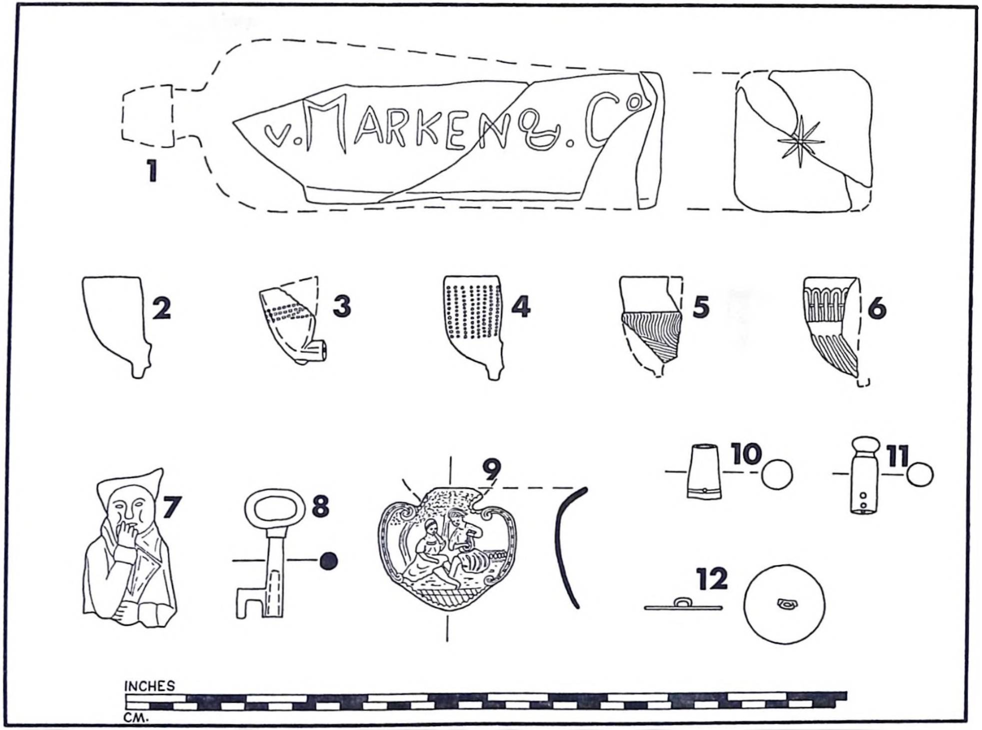

FIG. 50. European imports. **1**. trade-gin bottle. **2–6**. bowls of smoking-pipes. **7**. fragment of glass figure. **8**. 'bronze' key. **9**. fragment of sword hilt. **10** and **11**. 'bronze' ferrules. **12**. 'bronze' button. **2** and **4–6**. are from superficial deposits on the Benin Museum site. The remainder are from the middle and late phases and superficial deposits of Cutting III on the Clerks' Quarters site.

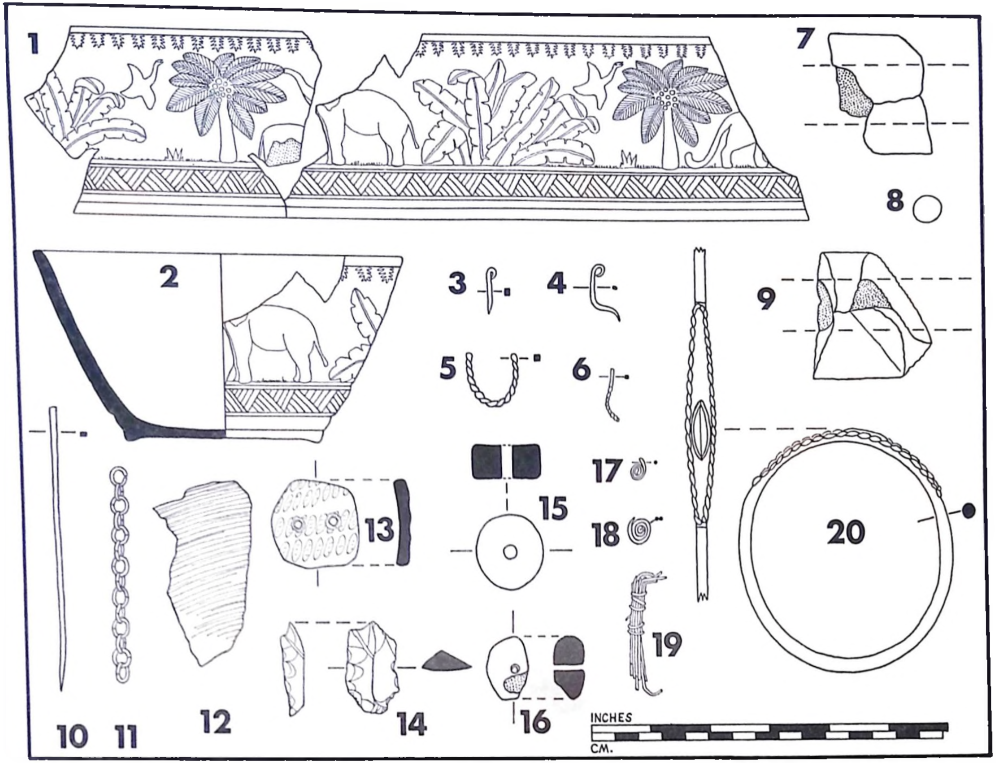

FIG. 51. European imports and various indigenous objects of 'bronze' and pottery. **2.** decorated earthenware bowl with yellow glaze; a flat projection of the decoration is shown in **1. 3** and **4.** 'bronze' buckle-tongues. **5** and **6.** fragments of twisted 'bronze' wire. **7** and **9.** fragments of clay bellows' nozzles. **8.** lead musket ball. **10–12.** objects of 'bronze'. **13.** shaped sherd with post-firing perforations. **14.** fragment of flint. **15** and **16.** pottery spindle-whorls. **17–19.** 'bronze' wire. **20.** cast 'bronze' bracelet. **20.** is from modern deposits of the city ditch silting on the Ogba Road site. The remainder are from the late phase of Cutting I on the Clerks' Quarters site, the middle and late phases of Cutting II on the same site and the middle and late phases and superficial deposits of Cutting III on that site.

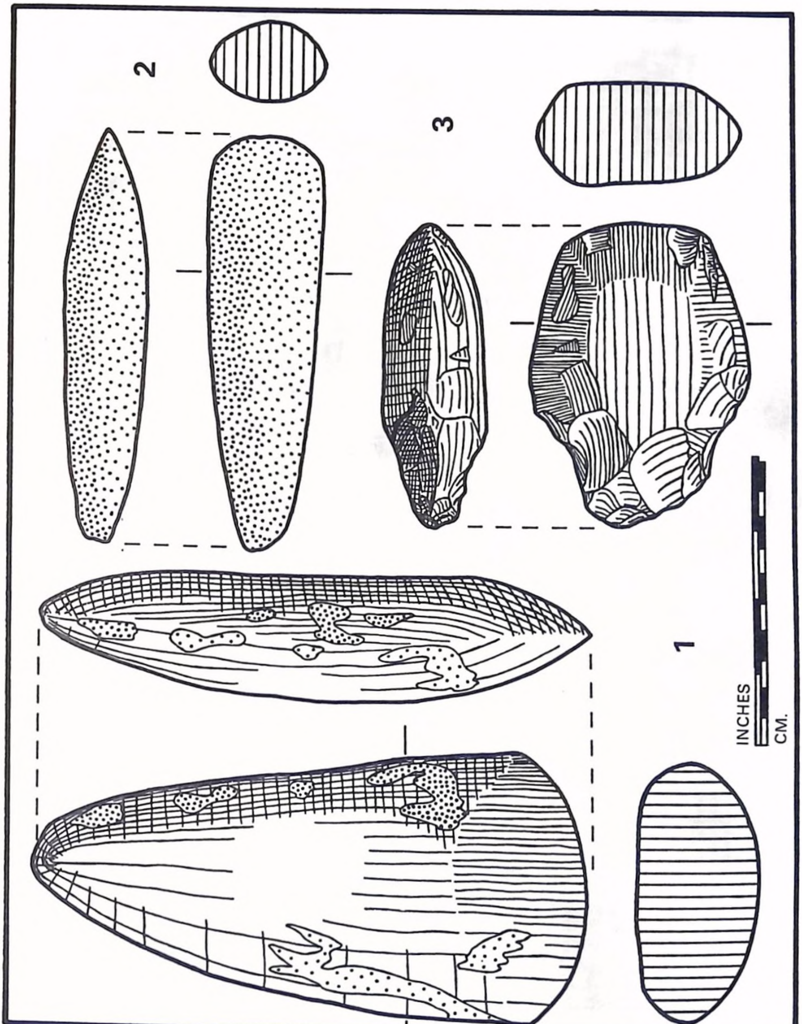

FIG. 52. Ground stone axes of unknown provenance.

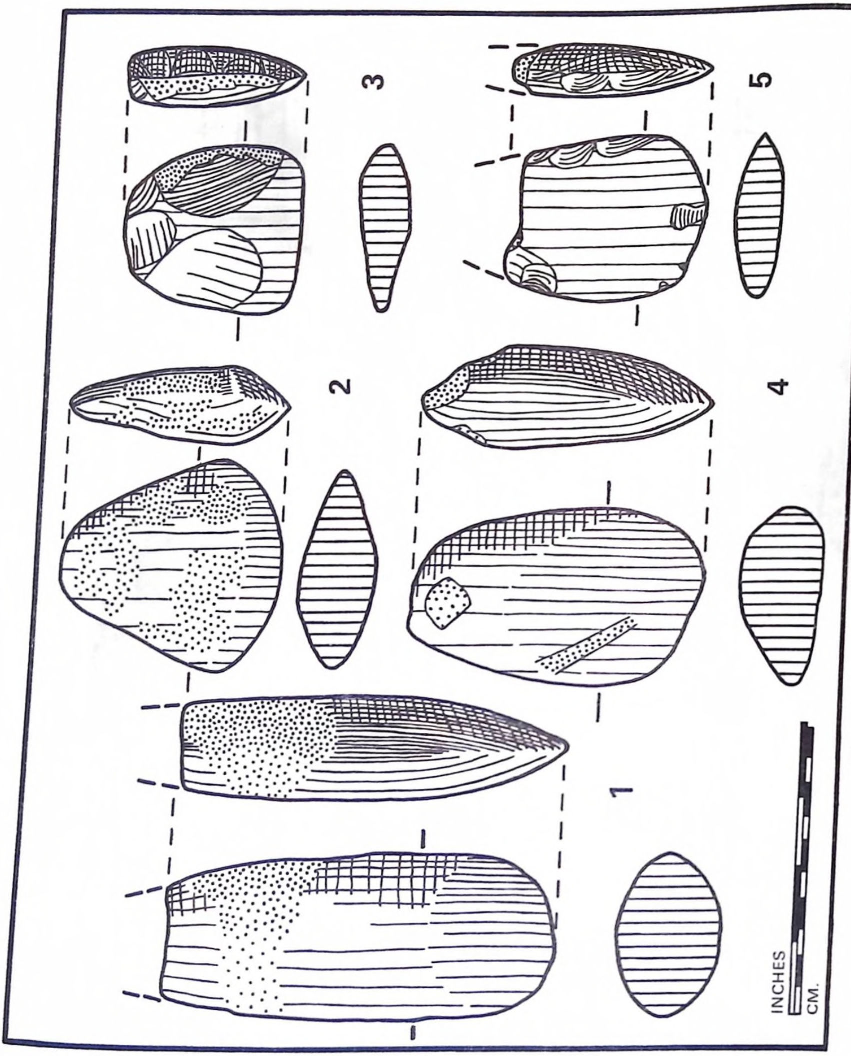

FIG. 53. Ground stone axes of unknown provenance.

definitely imports but it is possible that many were made locally. Nothing is known of the antiquity of glass-working in Nigeria, although discoveries from as yet undated contexts in Ife suggest that glass bead-making was certainly carried out there at some time in the past (Willett, 1967), and glass-working is said to have some antiquity among the Nupe (Nadel, 1942).

(i) *Beads of glass and of other materials.* A total of 269 beads were recovered. This is a surprisingly small number considering the amount of excavation. Examination of the small finds' location tables will show, however, that the distribution of beads depended very much on the nature and the date of the context. Thus excavations on the city walls produced no beads at all, the Usama site produced only one and the Benin

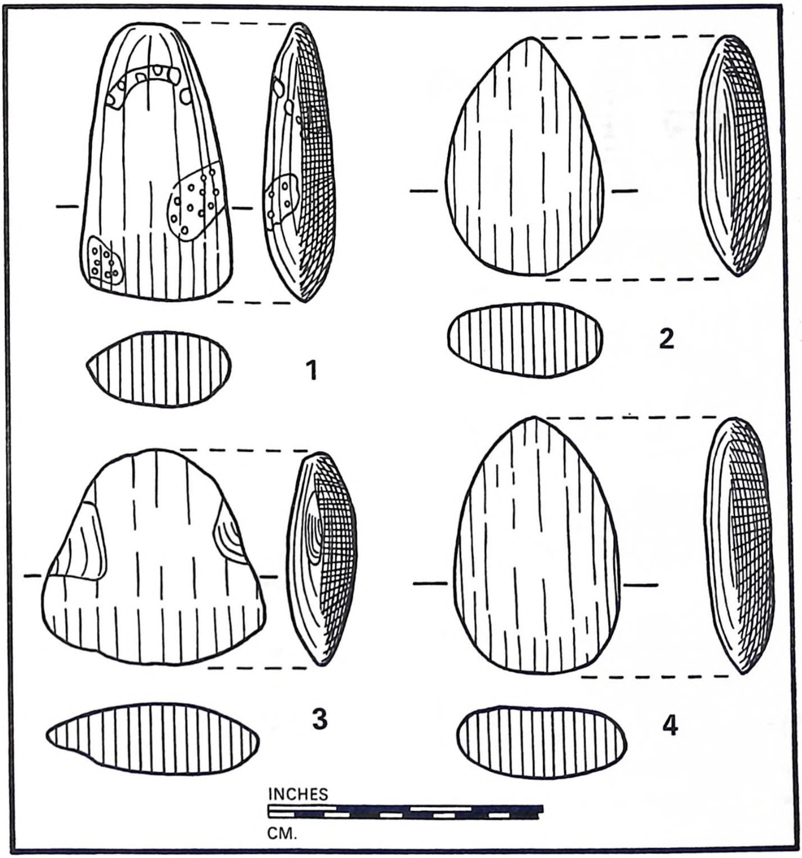

FIG. 54. Ground stone axes of unknown provenance.

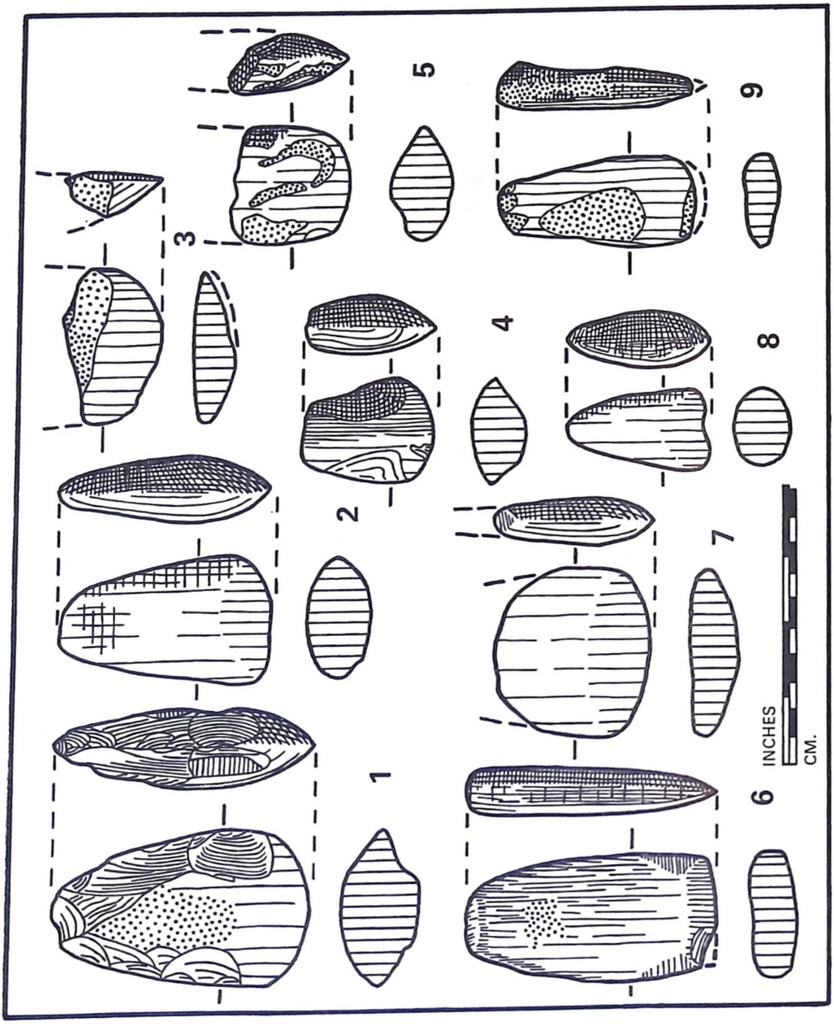

FIG. 55. Ground stone axes of unknown provenance.

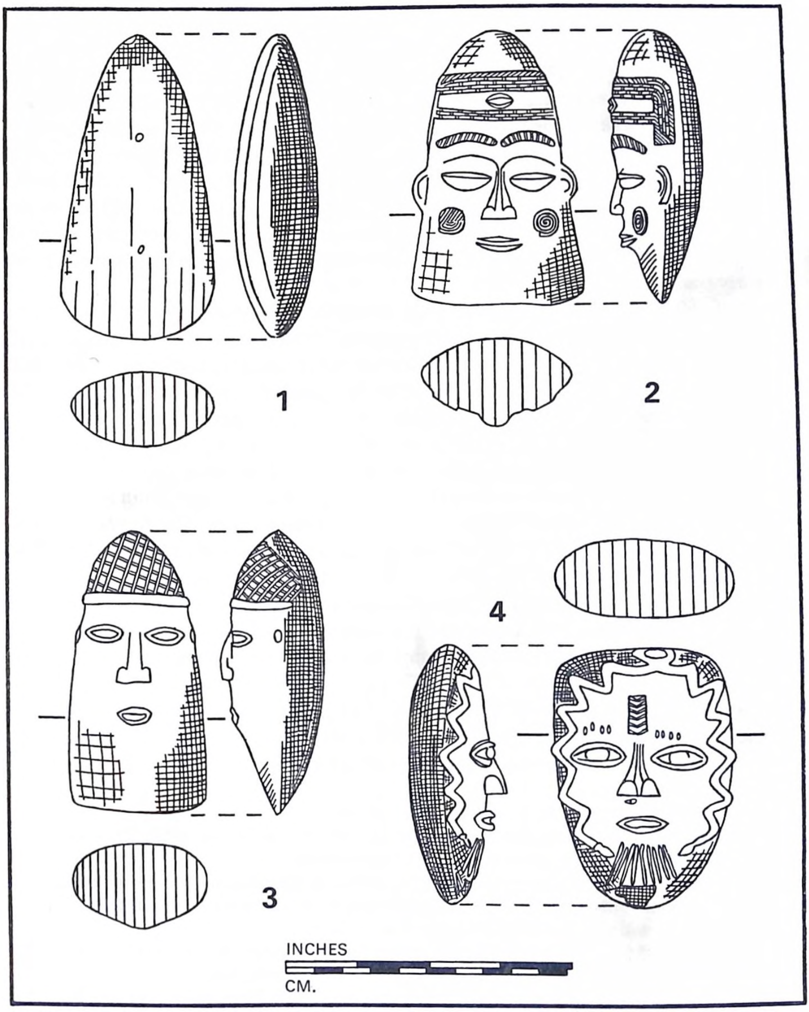

FIG. 56. Metal skeuomorphs of ground stone axes. 3. is of lead, the remainder are of brass. These objects have no archaeological provenance.

Museum site produced only six, and those were all from superficial deposits. Yet the Clerks' Quarters site produced 262 of the over-all total, 230 of which were in the late phase of Cutting I, the middle and late phases of Cuttings II and III, and in a chronologically analogous context in Cutting IV. Beads therefore tend to be fairly common in the later contexts of the Oba's palace site, but to be rare in other circumstances. This makes it difficult to escape the conclusion that their incidence is a reflection of the influence of European trade. Caution is necessary, however, for over half the total number of beads are of a yellow glass which has a tendency to disintegrate in the acid sand of Benin. Of the few beads found in the early phase of Cutting II on the Clerks' Quarters site, the majority were of this yellow glass and it is possible that far larger numbers had existed but had not survived. Nevertheless, one thing is certain: none of the beads for which there is reasonable probability of a European origin came from the early phase.

Out of 269 beads there were 241 of glass and 28 of other materials. The latter consisted of 11 of faience, 7 of agate, 6 of carnelian, 1 of quartz, 1 of an unidentified mineral, 1 of pottery, and 1 of 'bronze'. On the tables showing the location of small finds, the beads have been divided between the glass, the miscellaneous, and the 'bronze' sections. In the following description, however, as also in Plates 37–42 which illustrate it, beads of all materials are presented. It is interesting that no coral beads were found, although traditionally they have been held in great esteem in Benin. Probably they would not survive burial for any length of time in the Benin soil.

The following list is based on the writer's own examination. The beads were examined also by the late Dr. W. G. N. van der Sleen and in certain places his opinion is quoted and acknowledged with the abbreviation, v. d. S. The description of the shapes is basically that of Beck (1928) but the non-availability, at the time of examination, of Beck's definitive article, except for a photo-copy of his Plates II and III, has meant that in detail there are probably many departures from his system. Except where otherwise stated, all beads are of Beck's 'Group 1, Circular'. The order in which the beads are described is basically stratigraphic but within each stratigraphic unit the arrangement follows that of Table 19 which summarizes the descriptive list, and the category numbers employed in Table 19 are given.

Benin Museum site

Cutting I: Superficial—Category 19: standard barrel, red on yellow, glass, thought to be Venetian by v. d. S. (Plate 40, 4).
—Category 31: faceted, probably circular, yellow, glass, broken.

Cutting IV: Superficial—Category 6: short cylinder with 1 convex end, dark blue, glass (Plate 38, 14).

Cutting VI: Superficial—Category 31: short faceted bicone, green, glass, thought to be possibly Venetian by v. d. S. (Plate 41, 16).

Cutting VII: Superficial—Category 7: probably ellipsoid, light blue, glass, broken, thought by v. d. S. to be probably from Amsterdam (Plate 39, 1).
—Category 26: standard barrel, black with crossing white lines and lines of aventurin, glass, thought to be Venetian by v. d. S. (Plate 41, 10).

Clerks' Quarters site, Cutting I

Superficial: Layer 1—Category 37: 2 irregular circulars, pink, carnelian (Plate 42, 14 shows 1 of these).
—Category 37: 2 irregular oblates, pink, carnelian.

Late: Layer 3—Category 26: standard barrel, black with crossing white lines and lines of aventurin, glass, thought to be Venetian by v. d. S.
—Category 29: short pentagonal truncated bicone, clear, glass, thought by v. d. S. to be Venetian or from Amsterdam.

Feature 4—Category 1: long cylinder, yellow glass.
—Category 13: probably ellipsoid, white, glass, broken, thought to be possibly Venetian by v. d. S.
—Category 21: short barrel, black with 3 intersecting yellow lines, glass, thought by v. d. S. to be possibly Dutch *c.* A.D. 1650–*c.* 1700 (Plate 41, 1).

Feature 1—Category 1: long cylinder, yellow glass.

Clerks' Quarters site, Cutting II

Late: Layer 3—Category 6: standard cylinder with 2 convex ends, light blue, drawn glass, broken.
—Category 15: long cylinder, brown, glass.
—Category 26: standard barrel, black with crossing white lines and lines of aventurin, glass, thought to be Venetian by v. d. S.
—Category 38: irregular cylinder disc with 2 convex ends, pink, quartz (Plate 42, 15).

Layer 3B—Category 41: standard circular, 'bronze' (Fig. 42, 19).

Feature 2—Category 1: long cylinder, yellow, glass.
—Category 19: long cylinder, red on green, glass, thought by v. d. S. to be from Amsterdam (Plate 40, 7).
—Category 34: short truncated bicone, green, thought by v. d. S. to be Egyptian faience (Plate 42, 6).

Feature 3—Category 1: long cylinder, yellow, glass, broken.
—Category 2: short bicone, yellow, glass (Plate 37, 14).
—Category 2: short convex bicone, yellow, glass.
—Category 2: 2 short truncated bicones, yellow, glass.
—Category 6: long cylinder, light blue, drawn glass, thought by v. d. S. to be probably Venetian.
—Category 6: long cylinder, light blue, drawn glass, broken.
—Category 9: short barrel, blue, drawn glass.
—Category 11: segmented standard truncated cone, green, wound glass, but thought by v. d. S. to be Egyptian faience (Plate 39, 10).
—Category 18: long truncated bicone, red, wound glass, thought by v. d. S. to be possibly from Amsterdam or Venice (Plate 39, 16).
—Category 27: oblate, clear with polychrome interior, glass, broken.

Layer 6—Category 2: short truncated bicone, yellow, glass.

Layer 4A—Category 1: 2 long cylinders, yellow, glass (Plate 37, 2 shows one of these).
—Category 2: short truncated bicone, yellow, glass.
—Category 10: long cylinder, green, glass.
—Category 13: probably ellipsoid, white, glass, broken, thought by v. d. S. to be from Amsterdam.

—Category 18: short cylinder, red, glass, thought by v. d. S. to be from Amsterdam (Plate 39, 15).
—Category 22: standard cylinder, yellow with red lines, glass.
—Category 35: irregular bicone disc with 1 end convex and 1 end concave, green, thought by v. d. S. to be Egyptian faience (Plate 42, 7).

Middle: Layer 4B—Category 1: 5 long cylinders, yellow, glass (Plate 37, 8 shows one of these).
—Category 2: short truncated bicone, yellow, glass (Plate 37, 10).
—Category 4: short barrel, yellow, glass.
—Category 6: irregular short cylinder, dark blue, drawn glass (Plate 38, 15).
—Category 19: long cylinder, red on green, glass, thought by v. d. S. to be from Amsterdam.
—Category 20: long cylinder with 2 convex ends, red, with blue and white lines, glass, broken, thought by v. d. S. to be probably Dutch *c.* A.D. 1650–*c.* 1700 (Plate 40, 9).
—Category 22: long cylinder, yellow with red lines, glass, damaged in manufacture (Plate 41, 3).
—Category 24: long truncated cone, yellow with red lines, glass (Plate 41, 7).
—Category 25: standard cylinder, black, with red and white roundels, glass broken.
—Category 25: short barrel, blue with red roundels, glass (Plate 41, 9).
—Category 32: long cylinder, light blue, thought by v. d. S. to be Egyptian faience, possibly of the 'first centuries A.D.' (Plate 42, 3).

Layer 7—Category 1: 2 long cylinders, yellow, glass.
—Category 2: short truncated bicone, yellow, glass (Plate 37, 11).
—Category 3: convex bicone disc, yellow, glass.
—Category 23: long cylinder, yellow with green spiral lines, glass (Plate 41, 6).
—Category 29: long pentagonal cylinder with 2 convex ends, dark blue, glass, thought by v. d. S. to be Dutch *c.* A.D. 1650–*c.* 1700 (Plate 41, 13).

Early: Layer 13 in
Feature 14—Category 3: 3 convex cone discs fused together by heat, grey/yellow, glass, thought by v. d. S. to be disc beads in the process of manufacture (Plate 38, 3).
Feature 13—Category 22: long cylinder, blue with red lines, glass, broken.

Layer 10 in
Feature 14—Category 34: short truncated bicone, green, thought by v. d. S. to be Egyptian faience.

Layer 14 in
Feature 14—Category 34: short bicone, green, thought by v. d. S. to be Egyptian faience.

Feature 21—
Below 34 ft. 7 in.—Category 2: short bicone, yellow, glass.
—Category 4: 20 short barrel, yellow, glass, in poor condition with a number of them broken (Plate 38, 9).
—Category 36: long cylinder, pink, agate.

—Category 36: 2 long cylinders, pink and white, agate (Plate 42, 10 shows one of these).
—Category 36: standard faceted cylinder, pink, agate (Plate 42, 11).
—Category 40: long cylinder, red, pottery, broken.

Clerks' Quarters site, Cutting III

Superficial: Layers 1 & 2—Category 37: irregular oblate, pink, carnelian (Plate 42, 13).
Late: Layer 3—Category 2: short convex bicone, yellow, glass, broken.
—Category 25: short barrel, black, with blue and red roundels, glass (Plate 41, 8).
—Category 31: long faceted truncated bicone, red, glass (Plate 42, 1).
Layer 4—Category 1: 2 long cylinders, yellow, glass (Plate 37, 7 shows one of these).
—Category 2: short convex bicone, yellow, glass, broken.
—Category 3: convex bicone disc, yellow, glass.
—Category 6: long cylinder, dark blue, glass, broken, thought by v. d. S. to be 'very much like *akori*' (Plate 38, 13).
—Category 9: standard barrel, dark blue, glass (Plate 39, 3).
—Category 14: probably long truncated convex cone, white, glass, very much decayed.
—Category 18: long segmented cylinder, red, glass, broken (Plate 40, 3).
—Category 20: standard barrel, black with white lines, glass, thought by v. d. S. to be probably Venetian (Plate 40, 15).
—Category 22: long cylinder, yellow with red lines, glass, broken (Plate 41, 4).
—Category 22: fragment of a cylinder of unknown length, yellow with red lines, glass, it broke up and was discarded.
—Category 23: long cylinder, yellow with green spiral lines, glass, broken.
—Category 25: short barrel, yellow, with blue roundels and green lines, glass, broken, blue roundels thought by v. d. S. to 'look Venetian'.
—Category 31: long faceted truncated bicone, red, glass.
—Category 35: barrel disc, green, thought by v. d. S. to be Egyptian faience.
—Category 36: standard cylinder, pink, agate, broken.
—Category 36: fragment of a cylinder of unknown length, pink and white agate.
Layer 5—Category 1: standard cylinder, yellow, glass.
—Category 22: fragment of cylinder of unknown length, yellow with red lines, glass, it broke up and was discarded.
—Category 35: concave bicone disc, green, thought by v. d. S. to be Egyptian faience.
Feature 2—Category 1: short cylinder, yellow, glass (Plate 37, 4).
—Category 1: long cylinder, yellow, glass, broken.
—Category 2: short bicone, yellow, glass, broken.
—Category 2: short truncated bicone, yellow, glass.
—Category 5: long cylinder, light blue, glass.
—Category 16: standard cylinder, pink, glass, perforation off-centre (Plate 39, 14).

—Category 19: irregular oblate, red on black, glass, broken.
—Category 31: standard faceted cylinder, blue, glass (Plate 42, 2).
—Category 33: long square cylinder, green, broken, thought by v. d. S. to be faience, possibly Egyptian (Plate 42, 4).
—Category 37: circular, pink, carnelian, perforation off-centre.

Layer 6—Category 1: 3 standard cylinders, yellow, glass (Plate 37, 5 shows one of these).
—Category 1: short cylinder, yellow, glass.
—Category 1: 2 long cylinders, yellow, glass.
—Category 1: 2 long cylinders, yellow, glass, broken.
—Category 2: 2 short convex bicones, yellow, glass (Plate 37, 9 shows one of these).
—Category 3: oblate disc, yellow, glass.
—Category 4: oblate, yellow, glass.
—Category 6: long cylinder, dark blue, drawn glass, broken (Plate 38, 16).
—Category 10: standard cylinder, green, glass.
—Category 13: ellipsoid, white with pink veins, glass, broken (Plate 39, 12).
—Category 20: long cylinder, blue, with red and white lines, glass, broken, thought by v. d. S. to be Venetian (Plate 40, 11).
—Category 21: circular, dark green with white lines, glass, broken, origin unknown to v. d. S. (Plate 40, 16).

Layer 7—Category 1: long cylinder, yellow, glass.
—Category 19: oblate, red on clear, glass, thought by v. d. S. to be possibly from Amsterdam.
—Category 23: long cylinder, yellow, with green and red spiral lines, glass (Plate 41, 5).

Feature 4—Category 2: short truncated convex bicone, yellow, glass (Plate 37, 13).

Feature 7—Category 1: long cylinder, yellow, glass.
—Category 2: 2 short truncated convex bicones, yellow, glass.

Middle: Layer 8—Category 1: standard cylinder, yellow, glass.
—Category 1: 3 short cylinders, yellow, glass (Plate 37, 6 shows one of these).
—Category 1: 11 long cylinders, yellow, glass (Plate 37, 3 shows one of these).
—Category 1: 4 long cylinders, yellow, glass, broken.
—Category 1: probably long cylinder, yellow, glass, broken.
—Category 1: short double chamfered cylinder, yellow, glass.
—Category 2: 4 short bicones, yellow, glass (Plate 37, 15 shows one of these).
—Category 2: short convex bicone, yellow, glass.
—Category 2: short convex bicone, yellow, glass, broken.
—Category 2: probably convex bicone, yellow, glass, broken.
—Category 2: 2 short truncated bicones, yellow, glass (Plate 37, 12 shows one of these).
—Category 2: short truncated convex bicone, yellow, glass.
—Category 2: short truncated concave bicone, yellow, glass, broken.
—Category 3: bicone disc, yellow, glass.

—Category 3: 2 truncated bicone discs, yellow, glass (Plates 37, 16 and 38, 1).
—Category 3: truncated concave cone disc, yellow, glass (Plate 38, 2).
—Category 4: standard barrel, yellow, glass (Plate 38, 7).
—Category 4: standard barrel, yellow, glass, broken.
—Category 4: 5 short barrels, yellow, glass (Plate 38, 5 and 6 shows two of these).
—Category 4: 2 short barrels, yellow, glass, broken (Plate 38, 4 shows one of these).
—Category 4: long truncated cone, yellow, glass (Plate 38, 8).
—Category 6: standard cylinder, blue, drawn glass, broken.
—Category 6: short cylinder, blue, drawn glass, broken.
—Category 10: irregular long cylinder, dark green, glass, thought by v. d. S. to be an *akori* (Plate 39, 4).
—Category 10: long cylinder, green, glass, broken.
—Category 13: ellipsoid, white, wound glass, thought by v. d. S. to be probably from Amsterdam *c.* A.D. 1650–*c.* 1700 (Plate 39, 11).
—Category 15: long cylinder, brown, glass (Plate 39, 13).
—Category 17: long cylinder, clear, drawn glass, broken.
—Category 19: long cylinder with 2 convex ends, red on blue, glass.
—Category 19: standard barrel, red on green, glass, thought by v. d. S. to be possibly from Amsterdam *c.* A.D. 1650–*c.* 1700 (Plate 40, 5).
—Category 19: long barrel, red on green, glass, thought by v. d. S. to be possibly from Amsterdam.
—Category 20: long cylinder, red on black, with black and white lines, glass, thought by v. d. S. to be from Amsterdam *c.* A.D. 1650–*c.* 1700 (Plate 40, 12).
—Category 20: long cylinder, black, with red and white lines, glass, broken, described by v. d. S. as 'typical Amsterdam *c.* A.D. 1650–*c.* 1700' (Plate 40, 13).
—Category 20: long cylinder, green on blue, with red, yellow and white lines, glass, broken, thought by v. d. S. to be Venetian (Plate 40, 10).
—Category 22: long cylinder, yellow with red lines, glass (Plate 41, 2).
—Category 22: short cylinder, yellow with red lines, glass, broken.
—Category 22: standard barrel, blue with red lines, glass, broken.
—Category 25: short barrel, blue, with red and black roundels, glass.
—Category 27: oblate, clear with polychrome interior, wound glass (Plate 41, 11).
—Category 28: twisted sub-square long cylinder, dark blue, glass, broken (Plate 41, 12).
—Category 30: short hexagonal truncated bicone, blue, with red, white and blue chevrons, glass, described by v. d. S. as a 'small chevron bead, probably Amsterdam make *c.* A.D. 1650–*c.* 1700' (Plate 41, 15).
—Category 34: long truncated bicone, green, thought by v. d. S. to be Egyptian faience (Plate 42, 5).

—Category 35: convex bicone disc, green, thought by v. d. S. to be faience (Plate 42, 9).
—Category 35: barrel disc, green, thought by v. d. S. to be faience (Plate 42, 8).
—Category 36: barrel disc, red, agate (Plate 42, 12).

Feature 3—Category 19: short barrel, red on black, glass.
—Category 39: long cylinder, black, unidentified mineral, perforation off-centre (Plate 42, 16).

Layer 9—Category 1: long cylinder, yellow, glass.
—Category 2: short truncated bicone, yellow, glass.
—Category 3: cylinder disc with 2 concave ends, yellow, glass.
—Category 10: short double-chamfered cylinder, green, glass (Plate 39, 8).
—Category 19: short barrel, red on black, glass, thought by v. d. S. to be possibly from Amsterdam *c.* A.D. 1650–*c.* 1700 (Plate 40, 6).
—Category 20: short barrel, green, with red and yellow lines, glass, thought by v. d. S. to be probably from Amsterdam (Plate 40, 8).

Feature 9—Category 1: standard cylinder, yellow, glass.

Clerks' Quarters site, baulk between Cuttings II and III

Small finds from the baulk between Cuttings II and III on the Clerks' Quarters site have not been included on the location tables although the more significant items will be found mentioned in the text. The beads are listed below in stratigraphic order against the phase to which they belong, but without giving the somewhat involved stratigraphic details.

Late: —Category 1: long cylinder, yellow, glass.
—Category 3: convex bicone disc, yellow, glass.
—Category 4: oblate, yellow, glass.
—Category 18: long truncated bicone, red, glass, thought by v. d. S. to be from Amsterdam (Plate 40, 1).

Middle: —Category 1: 2 long cylinders, yellow, glass.
—Category 2: short convex bicone, yellow, glass.

Clerks' Quarters site, Cutting IV

Feature 1—Category 29: short pentagonal truncated bicone, clear, glass, thought by v. d. S. to be Venetian or from Amsterdam (Plate 41, 14).

Spit 1—Category 1: long cylinder, yellow, glass.
—Category 5: long cylinder, light blue, glass, thought by v. d. S. to be possibly Egyptian (Plate 38, 10).
—Category 5: long cylinder, light blue, drawn glass, thought by v. d. S. to be from Amsterdam.
—Category 11: irregular oblate, green, glass, thought by v. d. S. to be possibly Egyptian.
—Category 11: short barrel, green, glass.
—Category 12: short cylinder, white, glass, probably originally yellow glass but surface much decayed.
—Category 19: long cylinder, red on clear, glass, broken, thought by v. d. S. to be from Amsterdam after *c.* A.D. 1700.

Spit 2—Category 1: long cylinder, yellow, glass, broken.
—Category 5: long cylinder, light blue, glass, thought by v. d. S. to be from Amsterdam.

—Category 5: long cylinder, light blue, glass, broken, thought by v. d. S. to be from Amsterdam (Plate 38, 12).
—Category 10: short cylinder, green, glass (Plate 39, 5).
—Category 18: short barrel, red, glass, thought by v. d. S. to be from Amsterdam (Plate 40, 2).
—Category 19: long cylinder, red on green, glass, thought by v. d. S. to be from Amsterdam.
Spit 3—Category 1: irregular short cylinder, yellow, glass.
—Category 1: long cylinder, yellow, glass, broken.
—Category 1: cylinder of unknown length, yellow, glass, lost after excavation.
—Category 10: short cylinder, green, glass (Plate 39, 7).
—Category 10: long cylinder, green, glass (Plate 39, 6).
—Category 10: long cylinder, green, glass, broken.
—Category 11: oblate, green, glass (Plate 39, 9).
Spit 5—Category 5: long cylinder, light blue, glass, broken, thought by v. d. S. to be from Amsterdam.
—Category 5: long cylinder, light blue, glass, broken, thought by v. d. S. to be probably from Amsterdam.
—Category 8: long pear-shaped, light blue, glass, broken, thought by v. d. S. to be probably from Amsterdam (Plate 39, 2).
Spit 6—Category 5: long cylinder, light blue, glass, thought by v. d. S. to be from Amsterdam (Plate 38, 11).
Spit 8—Category 1: long cylinder, yellow, glass (Plate 37, 1).
—Category 4: probably ellipsoid, yellow, glass, broken.

Usama site

Pit 1—Category 20: circular, red with white lines, glass, thought by v. d. S. to be probably Venetian (Plate 40, 14).

Van der Sleen noted ten beads as being of drawn glass and four beads as being of wound glass. He made no other comments about methods of manufacture. To some extent this must have been because of the poor preservation of many of the beads.

(ii) *Bracelet fragment.* One fragment of a glass bracelet was found in the superficial deposits of Cutting VIII on the Benin Museum site. It was of blue glass and might well have been of recent origin.

(iii) *Fragment of figure.* This clearly imported item came from the late phase of Cutting III on the Clerks' Quarters site. It is part of a figure of a man in European dress, perhaps of some time in the nineteenth century. It is of moulded clear glass and the original object appears to have been hollow. (Fig. 50, 7.)

(iv) *Fragments of bottles.* Apart from beads this was the most common recognizable form in which glass was found. The bottles represented by these fragments were incidental imports, being the containers in which alcohol was imported in various forms. There were two types of bottle represented. The first, and most common, was a square-faced bottle of dark green glass almost certainly used to contain trade-gin. Moulded in low relief on one face of the bottle was the inscription 'v.MARKEN

Table 19
BENIN EXCAVATIONS 1961–64: LOCATION OF BEADS

BEAD CATEGORIES	BENIN MUSEUM SITE, SUPERFICIAL	CLERKS' QUARTERS SITE													USAMA PIT 1	TOTALS
		EARLY			MIDDLE			LATE			II–III BAULK		IV			
		I	II	III	I	II	III	I	II	III	MIDDLE	LATE	SP. 6–10	SP. 1–5		
1 Yellow cylinder	–	–	–	–	–	7	23	2	4	15	2	1	1	5	–	60
2 Yellow bicone	–	–	1	–	–	2	12	–	6	9	1	–	–	–	–	31
3 Yellow disc	–	–	3	–	–	1	5	–	–	2	–	1	–	–	–	12
4 Other yellow	–	–	20	–	–	1	10	–	–	1	–	1	1	–	–	34
5 Opaque light blue cylinder	–	–	–	–	–	–	–	–	–	1	–	–	1	6	–	8
6 Other blue cylinder	1	–	–	–	–	1	2	–	3	2	–	–	–	–	–	9
7 Light blue ellipsoid	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
8 Blue pear-shaped	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
9 Other blue	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	2
10 Green cylinder	–	–	–	–	–	–	3	–	1	1	–	–	–	4	–	9
11 Other green	–	–	–	–	–	–	–	–	1	–	–	–	–	3	–	4
12 White cylinder	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
13 White ellipsoid	–	–	–	–	–	–	1	1	1	1	–	–	–	–	–	4
14 Other white	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
15 Brown cylinder	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	2
16 Pink cylinder	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
17 Clear cylinder	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
18 Red	–	–	–	–	–	–	–	–	2	1	–	1	–	1	–	5
19 Red on other colours	1	–	–	–	–	1	5	–	1	2	–	–	–	2	–	12
20 Striped (imported) straight	–	–	–	–	–	1	4	–	–	2	–	–	–	–	1	8
21 Striped (imported) others	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	2
22 Striped straight	–	–	1	–	–	1	3	–	1	3	–	–	–	–	–	9
23 Striped spiral	–	–	–	–	–	1	–	–	–	2	–	–	–	–	–	3
24 Striped others	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
25 With roundels ('eyes')	–	–	–	–	–	2	1	–	–	2	–	–	–	–	–	5
26 Black with aventurin	1	–	–	–	–	–	–	1	1	–	–	–	–	–	–	3
27 Clear with polychrome interior	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	2
28 Twisted cylinder	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
29 Pentagonal	–	–	–	–	–	1	–	1	–	–	–	–	–	1	–	3
30 Chevroned hexagonal	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
31 Other faceted	2	–	–	–	–	–	–	–	–	3	–	–	–	–	–	5
32 Green or blue faience cylinder	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
33 Green or blue faience square cylinder	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
34 Green or blue faience bicone	–	–	2	–	–	–	1	–	1	–	–	–	–	–	–	4
35 Green or blue faience disc	–	–	–	–	–	–	2	–	1	2	–	–	–	–	–	5
36 Agate	–	–	4	–	–	–	1	–	–	2	–	–	–	–	–	7
37 Carnelian	–	–	–	–	–	–	–	4	–	2	–	–	–	–	–	6
38 Quartz	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
39 Unidentified mineral	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
40 Pottery	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
41 'Bronze'	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
TOTALS	6	–	32	–	–	21	79	10	28	58	3	4	3	24	1	269

NOTE: The first 31 categories are of glass.

&. Co'. The most complete specimen of one of these came from the late phase of Cutting III on the Clerks' Quarters site and is illustrated in Fig. 50, 1. In the illustration it has been reconstructed on the basis of complete examples of similar bottles dug up accidentally in Benin City which are in the museum collection. The second type of bottle was also of dark green glass but was of circular cross-section. Its base was indented. Fragments were rare and rather small in size. Bottle fragments only occurred on the Clerks' Quarters site and were restricted to deposits of eighteenth and nineteenth century date.

(v) *Other fragments.* From the Clerks' Quarters site came fragments of sheet glass. Most probably they originated from imported mirrors, all trace of the silvering having eroded in the ground.

(d) MISCELLANEOUS

Beads of faience, agate, carnelian, quartz, unidentified mineral, and of pottery take up the first columns in the miscellaneous section of some of the small finds' location tables. They have already been described together with the glass beads (pp. 170–177).

(i) *Spindle-whorls.* Only two spindle-whorls were found. These are illustrated in Fig. 51, 15 and 16. Both are made of pottery. The first came from the late phase of Cutting II on the Clerks' Quarters site and the second from the superficial deposits of Cutting III on that site.

(ii) *Burnt clay.* The incidence of burnt clay is recorded on the small finds' location tables. The majority of the pieces were completely formless and often came from deposits containing iron slag and sometimes containing fragments of the crucibles used for melting 'bronze'. It seems likely that the burnt clay was in those cases connected in some way with metal-working. Indeed in one instance a piece of burnt clay, from the early phase of Cutting II on the Clerks' Quarters site, probably had been part of a furnace. It appeared to have been burnt at a very high temperature and had sherds and iron adhering to it. However, a few pieces of burnt clay were found which were not completely shapeless. From the early phase of Cutting III on the Clerks' Quarters site and from Pit 1 at Usama came lumps of lightly burnt clay that each retained part of a curved surface. Possibly these had formed part of a mud structure of some sort.

(iii) *Indigenous smoking-pipes.* Specimens of indigenous smoking-pipes were few and fragmentary. Fig. 49 illustrates all the more important examples and, of those, Fig. 49, 1–5 and 7 result from casual discoveries in and around Benin City (p. 107). All the pipes were of clay and were decorated with incised, punctate, stamped, and perhaps even carved roulette patterns. The majority had a red coating, probably applied as a slip. Of the group from the Ikpoba River (Fig. 49, 1–5), only one (4) had traces of such a coating but all of this group were a little weathered. Of the other examples illustrated in Fig. 49, only 6, 18, 19, and perhaps 15 had no coating.

Although indigenous smoking-pipes from other parts of West Africa have been described, there are no published accounts of examples from Nigerian archaeological contexts. Those from Benin are valuable in that some of them are from stratified contexts. They occurred in a superficial deposit on the Benin Museum site, in the late and middle phases of Cuttings I and II on the Clerks' Quarters site, in the superficial deposits and the late and middle phases of Cutting III on that same site, in the lower part of the deposits of Cutting IV on that site and in the modern deposits of the city ditch silting on the Ogba Road site. The deposits in which they were found probably belong to the eighteenth, nineteenth, and even twentieth centuries. The pipes coming from casual discoveries cannot at the moment be dated. It is interesting, however, that the Ikpoba River group tend to be round-based, whereas the excavated specimens tend to have flat bases. In addition, three of the excavated specimens each have a drain-hole in their base (Fig. 49, 8, 9, 17), whereas this sophistication is lacking amongst the Ikpoba group.

(iv) *European smoking-pipes.* Fragments of clay smoking-pipes of European origin were less common than those of their indigenous counterparts. A selection of them is illustrated in Fig. 50, 2–6. A copy of this illustration was submitted for specialist comment and a report will be found on page 235.

Fragments of European smoking-pipes were found in superficial deposits on the Benin Museum site, in the superficial deposits and late phase of Cutting I on the Clerks' Quarters site, and in the late phase of Cuttings II and III of that site. These contexts refer to the nineteenth century and in the case of the superficial deposits perhaps even to the early twentieth century.

(v) *Stone rubbers.* There is no stone in or around Benin City and any piece which is found in an archaeological context must have been brought from elsewhere. During the excavations, stones were not very common and all the pieces found were examined carefully. Not surprisingly a large proportion showed signs of use. The most common form of use appeared to have been as rubbers or grinders. Shapes vary considerably, some being sub-rectangular or sub-triangular and others rounded. They have only one thing in common and this is that their size is usually such as to be suitable for use in one hand. These rubbers have not been examined geologically.

Stone rubbers were widely distributed through the Benin sequence. Indeed, these objects have such a wide chronological distribution in Nigeria that they can still be found in use in the average housewife's kitchen.

(vi) *Fragments of grindstones.* These were very rare in the excavations, probably because as they became broken the pieces were re-used as rubbers. The lack of stone in the immediate vicinity would encourage such thrift. Examination of the stone rubbers does suggest that some of them may, indeed, have originated as pieces of broken grindstones. Only three definitely recognizable fragments of grindstones were found. One fragment came from the early phase of Cutting II on the Clerks' Quarters site, another from the middle phase of that same cutting and the third from the superficial deposits on the Usama site.

(vii) *Other stones.* Finds of stones which showed no signs of use were restricted to the Benin Museum site and to Cuttings I, II and III on the Clerks' Quarters site. They were as widely distributed through time as the rubbers and fragments of grindstones. In some contexts (see for instance Cutting XIV, Pit 1 on Table 1) there seems to be a possible correlation between the incidence of iron slag, burnt clay and 'other stones'. A selection of stones was submitted for geological examination (report p. 225) and it appears that some of them may have been transported to Benin City for use as iron ore.

(viii) *Fragment of flint.* This was found in the late phase of Cutting II on the Clerks' Quarters site. There is no flint in Nigeria and although gun-flints are known to have been exported from Europe to Africa until recent times, they have a distinctive shape and the flint in question is not a gun-flint. It appears to be a scraper which, if found in a prehistoric context in southern England, would most likely be assigned to the Neolithic! (Fig. 51, 14.)

(ix) *Lead musket balls.* These were found in Cutting III on the Clerks' Quarters site, one in the late phase and one in the middle phase. Both are of about ½ in. diameter. Possibly they were imported but anyone with a supply of lead and a bullet-mould could have made their own. Neither of them appears to have been fired. The example from the middle phase is illustrated in Fig. 51, 8.

(x) *Fragment of imported sword.* This is a fragment of a European sword hilt (specialist report p. 233). It is almost certainly a casting, probably in a copper-base alloy of some sort. There are traces of a silver coating. It was found in the middle phase of Cutting III on the Clerks' Quarters site. (Fig. 50, 9.)

(e) ORGANIC REMAINS

There was a surprising quantity of organic remains. This was largely because of the atypical conditions of the lower parts of Feature 21 in Cutting II on the Clerks' Quarters site, where damp and non-aerated conditions had preserved substances that would not normally have survived in the soil and climate of Benin. Organic remains from the excavations as a whole comprise human bones, animal bones, ivory, cowries, charcoal, wood, tree resin, casts of wood, oil-palm nuts, and cloth. Although in a very poor state of preservation, the ivory still retained in most cases the form of the elephant tusks, leaving no doubt about its identification. All the other remains were submitted for specialist examination (reports pp. 209–225 and 236).

(f) MODERN MATERIAL

On some of the small finds' location tables a section has been included for obviously modern objects.

F. SPECIALIST REPORTS

1. RADIOCARBON DATES

THE samples submitted for radiocarbon dating were deliberately chosen from archaeological contexts lacking datable imports of European origin. Not surprisingly, therefore, the most recent dates refer to the fifteenth or sixteenth century A.D. Thus the chronological sequence that is suggested on the basis of the archaeological investigations relies in its earlier parts on radiocarbon dates and in its later parts on datable imports. The pottery analysis carried out by Mr. S. G. H. Daniels (pp. 183–209) helps to test this sequence. The complete list of dates is as follows. Further details concerning each date, or group of dates, will be found on and around the pages referred to.

Archaeological context	*Sample number*	*Date*
Charcoal amongst mass burial in Feature 21 of Cutting II, Clerks' Quarters site. (See p. 63)	N-377	A.D. 1180 ± 105
ditto	I-2722	A.D. 1310 ± 90
Piece of iroko wood 3 ft. 10 in. above top of mass burial in Feature 21 of Cutting II, Clerks' Quarters site. (See p. 62)	I-2721	680 ± 120 B.C. After consideration of this date, the laboratory concerned dated another sample from the same piece of wood and advised that the original date was inaccurate and should be replaced by I-3622 below.
ditto	N-376	A.D. 1230 ± 105
ditto	I-3622	A.D. 1385 ± 100
Charcoal from Layer 14 in the north-west section of Cutting III, Clerks' Quarters site. (See p. 75)	I-2723	A.D. 1490 ± 90
Charcoal from filling of Pit 1 in Cutting XIV, Benin Museum site. (See p. 22)	N-378	A.D. 1305 ± 105
Charcoal from former surface soil beneath innermost city wall; city walls, Cutting VI, Reservation Road site. (See p. 88)	N-379	A.D. 1340 ± 105
Charcoal from Pit 5 on the Usama site. (See p. 96)	N-380	A.D. 1500 ± 105

The use of radiocarbon dates for purposes of chronological synthesis must always be accompanied by considerable caution. To demonstrate the necessity for such caution and to show graphically the value of the above dates Mr. S. G. H. Daniels has designed Fig. 57 in consultation with the writer. In this the statistical probability of each date is shown as a curve, whose height at any given age is proportional to the probability that this is the true radiocarbon age of the sample. The date for sample I-2721 is excluded for the reason already stated in the list above. The curves are plotted against a time scale graduated in years A.D. At the apex of each curve a vertical line has been erected to indicate the given date, and at the top of each vertical line is a horizontal line extending for one standard error on either side of the mean. The sample number and the date is in each case written above this line. The varying lengths of the vertical lines are merely for graphic convenience. Theoretically the curves themselves extend to infinity in each direction but for diagrammatic purposes are shown as terminating. The areas of all the figures formed in this way are equal: thus the shorter the base, the higher the apex of the curve. If vertical lines are dropped from the ends of each horizontal line to the base of the figures, then the figure remaining is equivalent to one standard error on either side of the mean. There is a 66 per cent probability that the true radiocarbon age lies within the time span thus indicated, and a probability of the order of 99·8 per cent that it lies within the apparent limits of the curve.

2. DIFFERENCE ANALYSIS OF BENIN ASSEMBLAGES ON THE BASIS OF POTTERY CONTENT

By S. G. H. Daniels, *Department of Archaeology, University of Ibadan.*

(a) RATIONALE

We may assume first that some quantity which we term the 'difference' between the artifact content of two assemblages is the outcome of a number of causative factors. The actual individual 'causes' which contribute to the observed difference cannot in general be identified or recovered. We can however regard these individual causes as grouped together into factors such as 'change with time', 'cultural difference', and 'functional difference'. Other factors, which are not part of the cultural history which we are trying to investigate, may also have an appreciable effect; we might consider 'different conditions of preservation', 'different methods of excavation', and 'different classification'; even 'numerical error in calculations'. In addition we may conveniently regard a large number of small causative factors, whose individual effects are very small, as grouped together under the heading 'random error'. Finally, and most particularly for small assemblages, we must consider the effects of 'sampling error' where the sampling is beyond our control and presumably non-random.

The random and sampling errors we can do little about, beyond growing more sceptical as assemblages grow smaller. Non-historical factors may be investigated by other means (e.g. chemical analyses of deposits as a check on preservation) or, where they stem from the archaeologist's own work, may be largely randomized and thus

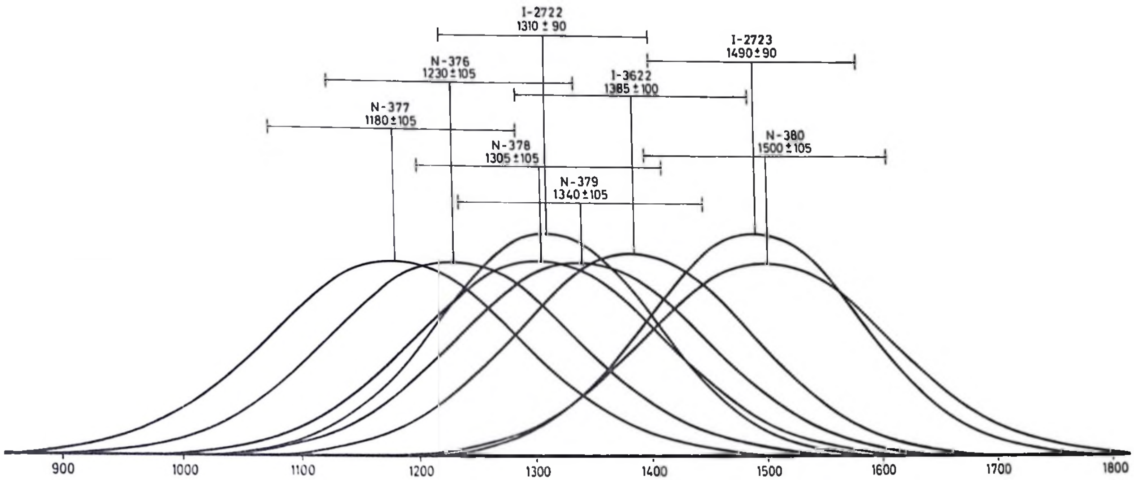

FIG. 57. Graph of Benin radiocarbon dates, showing standard errors. Each curve represents the sampling distribution of a radiocarbon date; the vertical lines show mean estimates of age and the horizontal bars extend for one standard error on either side. The horizontal scale is in years A.D. Figure after Daniels.

made comparatively harmless (cf. Daniels, 1966). Distinguishing the effects of different historical factors remains, in the absence of other information, a matter for analysis rather than design or experimentation. If we consider only the historical factors, it will be clear that the relative effect of any one factor on the difference between two assemblages will be greatest when the other factors affect the two assemblages equally. Thus the various techniques of chronological seriation (e.g. Brainerd, 1951; Robinson, 1951; Mason, 1962; Hole and Shaw, 1967) which attempt to order sites on the basis of their over-all difference, are most successful when the assemblages are most nearly homogeneous in respect of cultural tradition, function, and environment.

The analytical technique which I have called a Difference Analysis is intended for use in situations where the assumption that assemblages are nearly homogeneous for a number of factors is improbable or theoretically undesirable. Having discarded the assumption of homogeneity does not, of course, make the technique assumption-free, and the special assumptions which replace it need to be clearly stated.

In the first place, it is initially assumed that the same factors operate to the same effect (though in varying degree) on all the assemblages in any one analysis. However, as will be seen, it may become apparent during the course of analysis that the assumption of factors operating to the same effect is unwarranted, and it may become necessary to separate the assemblages into two groups to be analyzed separately.

In the second place it is assumed that all the difference between some two (or more) assemblages, is, on the basis of information other than their artifact content, assignable to the effect of one factor, modified only by random and sampling error. In the present study we have made this assumption about change with time and I have therefore termed the method a Standard Sequence Plane Analysis for reasons which will appear; but under suitable circumstances we might instead make it about functional, environmental, or cultural difference. It is important to note that, as the proportion of the difference between the two assemblages actually due to change with time decreases, so the validity of the results for all the assemblages under analysis becomes less.

(b) METHOD

The mathematics of the method are given in a condensed form in the appendix to this contribution. I shall try here to give a non-technical picture of the process involved. Let us consider first a simple hypothetical case in which we have eight assemblages, for each of which we have the values of three observed variables. If we make the three variables the three axes of a three-dimensional 'graph', each assemblage can be represented by a point in a three-dimensional space. Suppose that for three of these assemblages, which we will call Early, Middle, and Late, we know the relative ages, and have reason to believe that the only difference between them is the result of change with time. The three points corresponding to these three assemblages lie on a plane cutting the three-dimensional space. In Fig. 58 the space is represented as the interior of a sphere, and the Early/Middle/Late plane as a section through it. The direction of 'change with time' within the space may then be taken as from Early to Middle and from Middle to Late on the plane. This is shown as a broken line in Fig. 58, and might be called a 'time track'. The other five assemblages (marked A to E in Fig. 58) lie at varying distances from the plane, but since we have hypothesized that change with time is a factor which operates to the same effect on these assemblages, we may drop or erect perpendiculars from them onto the plane giving their positions on the plane and relative to the time track (A′ to E′ in Fig. 58). The distance away from the plane is then interpreted as the result of some factor or factors other than change with time. Two points which are evident from Fig. 58 may be mentioned here. The projections A′ to E′ lie near the time track but not on it. This is to be expected both because the time track must be considered an approximation from which minor fluctuations have been smoothed out and because the displacement arising from random and sampling errors may occur on the plane as well as at right angles to it. If the positions of the assemblages Early, Middle, and Late are somewhat in error, either because of random error, or because some of the difference between them is actually due to other factors, then the placing of the plane within the space will also be in error. If the plane is tilted slightly to represent correction for such error, the projections of A and C, which lie close to the plane will be very little changed, but the projection of D, which lies far from the plane may move very considerably.

The choice of a plane, rather than a straight line, on which to represent results is suggested by several considerations. Analysis of model cultural time-sequences, and

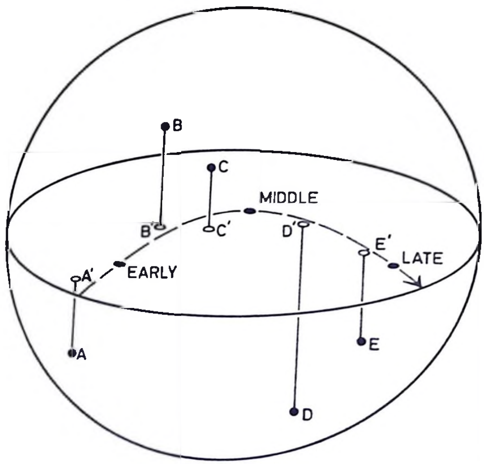

FIG. 58. Model of a Standard Sequence Plane in a three-dimensional space. The plane is cut through the space so that the assemblages of the three stages of the Standard Sequence lie on it. The broken line shows the 'time track' running through these stages. The points A, B, C, D, E represent other assemblages. Their projections on the plane (A′, B′, C′, D′, E′) should lie close to the time track and give an estimate of their relative ages.

In a real analysis the number of dimensions is far more than three and the space cannot be represented graphically.

of sequences of real assemblages, suggest that where a number of variables are concerned, the time track is not a straight line, but a rather complex curve. In fact, to judge by the analysis of model sequences, the time track curves in many dimensions, the number of 'bends' in the curve increasing in each successive dimension. However the plane accounts for the majority of the variation due to 'change with time' in a comparatively short sequence, and any further increase in the number of dimensions considered removes the advantage of graphic representation. Another advantage of the plane is the subjective impression of uncertainty due to the fact that points lie near the time track but not necessarily on it: this seems a salutary corrective to the impression of revealed truth which can be conveyed by a single column of figures. There is also a third advantage which arises as a kind of bonus. If in the example shown in Fig. 58, we had another assemblage arising from stratigraphical mixing of equal parts of Early and Late, its position on the plane would not be at Middle, but half way between Early and Late, and on a straight line between them. In general, assemblages which fall under the curve of the time track may be expected to be more or less mixed, a circumstance which might help to distinguish between the true transitional and the bogus metachronous assemblage.

In practice the analysis will only be of value when there are a considerable number of variables, certainly more than three, and this will produce a multi-dimensional space which cannot be graphically represented. Accordingly the first numerical presentation in the analysis is a square matrix such as Table 21, with assemblages listed down the side and along the top. The cell values give a measure of the difference (D) between each pair of assemblages. Referring again to the example of Fig. 58, the difference between assemblages B and D is simply defined as the distance between the points B and D in the space. The values used in calculation, and those shown in Tables 21–3, are actually the squares of differences (D^2) since this makes calculation much easier. The square matrix is now in some ways analogous to the matrix of Brainerd and Robinson except that higher values indicate greater difference instead of greater similarity. It could, if required, be shuffled into a 'best' chronological order. It also represents a complete description of the relative positions of assemblages in a many-dimensional space analogous to Fig. 58, and from it can be calculated the positions of their projections on the Standard Sequence Plane. These positions are obtained as co-ordinates on two axes (cf. Axes I and II in Table 24), one passing through Early and Late, the second passing through Middle and at right angles to the first. After this calculation the difference accounted for by the Standard Sequence Plane can be 'extracted' from the matrix to give a residual matrix showing difference remaining between each pair of assemblages which is not accounted for by the plane. A fairly small proportion of this residual difference should be due to the curving of the time track in other dimensions: the majority of it may be regarded as resulting from other causative factors and from residual random and sampling error. In the residual matrix the three stages of the Standard Sequence will show (within rounding error) the same residual difference with any one other assemblage. This figure represents the distance of this assemblage from the Standard Sequence Plane, and where it remains large the position of the assemblage on the plane must be regarded as having a large error of estimate. If a whole group of assemblages show large figures in this part of the matrix, while showing small differences with each other, we may suspect that we are dealing with two discrete groups of assemblages which must be analysed separately, since causative factors are not operating to the same effect over all the assemblages.

(c) DATA

The raw data used in this analysis are the absolute frequency of occurrence of sherds or pots assignable to one of 27 form categories and/or to one of 15 decorative categories. It will be seen from the tables presented by Mr. Connah that certain arbitrary manipulations of the data were necessary before they could be satisfactorily analyzed. The original records count sherds separately from whole or reconstructed pots, thus giving two different units of measurement. To combine the two counts, occurrences of pots were converted to occurrences of sherds at the arbitrary rate of '1 pot = 10 sherds'. Since the absolute quantity of pottery in any one assemblage was not a factor which we wished to investigate, the adjusted sherd counts were converted to percentages. A further difficulty arose here since neither the total number of sherds nor the number of sherds recorded under the heading of decoration were available. Accordingly the number of occurrences listed under each heading were added together for each assemblage, giving two figures, one for the total occurrences under decoration, the other for the total sherds under form. Occurrences of each individual type were expressed as percentages of the appropriate total. Since a sherd may appear under more than one decorative type these percentages differ from the usual figures giving occurrences as percentages of total sherds.

As was pointed out above, the sample size of a particular assemblage affects the accuracy of chronological or other estimates concerning it. Analysis was therefore restricted to those assemblages containing a reasonable quantity of material. A further distinction was made between 'large samples', in which the total occurrences for form and decoration were each at least 100, and 'small samples', in which total occurrences were at least 20. This rough distinction should be borne in mind when interpreting the results, since the error of estimate for some of the small samples must be very considerable. The assemblages admitted to analysis (listed in Table 20, together with percentages and totals) comprise 14 pits from the Benin Museum site, 5 pits from Usama, 1 assemblage each from a cutting through the city wall and from the former surface soil (FSS) beneath it, and the 3 main cuttings at the Clerks' Quarters site, each subdivided on stratigraphical grounds into 3 successive stages.

Table 20 summarizes the percentage figures. Percentages are given to the nearest whole number so that original percentages of less than 0·5 appear on the table as zero. As a result Form 15 and Decoration 15 read as zero for all assemblages and are omitted from the table and the analysis. The remaining categories, 26 under form and 14 under decoration, give a total of 40 characteristics as a basis for comparison of the assemblages.

Two errors in the listing of Table 20 were noted too late to be corrected for analysis.

Ten occurrences (1 pot) of Form 1B in the assemblage CQ II Early have been wrongly counted as Form 1, and two occurrences of Decoration 7 have been mistakenly included in the assemblage Usama Pit 4. The first of these errors leads to very small errors in the results, the second is too small to have any effect.

(d) ANALYSIS

Since the Difference Analysis was carried out on percentage figures, greatest weight in the results is given to those types whose frequency varies most widely. Consideration was given to standardizing the scores for each type, thus assigning equal weight to each type regardless of variation in frequency. This was rejected in the present analysis for two reasons. Firstly the results might have been considerably distorted by discontinuity. If the true percentage for a particular type is 3 per cent and we have a sample total of only 20, then the closest values than can occur are 0 per cent and 5 per cent. For infrequent types in small sample assemblages a large proportion of the variation may be due to such discontinuity effects. Secondly, since sherds are fragments of pots usually broken in the vicinity, the distribution of sherds is not really independent: if there is one sherd of a type in a particular assemblage, there is a greater chance of finding another in the same assemblage. In practice this may make little difference for large samples and common types, but for small samples and rare types it may again cause considerable 'spurious' variation.

For the three assemblages which constitute the Standard Sequence the Clerks' Quarters site was chosen, since this was the only site with a proper stratified sequence, and the assemblages were reasonably large. Each of the three cuttings CQ I, CQ II, CQ III was subdivided by the excavator on stratigraphical grounds, into three successive phases, not necessarily culturally distinct, and the assemblages from each stratigraphical unit within the phase combined to give, for each cutting, three assemblages (Early, Middle, Late). Since there seemed no good reason to prefer the sequence in any one cutting to those in the others, and since the subdivisions in each cutting were made at the same points in the stratigraphical succession, the assemblages in the three cuttings were then combined to give the three Standard Sequence stages (S.S. Early, S.S. Middle, S.S. Late). The nine individual subdivisions of the CQ cuttings were also retained in the analysis. They thus serve as a check on the similarity between equivalent subdivisions in the three cuttings.

Table 21 shows the original Squared Difference Matrix. For reasons of space the values of D^2 are given in thousands to the nearest thousand: the maximum figure which could theoretically occur is therefore 40. True zero values are shown as dashes, values less than 500 being shown as 0. The list of assemblages has been arranged and subdivided so as to place assemblages from the same site together in the list. Further, the CQ cuttings have been divided into the Early, Middle, and Late groups, and the BMS pits have been similarly divided into an earlier group (BMS III, Pit 1, to BMS XVI, Pit 1) and a later group (BMS I, Pit 1, to BMS XVII, Pit 1). This division of the BMS pits does not rest on stratigraphical evidence, and was not suspected when the analysis was begun: it is suggested by the results of the analysis, and the arrangement is followed in Table 21 to facilitate comparison with other tables. The lines between the groups mark off a number of component sub-matrices. Where the various assemblages can be divided into groups, the component sub-matrices can usefully be regarded as distinguishing between within-group difference and between-group difference. The symmetric square sub-matrices along the main diagonal show differences between members of the same group: the other, normally rectangular, matrices show differences between members of different groups. One point worth noting is the evident effect of sample size on the magnitude of D^2. Table 21 shows, for example, both the values of D^2 for the Early stage in each of the three CQ cuttings, and the values for the Early stage of the Standard Sequence obtained by pooling the three. The Standard Sequence values are generally towards the low end of the CQ Early range, and are sometimes absolutely lower than any of the CQ Early values. This would appear to be because the Standard Sequence stages, being pooled assemblages from the CQ stages, are larger samples, giving more reliable estimates of population percentages.

Table 24 gives the scores for each assemblage on the two axes of the Standard Sequence Plane. (Axis III, for which scores are also shown will be discussed below.) It should be noted that the absolute values of the scores are of no significance, only the difference between them being of importance. The Standard Sequence Plane is shown graphically in Fig. 59. As stated above, it may be expected, from the study of model sequences, that the path of the time track across the plane is a curve, rather than a straight line. The exact form of the curve is undefined, but as a rough test of the degree to which the distribution of assemblages in the present study fulfilled this expectation, correlation co-efficients between the scores on Axis I and II were calculated. The linear correlation co-efficient is —0·015, a value not significantly different from zero. However, if a parabolic relationship between the scores of the two axes is postulated, the correlation co-efficient has the significant value of 0·807. This is sufficiently in accordance with expectation to strengthen the view that the distribution of assemblages is roughly dependent on a curved time track. The central line of the three curved lines in Fig. 59 is the regression parabola of Axis II on Axis I, and the outer two are placed at one standard error of estimate. They may be thought of as a rough indicator of the path of the time track, though too much detailed reliance should not be placed on them, since the parabola is only a rough approximation to the true curve. This is emphasized by the position of the three stages of the Standard Sequence, two of which lie outside the standard error lines. Inspection suggests that the time track is actually rather more sharply curved, and skewed so that its highest point in Fig. 59 should lie above and to the right of the top of the parabola.

Table 22 shows the residual matrix after extraction of the Standard Sequence Plane. The plane accounts for 31 per cent of the total difference in the original difference matrix, 69 per cent remaining in the residual matrix. The proportion of the total difference accounted for is considerably lower than expected, and inspection of the residual matrix suggests a reason for this. If we compare the component sub-matrices for the earlier and later groups of BMS pits, we find a generally greater amount of difference remaining in the sub-matrix CQ Early/BMS Late than in the sub-matrices

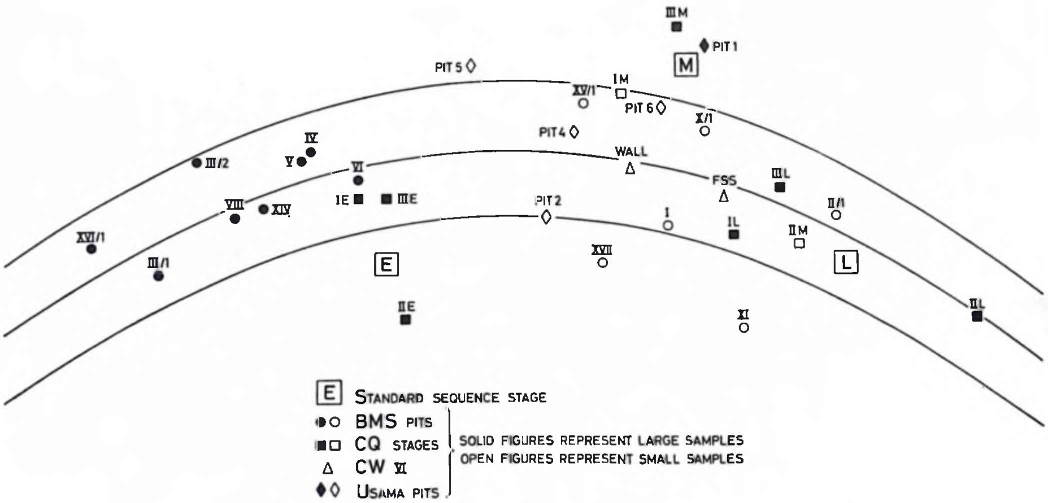

FIG. 59. Plot of 30 Benin assemblages on the Standard Sequence Plane. Each point represents one of the Benin pottery assemblages. The central parabola is a regression parabola of the vertical axis on the horizontal, the outer two being set at one standard error. This gives a rough indication of the position of the time track which runs from the bottom left hand corner (early) to the bottom right hand corner (late), through the centre top of the diagram (middle).

CQ Middle/BMS Late and CQ Late/BMS Late. Similarly BMS Early shows more difference when compared with CQ Middle and Late than when compared with CQ Early. Moreover the sub-matrix BMS Early/BMS Late contains much higher difference scores than either of the within-group sub-matrices for the two BMS groups. This pattern, which repeats, though less markedly, the pattern of the original difference matrix, strongly suggests that a considerable amount of the difference due to change with time remains in the residual matrix. An alternative hypothesis, that there is some functional difference, quite divorced from chronological effects, between the two BMS groups, is not really supportable on the basis of the nature of the pit fillings.

To investigate the remaining, supposedly time-related, difference, scores on a third axis, passing through BMS XVI, Pit 1 and BMS XI, Pit 1 were calculated. These are shown in Table 24 under the heading Axis III. Table 23 gives the residual matrix after extraction of Axis III, and clearly shows the over-all reduction in the difference scores for CQ and BMS assemblages, and the disappearance of the time-related pattern of the first two matrices. The only marked patterning which remains is in the generally higher scores in the sub-matrices for CW and Usama. The proportion of the total difference accounted for by Axis III is 31 per cent and the proportion remaining in the residual matrix is 38 per cent. The pattern of assemblage scores on Axis III is broadly similar to that on Axis I, and there is a high (0·770) positive correlation between the two. The only marked disagreements between the two are the very much 'later' position of CQ II Early on Axis III, the almost identical placing of CQ Middle and CQ Late, and the somewhat later position of the Usama pits. Other minor variations do not obscure the general pattern of an earlier and later group of BMS pits, the earlier group preceding the three CQ Early stages. In view of this general similarity, and in order not to cloud the issue with further mathematical operations, the interpretation which follows is based, in accordance with the original hypothesis, on the scores on Axis I and II. The specific large disagreements with Axis III will be taken into account, the minor variations being interpreted simply as requiring a greater degree of caution in interpretation of detail.

(e) INTERPRETATION

The interpretation of these results falls into two parts: the chronological and other differences between assemblages, and the succession statistics for pottery types.

Returning to the Standard Sequence Plane of Fig. 59, the first point to be noted is the earlier group of BMS pits, which are all placed contemporary with or before the Early stages of CQ. It should be emphasized here that the CQ assemblages, being formed by the pooling of assemblages from a number of stratigraphic units, may include material covering a considerable length of time. While the position on Fig. 59 of, for example, CQ I Early may be thought of as an estimate of the 'average' position of the pooled assemblage, it remains perfectly possible for the earliest stratigraphic units in CQ I to ante-date the earliest BMS pits. After the CQ Early stage, there appears to be a gap in the central Benin sequence, until BMS XV Pit 1. This gap, filled only by Usama pits, seems large enough to be interpreted as having an objective existence.

It does not follow however that it must be a chronological gap. The sequence represented by Fig. 59 is a sequence of cultural change, whose speed with respect to calendar years may vary widely. Thus a gap in the sequence may represent either a chronological gap, or a short period of comparatively rapid cultural change.

To the right of the gap falls the later group of BMS pits covering roughly the same period as the Middle and Late stages of CQ. It is notable that all the pits in this group contained small sample assemblages, which may be reflected in the vertical spread, which appears greater than that for the earlier group. While the uncertainty of the true positions must be greater for small sample assemblages, the clustering of the later group around the Middle and Late CQ stages, and away from the Early stage, suggests a consistent effect in which some confidence can be placed.

Another consistent effect, which raises considerable problems, is that of the displacement of CQ II in each stage. In Fig. 59, CQ II Middle appears later than CQ I and III Late, and CQ II Late is correspondingly displaced to the late end of the time track. The displacement of CQ II Early on Fig. 59 is vertical rather than in the direction of the time track, but reference to Table 24 shows that the 'chronological' displacement appears very markedly on Axis III. It seems difficult to accept that this consistent displacement in all stages is a sampling effect. If the displacement were random we might conclude that the degree of random variability in the assemblages was so great as to cast grave doubts on the validity of the whole analysis. Since it is not random, it would seem rather that the analysis is picking up an unexpected causative factor, operating in the time line. Various explanations come to mind, but to be satisfactory they must account for the difference in each stage, which is extremely difficult. Amongst possible causative factors are functional differences between CQ II and the other cuttings which appear as a contrast between 'progressive' and 'conservative' assemblages. However, while there are stratigraphical indications (p. 52) that in the Late stage the majority of CQ II was open space, while CQ I and III were occupied by buildings, the same is not true of the Early and Middle stages. Another possibility might be the contamination of all stages of CQ II by very late material penetrating down an unrecognized shaft, a hypothesis which would fit well with the pattern of Fig. 59, where CQ II Middle and Late are displaced along the time track towards its terminal position while CQ II Early falls well below the time track in the position to be expected of mixed metachronous assemblages. This possibility has been exhaustively investigated and appears to be eliminated in practice by the circumstances of the stratigraphy (pp. 50–67). Difference in classification of the pottery can also be effectively ruled out, since material from all three cuttings was sorted under the same system at approximately the same time. The consistency of the effect may be used as an argument against suggestion of calculating errors in the analysis. All that can really be said is that the displacement exists, that it is consistent and probably due to some causative factor, but that no acceptable factor has been hypothesized.

We may next consider the case of the assemblages from the body of the city wall in CW VI, and from the former surface soil beneath it. The residual matrices of Tables

22 and 23 show that after extraction of the Standard Sequence Plane, and even after extraction of the third axis, a considerable amount of difference remains between these assemblages and the central Benin sequence (CQ and BMS). CW VI FSS in particular is a very small sample, and some of this difference may result from sampling error. The difference remaining between the body of the wall and the main sequence might be related to functional differences between wall material and pit-filling or other occupation debris. Whatever the reason for the unexplained difference, as pointed out above (p. 186), additional uncertainty about the accuracy of the estimated position is introduced by the distance of these assemblages from the Standard Sequence Plane, and the uncertainty as to the true position of the plane. One point which has general implications may be noted in passing. The positions close to the time track on Fig. 59 appear to show the former surface soil under the wall as later than the wall itself. This is not, in fact, a contradiction, since it is not the events of deposition and construction which are being placed in sequence, but the pottery content of the stratigraphical units. Since the material for the wall will inevitably include deposits accumulated at an earlier date, the pottery content of the wall may well be contemporary with, or may even substantially antedate the pottery content of the deposits on which the wall was built.

High residual differences between the Usama pits and the central Benin sequence also appear in the residual matrices, and carry similar implications as to the uncertainty of the estimated positions. Usama Pit 2 and, to a lesser extent, Pits 1, 4, and 6 are not too far removed from the central sequence, but Pit 5 remains at a considerable distance. In this case, the residual difference might be interpreted as cultural, a reminder that in a sophisticated urban situation small geographical separations may correspond to considerable cultural or social variation. In assessing the reliability of the estimated positions of the Usama pits in the time sequence, it must be noted that their scores on Axis III would place them later than their positions on Fig. 59. In sum, I would not regard the Usama estimates as having as much reliability as those for the central Benin sequence.

Comparison may here be made with the radiocarbon dates. Three of the dates agree satisfactorily with the Standard Sequence Plane: A.D. 1305 $\pm$ 105 for BMS XIV, A.D. 1490 $\pm$ 90 for one of the stratigraphical units making up CQ III Early, and A.D. 1500 $\pm$ 105 for Usama Pit 5. The four dates for the shaft in CQ II Early range from A.D. 1180 $\pm$ 105 to A.D. 1385 $\pm$ 100 and would seem generally in agreement with the suggestion that CQ Early is an integral part of the earlier part of the central Benin sequence, though the dates are somewhat earlier than might have been expected if CQ II Early were a true homogeneous assemblage. The only point at which the radiocarbon dates and the Standard Sequence Plane are markedly at variance is the date of A.D. 1340 $\pm$ 105 for CW VI FSS, where the sequence shows it appearing in the later part. The wall itself has been dated on historical grounds to *c.* A.D. 1450–*c.* 1500 (p. 99), but since, as stated above, the contained pottery should be earlier than this, and probably at least as early as the former surface soil, this assemblage would be more acceptably placed in the earlier part of the sequence. These discrepancies serve to emphasize both that there is an undefined error about the estimates on the Standard Sequence Plane, and that the reliability of estimates decreases as the proportion of unexplained difference rises.

The ordering of sites on the Standard Sequence Plane also implies a particular ordering of the pottery frequencies. These succession statistics are shown graphically as histograms in Figs. 60–2. The bars, all to the same scale, represent the percentage frequencies of different pottery types, each type occupying one row. The horizontal scale represents cultural change, and is derived by dropping or erecting perpendiculars from each assemblage on the Standard Sequence Plane to the regression parabola. The small vertical ticks on Figs. 60–2, show the relative positions of the intersections of these perpendiculars on the parabola for each of the 30 assemblages. The ticks are numbered from 1 to 30, earliest to latest, and the numbers are those assigned to the assemblages in the last column (headed 'Order') of Table 24. Again the true positions of the assemblages are uncertain, to a rather greater degree than on the plane itself, and some slight adjustment of positions has been made to allow adequate spacing on the figure. The figures should therefore be regarded as giving an over-all impression rather than a detailed record.

As is to be expected from the nature of the method, the most coherent ordering occurs in those types whose frequencies vary most widely. Thus in Fig. 60, Form 1 appears to increase in frequency in the later part and Form 6 to decrease correspondingly. Form 1A occurs only in the middle of the sequence and Form 4 is commonest in the middle, while Forms 2 and 3 are late. In Fig. 61, Form 8 is confined to the later part of the sequence. The same is true of Forms 12, 14, 17, 18, 21, 22, and 24, though in these cases the forms are rare and absence in the sample cannot necessarily be interpreted as absence in the population. Similarly the rare Form 9 occurs only in the earlier part. In Fig. 62 there is an apparent general rise in frequency of Decoration 1, and slight fall of Decoration 2. Decoration 3 is confined to the earlier part, and Decoration 8 almost entirely to the later, while Decorations 12, 13 and 14, are late but rare. The remaining types, of both form and decoration do not appear to change proportions consistently with time.

The main conclusions from the Standard Sequence Plane may be summarized as follows:

(i) The central Benin sequence falls into two parts, an earlier part, including the earlier group of BMS pits and the early CQ stages, and a later part including the later group of BMS pits and the Middle and Late stages of the CQ cuttings.

(ii) The Usama pits are probably later than the early part of the central Benin sequence, but are distinguished from the complete central sequence by some causative factor other than change with time.

(iii) The city wall assemblages are markedly affected, possibly by a factor not related to time, possibly by sampling error. Their positions are at variance with the radiocarbon and historic dates and are not to be relied upon.

(iv) A number of pottery forms and decorations show definite changes in frequency with time, but many do not appear to have any time-related change during this sequence.

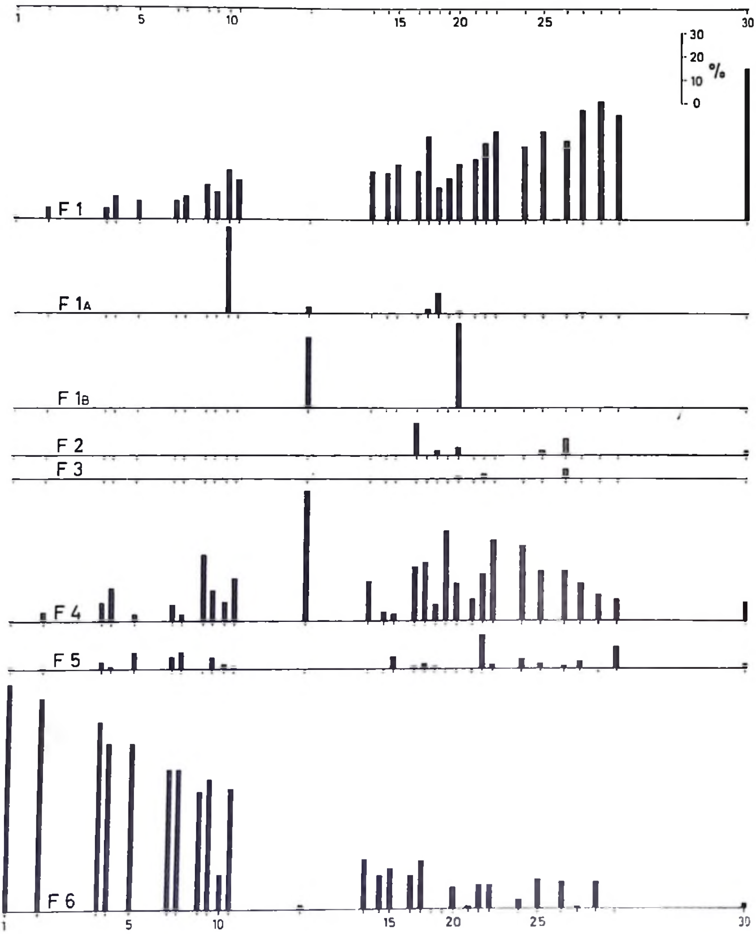

FIG. 60. Succession histograms of pottery types: Forms 1–6. This figure, together with the two following figures, shows the change in percentage frequency (vertical bars) through the sequence, for each pottery type. The small ticks, numbered from 1–30, represent the assemblages, the order and spacing in the sequence being derived from the Standard Sequence Plane. The key to this numbering is given in Table 24. The earliest assemblages are at the left of the page, the latest at the right.

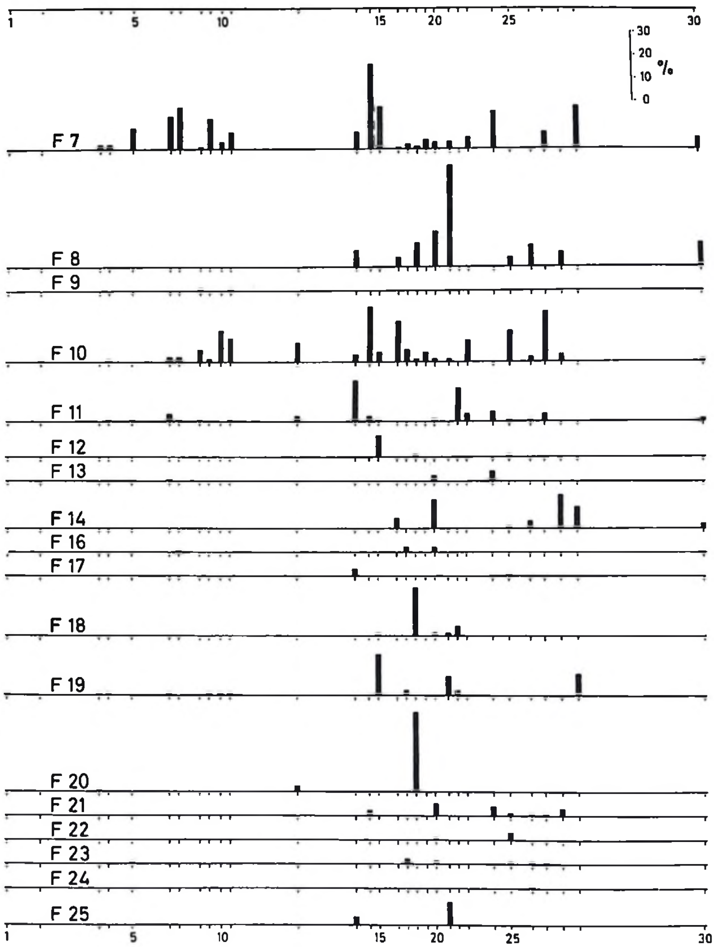

FIG. 61. Succession histograms of pottery types: Forms 7–25. For explanation see Fig. 60.

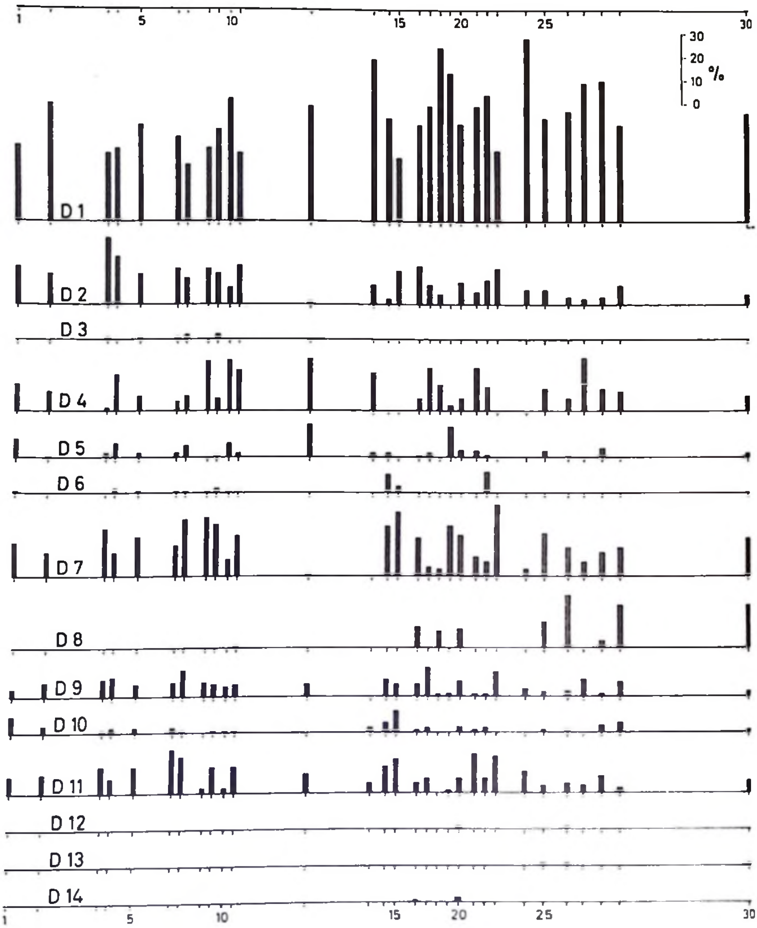

FIG. 62. Succession histograms of pottery types: Decorations 1–14. For explanation see Fig. 60.

(f) APPENDIX. MATHEMATICAL PROCEDURE FOR SETTING UP A SQUARED DIFFERENCE MATRIX AND OBTAINING POSITIONS OF ASSEMBLAGES ON THE STANDARD SEQUENCE PLANE

From a data matrix giving the values of variables ($V_1, V_2, \ldots V_n$) for the sites ($S_1, S_2, \ldots S_m$), where the value of the *i*th variable for the *j*th site is represented by $V_{i(sj)}$, a Squared Difference Matrix is set up. This is a symmetric $m \times m$ square matrix with a row and column corresponding to each site. The value D^2_{kj} ($=D^2_{jk}$), to be placed in the cell at the intersection of the *k*th row and *j*th column (and vice versa), is given by

$$D^2_{kj} = \sum_{i=1}^{n} (V_{i(Sk)} - V_{i(Sj)})^2.$$

This value is the square of the 'difference' between sites *j* and *k*.

If the three successive sites of the Standard Sequence are labelled S_1, S_2, S_3 (the remaining sites being $S_4, \ldots S_m$), the position of the *j*th site on the first axis is given by

$$A_j = (D^2_{1j} - D^2_{3j} + D^2_{13})/2\sqrt{D^2_{13}}.$$

The values of A may be either positive or negative, the expression above giving the correct sign.

The first Residual Squared Difference Matrix, showing the difference remaining after extraction of the first axis, is obtained by putting in the appropriate cells the values

$$D'^2_{kj} = D^2_{kj} - (A_k - A_j)^2.$$

The position of sites on the second axis, at right angles to the first, is then given by

$$A'_j = (D'^2_{1j} - D'^2_{2j} + D'^2_{12})/2\sqrt{D'^2_{12}}$$

A second residual matrix may then be calculated from the first in the same way as above. This will show the pattern of remaining differences after extraction of the Standard Sequence Plane.

If desired the two axes of the Standard Sequence Plane may be made to pass through the centroid of the distribution of sites by replacing A_j and A'_j by $(A_j - \bar{A})$ and $(A'_j - \bar{A}')$, where $\bar{A}$ and $\bar{A}'$ are the respective means.

The sum of the squared differences (S.S.D.) of the original matrix is equal to

$$2\,m^2 \sum_{i=1}^{n} S^2_i\,,$$

where S^2_i is the variance of the *i*th variable, *n* the number of variables and *m* the number of sites. The difference accounted for by the first axis is given by $2\,m^2S^2_A$, where S^2_A is the variance of the scores on the first axis, and is equal to the S.S.D. of the original matrix less the S.S.D. of the first residual matrix. The difference accounted for by each axis, or by the Standard Sequence Plane as a whole, may be expressed as a proportion of the S.S.D. of the original matrix.

The values of A and A' can be obtained with much less labour from a $3 \times m$ matrix giving only values of D^2_{1j}, D^2_{2j}, D^2_{3j}. However this does not allow inspection of the residual matrices, or calculation of the proportion of difference accounted for, both of which are desirable for confidence in, and interpretation of, the Standard Sequence Plane.

TA

PERCENTAGE OCCURR

	FORM																							
	1	1A	1B	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23
	PERCENTAGES																							
S.S. EARLY	18	18	–	–	–	15	1	31	4	–	1	10	1	–	–	–	–	–	–	1	–	–	–	–
S.S. MIDDLE	27	–	–	6	–	17	–	10	3	12	–	5	1	–	1	11	1	–	1	–	–	4	1	–
S.S. LATE	48	–	–	3	1	16	2	8	2	8	–	6	1	–	–	2	–	–	–	–	–	1	1	–
CQ I EARLY	15	–	–	–	–	28	–	49	1	–	1	5	1	–	–	–	–	–	–	–	–	–	–	–
CQ II EARLY	21	37	–	–	–	8	2	15	3	–	–	13	–	–	–	–	–	–	–	1	–	–	–	–
CQ III EARLY	17	–	–	–	–	18	1	45	7	–	1	10	1	–	–	–	–	–	–	1	–	–	–	–
CQ I MIDDLE*	21	–	–	14	–	23	1	14	1	4	–	17	–	–	–	4	–	–	–	–	–	–	–	–
CQ II MIDDLE*	51	–	–	–	–	11	–	11	–	6	–	3	–	–	–	14	–	–	–	–	–	3	–	–
CQ III MIDDLE	24	1	–	3	1	16	–	9	3	15	–	1	1	–	2	12	2	–	1	–	–	5	1	1
CQ I LATE	38	–	–	2	–	21	2	12	–	4	–	13	1	1	–	1	–	1	–	–	–	1	3	1
CQ II LATE	65	–	–	2	–	8	2	2	5	10	–	1	1	–	–	2	–	–	–	–	–	–	–	–
CQ III LATE	34	–	–	7	4	21	1	11	–	9	–	2	1	–	–	3	–	–	–	–	–	1	–	1
BMS I PIT 1*	33	–	–	–	2	20	14	10	–	–	–	–	14	–	–	–	–	–	4	2	–	–	–	–
BMS II PIT 1*	45	–	–	–	–	9	9	–	18	–	–	–	–	–	–	9	–	–	–	9	–	–	–	–
BMS III PIT 1	5	–	–	–	–	4	1	88	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
BMS III PIT 2	5	–	–	–	–	8	3	78	2	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–
BMS IV PIT 1	10	–	–	–	–	3	7	58	18	–	–	2	1	–	–	–	1	–	–	–	–	–	–	–
BMS V PIT 1	8	–	–	–	–	7	5	58	14	–	–	2	3	–	1	–	–	–	–	1	–	–	–	–
BMS VI PIT 1	12	–	–	–	–	13	5	54	13	–	1	5	1	–	–	–	–	–	–	–	–	–	–	–
BMS VIII PIT 1	10	–	–	–	–	14	1	69	2	–	–	1	1	–	–	–	–	–	–	1	–	–	–	–
BMS X PIT 1*	38	–	–	–	–	33	2	10	5	–	–	9	3	–	–	–	–	–	–	–	–	–	–	–
BMS XI PIT 1*	47	1	–	–	–	16	3	1	7	–	–	21	3	–	–	–	–	–	–	–	–	1	–	1
BMS XIV PIT 1	8	–	–	–	–	3	7	69	9	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
BMS XV PIT 1*	24	–	–	–	–	3	5	17	18	–	–	4	1	9	–	–	–	–	1	17	–	–	–	–
BMS XVI PIT 1	1	–	–	–	–	1	1	94	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
BMS XVII PIT 1*	36	2	–	–	–	25	2	20	2	–	–	5	–	–	–	–	2	–	–	2	–	–	–	2
CW VI WALL*	14	9	–	2	–	7	1	–	1	10	–	1	–	1	–	–	–	–	20	–	33	–	–	–
CW VI FSS*	32	–	–	–	–	32	4	4	16	–	–	–	4	–	4	–	–	–	–	–	–	4	–	–
USAMA PIT 1	26	–	–	–	–	9	–	1	3	43	–	1	–	–	–	–	–	–	1	8	–	–	–	–
USAMA PIT 2*	21	–	–	–	–	17	–	21	7	7	–	3	17	–	–	–	–	3	–	–	–	–	–	–
USAMA PIT 4*	20	–	–	–	–	4	–	14	36	–	–	23	2	–	–	–	–	–	–	–	–	2	–	–
USAMA PIT 5*	–	3	30	–	–	55	–	2	–	–	–	8	2	–	–	–	–	–	–	–	2	–	–	–
USAMA PIT 6*	18	–	36	–	–	38	–	–	4	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–

NOTES: 1. The top three rows are the three stages
for the three CQ cuttings.
2. * denotes small sample assemblages.

OF POTTERY TYPES

ABSOLUTE TOTAL	DECORATION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	ABSOLUTE TOTAL
	PERCENTAGES														
525	**44**	**10**	**–**	**20**	**4**	**1**	**12**	**–**	**4**	**1**	**4**	**–**	**–**	**–**	**578**
308	**42**	**9**	**–**	**6**	**3**	**–**	**16**	**8**	**5**	**2**	**6**	**1**	**–**	**1**	**1547**
1025	**46**	**4**	**–**	**7**	**2**	**–**	**15**	**18**	**2**	**1**	**4**	**–**	**1**	**–**	**2920**
110	31	15	–	21	–	1	25	–	6	–	2	–	–	–	102
247	52	7	–	21	6	1	7	–	4	1	2	–	–	–	376
168	29	16	–	17	2	1	17	1	5	1	11	–	–	–	100
71	41	16	–	5	1	–	16	9	5	1	4	–	–	1	137
35	60	3	–	9	4	–	10	3	1	3	7	–	–	–	149
202	41	9	–	5	3	–	17	8	6	2	6	1	–	2	1261
383	44	6	–	9	3	–	18	11	2	1	3	–	1	–	813
411	46	4	–	6	2	–	16	18	2	1	5	–	1	–	795
231	47	3	–	5	1	–	12	22	2	1	4	1	1	–	1312
49	54	10	–	10	1	9	6	–	1	2	6	–	–	–	156
11	41	8	–	8	–	–	12	18	6	4	2	–	–	–	49
679	50	13	–	8	1	–	10	–	6	3	8	–	–	–	264
682	29	28	1	1	2	–	20	–	7	1	11	–	–	–	697
267	24	11	2	6	5	1	24	–	11	1	15	–	–	–	344
950	36	15	1	4	2	1	13	–	6	2	18	–	–	–	1036
203	39	13	2	5	1	2	22	–	5	1	11	–	–	–	171
1415	31	20	–	15	6	2	10	–	8	2	6	–	–	–	994
58	30	15	–	–	–	–	30	–	10	–	15	–	–	–	20
77	59	2	–	22	–	–	6	–	7	–	3	–	–	–	128
2955	39	13	2	5	1	2	22	–	5	1	11	–	–	–	2219
115	27	14	–	–	–	3	27	–	5	9	14	–	–	–	92
1297	32	16	–	11	8	1	14	–	3	7	7	–	–	–	167
44	49	8	–	18	2	–	4	–	12	2	6	–	–	–	51
98	74	4	–	11	–	–	3	7	1	–	–	–	–	–	72
25	78	6	–	–	–	–	3	–	3	–	9	–	–	–	32
387	49	5	–	18	3	–	8	–	1	1	16	–	–	–	1132
56	69	8	–	16	2	–	–	–	–	2	4	–	–	–	248
66	44	2	–	–	2	8	21	–	7	4	11	–	–	–	183
29	49	1	–	22	14	–	1	–	5	–	8	–	–	–	51
55	63	–	–	2	13	–	21	–	1	–	1	–	–	–	110

Standard Sequence, obtained by combining the data

TABLE 21

DIFFERENCE MATRIX FOR BENIN POTTERY ASSEMBLAGES

	S.S. EARLY	S.S. MIDDLE	S.S. LATE	CQ I EARLY	CQ II EARLY	CQ III EARLY	CQ I MIDDLE	CQ II MIDDLE	CQ III MIDDLE	CQ I LATE	CQ II LATE	CQ III LATE
S.S. EARLY	—	1	2	1	1	1	1	3	2	1	4	2
S.S. MIDDLE	1	—	1	3	2	2	0	1	0	0	2	0
S.S. LATE	2	1	—	4	3	3	1	1	1	0	0	0
CQ I EARLY	1	3	4	—	4	0	2	5	3	3	6	3
CQ II EARLY	1	2	3	4	—	3	2	3	3	2	4	3
CQ III EARLY	1	2	3	0	3	—	2	4	2	2	5	3
CQ I MIDDLE	1	0	1	2	2	2	—	2	1	1	3	1
CQ II MIDDLE	3	1	1	5	3	4	2	—	1	1	1	1
CQ III MIDDLE	2	0	1	3	3	2	1	1	—	1	2	1
CQ I LATE	1	0	0	3	2	2	1	1	1	—	1	0
CQ II LATE	4	2	0	6	4	5	3	1	2	1	—	1
CQ III LATE	2	0	0	3	3	3	1	1	1	0	1	—

	BMS III PIT 1	BMS III PIT 2	BMS IV PIT 1	BMS V PIT 1	BMS VI PIT 1	BMS VIII PIT 1	BMS XIV PIT 1	BMS XVI PIT 1	BMS I PIT 1	BMS II PIT 1	BMS X PIT 1	BMS XI PIT 1	BMS XV PIT 1	BMS XVII PIT 1	CW VI WALL	CW VI FSS	USAMA PIT 1	USAMA PIT 2	USAMA PIT 4	USAMA PIT 5	USAMA PIT 6
S.S. EARLY	4	4	2	2	1	2	2	5	2	3	3	3	2	1	4	4	4	2	3	4	4
S.S. MIDDLE	7	6	4	4	3	5	5	9	1	1	1	2	2	1	3	2	2	2	2	4	3
S.S. LATE	9	8	6	5	4	6	6	11	1	1	2	1	3	1	4	2	3	2	3	6	4
CQ I EARLY	3	2	2	2	1	1	2	3	3	5	3	5	3	2	7	6	6	3	4	5	6
CQ II EARLY	7	7	5	5	4	5	5	9	2	3	4	2	4	2	4	4	4	2	3	5	5
CQ III EARLY	3	2	1	1	1	1	1	3	3	4	2	4	2	2	7	5	5	3	3	6	6
CQ I MIDDLE	7	6	4	3	3	4	4	8	2	2	2	2	2	1	4	3	3	2	2	4	3
CQ II MIDDLE	9	9	6	6	5	7	6	11	1	1	3	1	4	1	4	2	3	2	4	6	4
CQ III MIDDLE	7	6	4	4	3	5	5	9	1	1	2	2	2	1	3	3	2	2	2	4	3
CQ I LATE	8	7	5	4	3	5	5	9	1	1	1	1	2	1	4	2	3	2	2	4	3
CQ II LATE	12	11	8	7	6	9	8	13	2	1	3	2	4	2	5	4	3	4	4	9	5
CQ III LATE	8	7	5	4	4	5	5	10	1	1	2	2	3	1	3	2	3	2	3	5	3

BMS III PIT 1	4	7	9	3	7	3	7	9	7	8	12	8	—	1	2	2	2	1	1	0	8	10	9	10	7	6	10	10	10	6	8	12	11
BMS III PIT 2	4	6	8	2	7	2	6	9	6	7	11	7	1	—	1	1	1	1	1	1	7	9	7	11	5	6	11	10	10	7	7	11	11
BMS IV PIT 1	2	4	6	2	5	1	4	6	4	5	8	5	2	1	—	0	0	1	1	2	5	6	4	7	2	4	9	8	7	5	3	9	8
BMS V PIT 1	2	4	5	2	5	1	3	6	4	4	7	4	2	1	0	—	0	1	0	2	4	6	4	7	3	3	7	6	6	4	3	8	7
BMS VI PIT 1	1	3	4	1	4	1	3	5	3	3	6	4	2	1	0	0	—	1	0	2	4	5	3	6	2	3	7	5	6	3	3	7	6
BMS VIII PIT 1	2	5	6	1	5	1	4	7	5	5	9	5	1	1	1	1	1	—	1	1	5	7	5	8	4	4	9	8	8	5	6	8	9
BMS XIV PIT 1	2	5	6	2	5	1	4	6	5	5	8	5	1	1	1	0	0	1	—	1	5	7	6	8	4	4	8	7	7	4	5	9	8
BMS XVI PIT 1	5	9	11	3	9	3	8	11	9	9	13	10	0	1	2	2	2	1	1	—	10	12	10	13	8	8	13	13	12	8	9	13	13
BMS I PIT 1	2	1	1	3	2	3	2	1	1	1	2	1	8	7	5	4	4	5	5	10	—	2	2	1	3	0	3	1	3	1	3	4	3
BMS II PIT 1	3	1	1	5	3	4	2	1	1	1	1	1	10	9	6	6	5	7	7	12	2	—	2	2	2	2	5	3	3	3	3	7	5
BMS X PIT 1	3	1	2	3	4	2	2	3	2	1	3	2	9	7	4	4	3	5	6	10	2	2	—	3	2	2	6	4	4	4	3	5	4
BMS XI PIT 1	3	2	1	5	2	4	2	1	2	1	2	2	10	11	7	7	6	8	8	13	1	2	2	—	4	1	4	2	3	2	3	5	4
BMS XV PIT 1	2	2	3	3	4	2	2	4	2	2	4	3	7	5	2	3	2	4	4	8	3	2	2	4	—	3	6	5	4	4	2	7	5
BMS XVII PIT 1	1	1	1	2	2	2	1	1	1	1	2	1	6	6	4	3	3	4	4	8	0	2	2	1	3	—	4	2	3	1	3	4	3
CW VI WALL	4	3	4	7	4	7	4	4	3	4	5	3	10	11	9	7	7	9	8	13	3	5	6	4	6	4	—	3	4	3	5	6	5
CW VI FSS	4	2	2	6	4	5	3	2	3	2	4	2	10	10	8	6	5	8	7	13	1	3	4	2	5	2	3	—	4	2	4	4	3
USAMA PIT 1	4	2	3	6	4	5	3	3	2	3	3	3	10	10	7	6	6	8	7	12	3	3	4	3	4	3	4	4	—	3	4	6	5
USAMA PIT 2	2	2	2	3	2	3	2	2	2	2	4	2	6	7	5	4	3	5	4	8	1	3	4	2	4	1	3	2	3	—	3	4	3
USAMA PIT 4	3	2	3	4	3	3	2	4	2	2	4	3	8	7	3	3	3	6	5	9	3	3	3	3	2	3	5	4	4	3	—	7	5
USAMA PIT 5	4	4	6	5	5	6	4	6	4	4	9	5	12	11	9	8	7	8	9	13	4	7	5	5	7	4	6	4	6	4	7	—	2
USAMA PIT 6	4	3	4	6	5	6	3	4	3	3	5	3	11	11	8	7	6	9	8	13	3	5	4	4	5	3	5	3	5	3	5	2	—

NOTES: 1. The numbers in the cells are values of D^2 to the nearest 1000.

2. Values less than 500 are given as 0. True zero values are shown by a dash.

TABLE 22

FIRST RESIDUAL DIFFERENCE MATRIX FOR BENIN POTTERY ASSEMBLAGES

	S.S. EARLY	S.S. MIDDLE	S.S. LATE	CQ I EARLY	CQ II EARLY	CQ III EARLY	CQ I MIDDLE	CQ II MIDDLE	CQ III MIDDLE	CQ I LATE	CQ II LATE	CQ III LATE	BMS III PIT 1	BMS III PIT 2	BMS IV PIT 1	BMS V PIT 1	BMS VI PIT 1	BMS VIII PIT 1	BMS XIV PIT 1	BMS XVI PIT 1	BMS I PIT 1	BMS II PIT 1	BMS X PIT 1	BMS XI PIT 1	BMS XV PIT 1	BMS XVII PIT 1	CW VI WALL	CW VI FSS	USAMA PIT 1	USAMA PIT 2	USAMA PIT 4	USAMA PIT 5	USAMA PIT 6
S.S. EARLY	—	—	—	1	1	1	0	1	0	0	0	0	4	3	2	2	1	2	2	4	1	1	1	1	2	0	3	2	2	1	2	4	3
S.S. MIDDLE	—	—	—	1	1	1	0	1	0	0	0	0	4	3	2	2	1	2	2	4	1	1	1	1	2	0	3	2	2	1	2	4	3
S.S. LATE	—	—	—	1	1	1	0	1	0	0	0	0	4	3	2	2	1	2	2	4	1	1	1	1	2	0	3	2	2	1	2	4	3
CQ I EARLY	1	1	1	—	4	0	1	2	1	1	2	1	3	2	2	1	1	1	2	3	2	2	1	3	2	1	6	4	4	3	3	5	5
CQ II EARLY	1	1	1	4	—	3	1	1	1	1	1	1	7	7	5	4	4	5	5	8	2	1	3	1	3	1	3	3	2	2	3	4	3
CQ III EARLY	1	1	1	0	3	—	1	2	1	1	1	1	2	1	1	1	1	1	1	2	2	2	1	3	1	1	6	4	3	3	3	5	5
CQ I MIDDLE	0	0	0	1	1	1	—	2	1	0	1	0	4	4	3	2	2	2	3	5	1	1	1	1	2	1	4	3	3	2	2	4	3
CQ II MIDDLE	1	1	1	2	1	2	2	—	1	1	1	1	4	5	4	3	2	3	3	5	1	1	3	1	3	1	3	2	2	1	3	5	3
CQ III MIDDLE	0	0	0	1	1	1	1	1	—	0	0	0	4	3	2	2	1	2	2	4	1	1	1	1	2	1	3	2	2	1	2	4	3
CQ I LATE	0	0	0	1	1	1	0	1	0	—	1	0	4	4	3	2	2	2	3	5	1	1	1	1	2	1	4	2	2	2	2	3	3
CQ II LATE	0	0	0	2	1	1	1	1	0	1	—	1	4	4	2	2	2	2	2	5	1	1	1	1	1	1	4	3	2	2	2	5	4
CQ III LATE	0	0	0	1	1	1	0	1	0	0	1	—	3	3	3	2	1	2	2	4	1	1	2	2	2	1	3	2	2	1	3	3	3

BMS III PIT 1	4	4	4	3	7	2	4	4	4	4	4	3	—	1	2	1	1	1	0	0	5	5	5	6	5	4	8	6	6	4	6	10	8
BMS III PIT 2	3	3	3	2	7	1	4	5	3	4	4	3	1	—	1	1	1	1	1	1	5	5	4	7	3	4	9	7	7	5	5	10	8
BMS IV PIT 1	2	2	2	2	5	1	3	4	2	3	2	3	2	1	—	0	0	1	1	2	4	3	3	5	2	3	8	6	5	5	3	9	7
BMS V PIT 1	2	2	2	1	4	1	2	3	2	2	2	2	1	1	0	—	0	1	0	1	3	2	3	4	2	2	6	4	4	3	3	7	6
BMS VI PIT 1	1	1	1	1	4	1	2	2	1	2	2	1	1	1	0	0	—	1	0	1	2	2	2	4	2	2	6	4	4	3	2	7	5
BMS VIII PIT 1	2	2	2	1	5	1	2	3	2	2	2	2	1	1	1	1	1	—	1	1	3	3	3	5	3	2	7	5	5	3	4	7	6
BMS XIV PIT 1	2	2	2	2	5	1	3	3	2	3	2	2	0	1	1	0	0	1	—	1	3	3	3	5	3	3	7	5	5	3	4	9	7
BMS XVI PIT 1	4	4	4	3	8	2	5	5	4	5	5	4	0	1	2	1	1	1	1	—	6	6	6	8	5	5	10	8	7	6	2	11	9
BMS I PIT 1	1	1	1	2	2	2	1	1	1	1	1	1	5	5	4	3	2	3	3	6	—	1	2	1	3	1	3	2	3	1	3	4	3
BMS II PIT 1	1	1	1	2	1	2	1	1	1	1	1	1	5	5	3	2	2	3	3	6	1	—	2	2	1	1	4	3	3	2	2	5	4
BMS X PIT 1	1	1	1	1	3	1	1	3	1	1	1	2	5	4	3	3	2	3	3	6	2	2	—	2	2	1	6	3	4	4	3	4	4
BMS XI PIT 1	1	1	1	3	1	3	1	1	1	1	1	2	6	7	5	4	4	5	5	8	1	2	2	—	3	1	3	2	2	1	2	4	3
BMS XV PIT 1	2	2	2	2	3	1	2	3	2	2	1	2	5	3	2	2	2	3	3	5	3	1	2	3	—	2	6	5	4	4	2	7	5
BMS XVII PIT 1	0	0	0	1	1	1	1	1	1	1	1	1	4	4	3	2	2	2	3	5	1	1	1	1	2	—	4	2	2	1	3	3	3
CW VI WALL	3	3	3	6	3	6	4	3	3	4	4	3	8	9	8	6	6	7	7	10	3	4	6	3	6	4	—	3	4	3	5	6	5
CW VI FSS	2	2	2	4	3	4	3	2	2	2	3	2	6	7	6	4	4	5	5	8	2	3	3	2	5	2	3	—	4	1	3	3	2
USAMA PIT 1	2	2	2	4	2	3	3	2	2	2	2	2	6	7	5	4	4	5	5	7	3	3	4	2	4	2	4	4	—	2	4	5	5
USAMA PIT 2	1	1	1	3	2	3	2	1	1	2	2	1	4	5	5	3	3	3	3	6	1	2	4	1	4	1	3	1	2	—	3	4	3
USAMA PIT 4	2	2	2	3	3	3	2	3	2	2	2	3	6	5	3	3	2	4	4	2	3	2	3	2	2	3	5	3	4	3	—	7	5
USAMA PIT 5	4	4	4	5	4	5	4	5	4	3	5	3	10	10	9	7	7	7	9	11	4	5	4	4	7	3	6	3	5	4	7	—	1
USAMA PIT 6	3	3	3	5	3	5	3	3	3	3	4	3	8	8	7	6	5	6	7	9	3	4	4	3	5	3	5	2	5	3	5	1	—

NOTES:
1. This matrix shows the difference remaining after extraction of the Standard Sequence Plane.
2. The numbers in the cells are values of D^2 to the nearest 1000.
3. Values less than 500 are given as 0. True zero values are shown by a dash.

TABLE 23

SECOND RESIDUAL DIFFERENCE MATRIX FOR BENIN POTTERY ASSEMBLAGES

	S.S. EARLY	S.S. MIDDLE	S.S. LATE	CQ I EARLY	CQ II EARLY	CQ III EARLY	CQ I MIDDLE	CQ II MIDDLE	CQ III MIDDLE	CQ I LATE	CQ II LATE	CQ III LATE	BMS III PIT 1	BMS III PIT 2	BMS IV PIT 1	BMS V PIT 1	BMS VI PIT 1	BMS VIII PIT 1	BMS XIV PIT 1	BMS XVI PIT 1	BMS I PIT 1	BMS II PIT 1	BMS X PIT 1	BMS XI PIT 1	BMS XV PIT 1	BMS XVII PIT 1	CW VI WALL	CW VI FSS	USAMA PIT 1	USAMA PIT 2	USAMA PIT 4	USAMA PIT 5	USAMA PIT 6
S.S. EARLY	—	—	—	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	2	0	3	2	2	1	2	3	3
S.S. MIDDLE	—	—	—	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	2	0	3	2	2	1	2	3	3
S.S. LATE	—	—	—	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	1	0	1	1	1	0	2	0	3	2	2	1	2	3	3
CQ I EARLY	1	1	1	—	2	0	1	2	1	0	1	1	2	1	1	1	1	1	1	1	1	2	1	1	2	1	5	3	3	2	3	3	3
CQ II EARLY	0	0	0	2	—	2	1	1	0	1	0	1	1	1	2	1	1	1	1	1	1	1	2	1	2	1	3	3	2	2	3	4	3
CQ III EARLY	0	0	0	0	2	—	1	1	1	0	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	4	3	3	2	2	3	3
CQ I MIDDLE	0	0	0	1	1	1	—	2	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	2	1	4	2	3	2	2	3	3
CQ II MIDDLE	1	1	1	2	1	1	2	—	1	1	0	1	1	1	2	1	1	1	1	0	1	1	2	0	3	1	3	2	2	1	3	4	3
CQ III MIDDLE	0	0	0	1	0	1	1	1	—	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	2	2	1	2	3	3
CQ I LATE	0	0	0	0	1	0	0	1	0	—	0	0	1	0	1	1	0	0	1	0	1	1	1	0	2	0	3	2	2	2	2	3	2
CQ II LATE	0	0	0	1	0	1	1	0	0	0	—	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	2	2	4	3
CQ III LATE	0	0	0	1	1	1	0	1	0	0	1	—	1	1	1	1	1	1	1	1	1	1	2	1	2	0	3	2	2	1	3	3	2

BMS III PIT 1	1	1	1	2	2	1	1	1	1	1	1	1	—	1	2	1	1	1	0	0	1	2	3	0	3	0	3	1	2	1	2	4	3
BMS III PIT 2	0	0	0	1	1	0	0	1	1	0	0	1	1	—	1	0	0	0	0	0	1	1	1	0	1	1	4	1	3	2	2	4	3
BMS IV PIT 1	1	1	1	1	2	1	1	2	1	1	1	1	2	1	—	0	0	1	1	1	2	1	1	1	1	1	5	3	3	2	1	5	4
BMS V PIT 1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	—	0	1	0	0	1	1	1	1	1	1	4	1	2	1	1	4	3
BMS VI PIT 1	0	0	0	1	1	0	1	1	1	0	1	1	1	0	0	0	—	1	0	0	1	1	1	0	1	0	4	1	3	1	1	4	3
BMS VIII PIT 1	0	0	0	1	1	0	1	1	1	0	1	1	1	0	1	1	1	—	0	0	1	1	1	0	2	0	4	2	2	1	2	3	3
BMS XIV PIT 1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	—	0	1	1	2	0	2	1	4	1	2	1	1	4	3
BMS XVI PIT 1	0	0	0	1	1	0	1	0	1	0	1	1	0	0	1	0	0	0	0	—	1	1	2	—	3	0	4	2	2	1	2	4	3
BMS I PIT 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	—	0	2	1	2	1	3	2	2	1	3	3	3
BMS II PIT 1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	0	—	2	1	1	1	4	3	3	2	2	5	4
BMS X PIT 1	1	1	1	1	2	1	1	2	1	1	1	2	3	1	1	1	1	1	2	2	2	2	—	2	2	1	6	3	4	3	3	4	3
BMS XI PIT 1	0	0	0	1	1	1	1	0	1	0	1	1	0	0	1	1	0	0	0	—	1	1	2	—	2	0	3	2	2	1	2	4	3
BMS XV PIT 1	2	2	2	2	2	1	2	3	2	2	1	2	3	1	1	1	1	2	2	3	2	1	2	2	—	2	5	4	3	4	2	6	5
BMS XVII PIT 1	0	0	0	1	1	1	1	1	1	0	1	0	0	1	1	1	0	0	1	0	1	1	1	0	2	—	4	2	2	1	3	3	3
CW VI WALL	3	3	3	5	3	4	4	3	3	3	3	3	3	4	5	4	4	4	4	4	3	4	6	3	5	4	—	3	4	3	5	6	5
CW VI FSS	2	2	2	3	3	3	2	2	2	2	2	2	1	1	3	1	1	2	1	2	2	3	3	2	4	2	3	—	4	1	3	3	2
USAMA PIT 1	2	2	2	3	2	3	3	2	2	2	2	2	2	3	3	2	3	2	2	2	2	3	4	2	3	2	4	4	—	2	4	5	5
USAMA PIT 2	1	1	1	2	2	2	2	1	1	2	2	1	1	2	2	1	1	1	1	1	1	2	3	1	4	1	3	1	2	—	3	4	3
USAMA PIT 4	2	2	2	3	3	2	2	3	2	2	2	3	2	2	1	1	1	2	1	2	3	2	3	2	2	3	5	3	4	3	—	6	5
USAMA PIT 5	3	3	3	3	4	3	3	4	3	3	4	3	4	4	5	4	4	3	4	4	3	5	4	4	6	3	6	3	5	4	6	—	1
USAMA PIT 6	3	3	3	3	3	3	3	3	3	2	3	2	3	3	4	3	3	3	3	3	3	4	3	3	5	3	5	2	5	3	5	1	—

NOTES:

1. This matrix shows the difference remaining after extraction of the third, correlated axis. Note the generally 'flat' appearance except in those parts relating to CW VI and Usama.
2. The numbers in the cells are values of D^2 to the nearest 1000.
3. Values less than 500 are given as 0. True zero values are shown by a dash.

TABLE 24
EXTRACTED AXIS SCORES AND APPROXIMATE SEQUENCE

AXIS	I	II	III	
FIXED POINTS 0 / +	S.S. EARLY / S.S. LATE	S.S. EARLY / S.S. MIDDLE	BMS XVI PIT 1 / BMS XI PIT 1	ORDER
S.S. EARLY	0	0	63	–
S.S. MIDDLE	32	21	63	–
S.S. LATE	49	0	63	–
CQ I EARLY	−3	7	40	8
CQ II EARLY	2	−6	82	10
CQ III EARLY	0	7	43	11
CQ I MIDDLE	25	18	64	16
CQ II MIDDLE	44	2	68	28
CQ III MIDDLE	31	25	61	20
CQ I LATE	37	3	65	25
CQ II LATE	63	−6	64	30
CQ III LATE	42	8	59	26
BMS III PIT 1	−24	−1	10	2
BMS III PIT 2	−20	11	8	3
BMS IV PIT 1	−8	12	25	7
BMS V PIT 1	−9	11	29	6
BMS VI PIT 1	−3	9	32	9
BMS VIII PIT 1	−16	5	23	4
BMS XIV PIT 1	−13	6	21	5
BMS XVI PIT 1	−31	2	0	1
BMS I PIT 1	30	4	71	22
BMS II PIT 1	48	5	68	29
BMS X PIT 1	34	14	63	23
BMS XI PIT 1	38	−7	89	27
BMS XV PIT 1	21	17	52	15
BMS XVII PIT 1	23	0	68	17
CW VI WALL	26	10	80	18
CW VI FSS	36	7	82	24
USAMA PIT 1	34	23	72	21
USAMA PIT 2	17	5	70	13
USAMA PIT 4	20	14	69	14
USAMA PIT 5	9	21	87	12
USAMA PIT 6	29	17	80	19

NOTES: 1. Columns I and II give the co-ordinates for the Standard Sequence Plane.
2. Column III shows the scores on the third correlated axis (see text).
3. The last column, headed 'Order', gives the approximate sequence of assemblages obtained from the regression parabola of Fig. 59. The numbers in this column are used to identify assemblages in Figs. 60–2.

(g) ACKNOWLEDGEMENTS

This analysis was carried out with the help of the IBM 1620 computer at the Computing Centre of the University of Ibadan. My grateful thanks are due to the Director and staff of the centre, and in particular to Mr. O. A. Daini, who wrote the FORTRAN II programme used in the analysis.

3. ANTHROPOMETRIC OBSERVATIONS ON HUMAN SKELETAL REMAINS

By S. O. Arigbede, *Department of Anatomy, University of Ibadan.*

(a) INTRODUCTION

This is a report on the human skeletal remains excavated from Feature 21 of Cutting II on the Clerks' Quarters site. None of the other human remains recovered during the excavations of 1961–4 in Benin were sufficiently well preserved to merit examination. Yet the local conditions within Feature 21 were such that the remains found in it are in an exceptionally good state of preservation. This material is now stored in the Department of Anatomy, University of Ibadan.

In this report, the remains have been examined to establish the following information about them:

(i) The number of individuals they represent.
(ii) The approximate age of the individuals.
(iii) Their sex.
(iv) The stature of the individuals.

The remains consist of:

(i) Skulls and their fragments numbered S1–S302.
(ii) Long bones and their fragments numbered 1–310.
(iii) Scapulae, innominate, and sacral bones numbered 311–450.
(iv) Various fragmentary remains, numbered 451–1618.

It should be noted that because of clerical errors at the time of excavation there are no bones marked with the following numbers: 460–559 (inclusive), 675–7 (inclusive), 896, 1137, 1550–4 (inclusive). In addition one skull is present that was found to be lacking a catalogue number. This is referred to in this report as Skull 'A'.

(b) INVENTORY OF MATERIAL

(i) *Skull*	*No.*	*Minimum no. of individuals*
Complete crania	8	
Calvaria (no face)	4	
Fragmentary crania	11	25
Maxillae	7 R, 6 L	
Complete mandibles	10	
Half mandibles	6 R, 6 L	20

age estimations, it is interesting to note that all the ectocranial vault sutures were open in these specimens. It would thus appear that all the individuals are younger than 26 years. (Todd & Lyon, 1925). Two of the skulls (S144 and S234) showed a suggestion of an open suture between the basi-occipital and basi-sphenoid bones. This suture closes between the eighteenth and the twenty-fifth year, usually nearer the former than the latter. Seventeen femora showed evidence of separated epiphyses, both proximal and distal. These epiphyses are known to unite around the twentieth and eighteenth years of life respectively. Fourteen fragments of the distal end also showed epiphyseal separation. Eleven incomplete clavicles showed evidence of separation of the medial ends from the rest of the bone; this epiphysis usually unites with the rest of the bone at about the twenty-fifth year of life.

The condition of the teeth in the mandibles and maxillae has been very useful. The impression one gets is that of adolescent teeth which have not been used for very long. In many of them the degree of crenation is still very pronounced, while in others there is incomplete eruption of the last molar tooth, which is known to erupt in this part of the world usually between the sixteenth and seventeenth year.

Although these observations are far from being of the desired quality, and it is thus difficult to say anything categorical about the age of these bones, it appears that the bones belong to individuals who were probably not below 15 years of age, and surely not above 35 years.

(g) SEX

The first impression that one gets as to the sex of the bones is that they are females. The general appearance of the skulls is gracile, the contour of the forehead female, and the muscular impressions slight. This is confirmed by closer examination: the cranial capacities (p. 211), the length of the mastoid processes, and the diameters of the heads of the femora (p. 211), are all predominantly feminine. If we assume that the innominate bones and sacra belong to the same individuals as the long bones and skulls, then it is safe to conclude that the remains mostly represent females, since a great majority (89 per cent) of the innominates show very well marked preauricular sulci and very open greater sciatic notches, and the sacra show the curvature characteristic of females. There is however one skull, the unnumbered one ('A'), which consistently shows male characteristics. Otherwise, since all the criteria considered point at femaleness, it is concluded that the remains, with one possible exception, are all female.

(h) STATURE

The stature of an individual may be estimated from the length of his long bones through the use of various regression equations, the best available being those of Trotter & Gleser (1958). These are based on males and females of the three major American racial groups, White, Negro, and Mongoloid; the formulae for Negro females are clearly the most suitable to use here. The measurements of four bones, listed in order of decreasing reliability, are given below, along with the statures calculated from them. These stature estimates all have probable errors of about 4 cm., but may be greater in this case owing to differences between West Africans and American Negroes who have been subject to varying degrees of White admixture. If each of the stature estimates is taken as an independent datum, one can calculate a mean stature for the population of 163·2 cm. with a standard deviation of 4·8 cm.

Bone	*Length* (*cm.*)	*Stature* (*cm.*)
Right Femora	46·8	166
	45·5	164
	45·3	163
	45·5	164
	43·3	158
	39·8	150
	46·5	166
Right Tibia	39·1	168
Right Humeri	32·2	164
	33·7	168
	33·8	169
	31·7	162
	33·7	168
	29·4	155
	30·9	160
Right Radii	24·9	163
	24·4	162
	25·9	166
	25·5	165

(i) PATHOLOGY

The only striking pathological change noticeable in the naked eye examination of the bones is the marked bowing of the femoral shafts, in contrast with the very straight shafts found in most modern Yoruba. This is highly suggestive of rickets; however, other signs of the disease, such as frontal bossing, are not evident.

(j) SUMMARY

(i) Human skeletal remains from an excavation in Benin have been observed anthropometrically.

(ii) They represent a minimum of 41 individuals but with a possible upper limit of more than this.

(iii) The individuals represented by the remains are of stature averaging 163·2 cm. and ranging between 150 cm. and 169 cm.

(iv) They are mainly female remains of an age range between 15 and 35 years.

(v) Other than marked femoral bowing, it was not possible to detect, by naked eye examination, any evidence of disease, but X-ray examination of the bones may reveal pathological conditions.

(k) NOTE BY G. C.

Dr. Arigbede's report was originally considerably longer. It has been edited by

Dr. Geoffrey Gaherty, of the Department of Anthropology, University of California, Santa Barbara, who has commented that his actions have principally been to reduce the over-all bulk of the original by condensing much of the tabular matter and by compressing the text. His only original contributions have been to calculate the means and standard deviations for the osteometric data and to recompute the stature estimates using more reliable regression equations.

4. RADIOLOGICAL EXAMINATION OF THE HUMAN BONES FROM THE CLERKS' QUARTERS SITE, CUTTING II, FEATURE 21

By S. P. Bohrer, *Department of Radiology*, *University of Ibadan*.

(a) INTRODUCTION

Over 300 bones were examined radiographically (one film each, unless an abnormality was detected). They included 71 femora, 40 tibiae, 52 humeri, 35 pelves, 23 radii, 34 ulnae, 25 fibulae, 17 os calci and tali and 39 vertebrae. Nine skulls were also radiographed; several different projections were used for each. Many artefacts were encountered. These are attributed to the post mortem circumstances (Wells, 1967*b*). Two bones which showed definite localized internal pathology were longitudinally cut and directly examined. These specimens will be discussed in detail. Other bones showed areas suspicious of minor pathology; they have not yet been cut and nothing further can be said regarding their possible pathology at this time.

Some observations regarding other findings will be noted.

(b) LESION 1

(Plate 43)

This distal femoral lesion consists of a localized area of cortical thickening (4 cm. long and 7 mm. thick). The list of diseases or insults which can result in localized cortical thickening is long; to name a few: yaws, syphilis, osteomyelitis, subperiosteal haemorrhage, chronic venous stasis, trauma, osteoid osteoma, tropical ulcer osteoma, Paget's disease, etc. However, these processes generally produce cortical thickening externally or both externally and internally. In the present specimen, the thickening is clearly only on the inner side of the cortex, the endosteal surface, and narrows the medullary canal. This type of endocortical thickening is a well described observation in older patients with sickle cell anaemia and its variants (Legant & Ball, 1948; Diggs, Pulliam & King, 1937; Reynolds, 1965, pp. 129–43; Carroll & Evans, 1949; Macht & Roman, 1948; O'Hara, 1967; Ehrenpreis & Schwinger, 1952; Golding, 1956). The very first case of sickle cell disease with necropsy reported by Graham in 1924 showed this feature. The areas of cortical thickening may be localized, as in this case, or more generalized. They are attributed to endocortical bone infarcts and the distal femur is a common site for localized bone infarcts (Bohrer, 1970; Edeiken, Hodes, Libschitz & Weller, 1967).

(c) LESION 2

(Plate 44)

This lesion was also in the distal femur. It shows a 2·5 × 1·1 cm. oval of increased radiodensity (2 mm. thick) surrounding a radiolucent area with a tiny density at the centre (Plate 44A). The lesion is adjacent to the endocortex extending 5 mm. into the medullary cavity. The specimen shows the oval to be dense bone with some trabecular formation at the margins (Plate 44B). The tiny dense centre is also sclerotic bone. This lesion has some similarity to several benign bone lesions such as fibrous cortical defect or non-ossifying fibroma, but the location and detailed appearance (such as lack of cortical thinning) are against these diagnoses. These and other lesions (osteoid osteoma, enchondroma, histiocytosis X, fibrous dysplasia, adamantinoma, chondromyxiod fibroma) remain remote possibilities.

This is thought to be a calcified medullary (juxtacortical) infarct. Medullary infarcts have been previously reported in ancient bones (Gray, 1966, 1968). There are many possible causes for medullary infarcts (Edeiken *et al.*, 1967) but sickle cell disease is by far the most common in Nigeria. The juxtacortical location is characteristic of sickle cell infarcts (Reynolds, 1965, pp. 129–43) and the sclerotic circle or 'doughnut' appearance was originally described in sickle cell infarcts (Cockshott, 1961, p. 80; Keats & Holt, 1969). It is attributed to calcification or ossification in the tissue reaction which surrounds the infarcted area during healing (Legant & Ball, 1948; Phemister, 1940). The tiny dense centre is also a recognized feature of these lesions (Keats & Holt, 1969).

(d) CORTICAL THICKNESS

Brothwell, Molleson, & Metreweli (1968) measured the cortical thickness of femora in two ancient populations. We also measured the total mid-femoral cortical thickness (one side of cortex plus other side) in 62 specimens where the mid-femoral position could be determined. The total thicknesses are as shown in Table 25. These are generally the same or smaller than those of Brothwell *et al.* (1968).

One might have hoped to find an increase in cortical thickness as further evidence of sickle cell disease. However, this finding is itself uncommon in sickle cell anaemia; also, only 1·7 per cent of the Nigerian population is estimated to be haemoglobin SS and 0·7 per cent haemoglobin SC (Esan, in press) and many of these persons die before adulthood. Thus, no more than one or two cases might be expected in the approximately 40 persons in the group examined.

(e) SKULLS AND VERTEBRAE

The nine skulls examined showed no definite porotic hyperostosis or sclerotic areas, both described as features of sickle cell disease (Lawrence, 1967; Diggs *et al.*, 1937; Moore, 1929). It is our general impression in Ibadan that skull changes, although common in children, are decidedly uncommon in adult sickle cell patients and Legant & Ball (1948) agree with our impression and found no skull changes in ten adult cases examined.

TABLE 25

TOTAL FEMORAL CORTICAL THICKNESS AT MID-SHAFT (SUMMATION OF TWO SIDES)

THICKNESS	NUMBER OF CASES
8 mm. or less	1
8·1 – 9·25	2
9·26 – 9·75	5
9·76 – 10·25	4
10·26 – 10·75	7
10·76 – 11·25	5
11·26 – 11·75	8
11·76 – 12·25	6
12·26 – 12·75	3
12·76 – 13·25	7
13·26 – 13·75	7
13·76 – 14·25	4
14·26 – 14·75	1
16 – 16·5	2

The 39 vertebrae examined showed no evidence of biconcave end-plate depressions which may be a feature of sickle cell disease (Reynolds, 1966).

(f) AGE OF INDIVIDUALS

Skull suture closure is no longer considered as a reliable indication of accurate age (Comas, 1960, pp. 367–72).

Epiphyseal closure can be used as an estimation of bone age and presumably chronological age also. Before closure, the growth plate appears as a radiolucent (black) transverse line between the epiphyses and metaphyses of long bones. At the time of closure, this becomes a thick sclerotic (white) band and within a few years becomes a thin sclerotic line or disappears. Occasionally, remnants of this sclerotic band may persist into adulthood but it usually disappears so that the trabeculae of the epiphysis blend with those of the shaft (Pyle & Hoerr, 1955, pp. 81–2). Thus, age can be fairly accurately determined if epiphyses are not united but is less valid in an adult population where epiphyseal closure has taken place because no change is observed once the adult appearance is present. In this group, no radiolucent epiphyseal lines persisted, making age estimation more difficult.

The following closure dates are taken from Hodges (1933), presumably from a non-African population. Figures are not yet available from an African population. There is some variation among other authors, most indicating younger ages for closure (Comas, 1960, pp. 212–17; Mackay, n.d.). Females tend to fuse their epiphyses one to two years earlier than males.

The *proximal ulna epiphysis* closes at age 17–19; all were fully fused in this study. The *distal humeri* fuse at age 18; all were fully fused. The *humeral head epiphysis* (proximal) fuses at age 20–3. All 15 humeri with an intact head were fused; 12 were fully fused (no evidence of a sclerotic band) and 3 showed a faint sclerotic band. The *distal femoral epiphysis* closes at the same age range (20–3). Of the 25 appropriate specimens, 12 showed complete fusion and 13 showed remnants of a sclerotic band.

This epiphysis was missing in many of the other 46 femora; perhaps this suggests it was not yet fully united. Of 60 *femoral head epiphyses*, 48 were fully fused and 12 showed some evidence of a thin sclerotic line. This epiphysis fuses at age 17–19½. The *iliac crest epiphysis* which fuses at age 20–2 appeared to be mostly fully fused.

Thus far, all evidence suggests that almost all of the bones examined are over 17–19 and, possibly, as old as 22 or 23. In a population this age (the time when most epiphyses have recently closed), the minimal age can be determined more accurately than the upper age limit, unless there is at least one epiphysis which is not yet fully closed in the individuals. There were no completely unfused epiphyses in this population although the absence of many distal femoral epiphyses suggests an age of about 20. The proximal *tibial epiphysis* which fuses at 19–24 was the only location in which a great majority of bones showed a definite sclerotic line persisting; 16 specimens had a partial line, 3 had a full dense line and only 2 showed no evidence of a remaining line. This suggests that the upper age limit of the majority of the population was perhaps 24–6 years.

In summary, the findings suggest a population age somewhere between 19 and 26 for the great majority or considering the fact that they are all (except one) thought to be females, perhaps 19–24. If one accepts other standards for age at the time of epiphyseal closure, the entire population may be several years younger.

However, what is most impressive is the remarkable homogeneity of the degree of epiphyseal closure seen in all of the bones. The wide age range given above reflects, to some extent, our inability to assign a specific age to a specific appearance once epiphyseal closure has taken place and not differing appearances among these bones. My impression is that they are remarkably close in age, whether that be towards the lower side of the range given, 19, or the upper side, 26. Finally, drawing on my general observations of the bones of Nigerians of known ages, I feel this population is closer to the lower age limit given above.

(g) 'GROWTH ARREST' LINES (HARRIS LINES)

Garn, Silverman, Hertzog & Rohmann (1968) described in detail the appearance, nature and disappearance of these lines. They appear as transverse lines of increased density. They are more common in males than in females. Most occur before age 10 and most disappear before adulthood, the average individual line lasting no more than a few years. However, they are not uncommon in adults and have been reported previously in ancient bones (McHenry, 1968; Gill, 1968; Wells, 1967*a*). Considering the age of the population examined, one would expect to find most Harris lines some distance from the metaphyseal ends and several nice examples were found at this location, all in the tibiae. The exact number is not recorded because many observed faint transverse lines may be artefacts, but at least six fairly definite Harris lines were observed.

(h) LACK OF OTHER PATHOLOGY

The conspicuous lack of common bone pathology was as impressive as were the two examples of localized pathology cited here. There were no examples of healed fractures, osteomyelitis, tropical ulcer osteomas, arthritis, mycetoma, yaws, congenital defects, etc.; all are not uncommon in this tropical area.

(i) ACKNOWLEDGEMENT

I am grateful to Mr. S. G. H. Daniels, Sylvia Bohrer and Mr. N. Udoh for assisting with the radiography and Mr. J. A. Adewole for technical assistance.

5. IDENTIFICATION OF ANIMAL BONES

By D. C. D. Happold, *Department of Zoology, University of Ibadan.*

All the bone and tooth material excavated from Benin has suffered from long exposure to the forest soils. The bone is easily broken and can be scraped away with a finger nail; the enamel of teeth shows less decay, but few of the teeth are complete.

Most of the bones are in fragments. Some of these are recognizable, for example heads of limb bones, or parts of shoulder blades, ribs, and lower jaws, but many cannot be identified since they are so small and lack diagnostic features. There are no skulls or parts of skulls and only a few vertebrae. The majority of the recognizable bones are limb bones, or parts of limb bones.

The teeth are mainly fragments broken lengthwise from the high crowned teeth of herbivores. Since these complex teeth are made of sheaths of overlapping enamel divided by dentine which has decayed, the individual pieces of enamel have separated. These enamel pieces are from large herbivores, for example cows, goats. Some of the smaller fragments could be from indigenous herbivores, for example duikers. Only one sample contains teeth from a carnivorous mammal.

Most of this material is mammalian. Large mammal remains are abundant, and are presumably from domestic species (cow, goat, sheep, pig, dog), but some of these might be from wild mammals of similar size (warthog, duikers). Only one sample contains small bones, from an animal about the size of a small rabbit or cat. Since the large bones have decayed so badly, bones from small animals have probably completely disintegrated so that there is no record of their existence.

There are a few limb bones from large birds (chicken, duck) including one complete metatarsal with a spur. Fish are represented only by one vertebra, and there are several pieces of tortoise carapace.

NOTE BY G. C.

Because of problems of space an inventory of material has had to be excluded.

6. REPORT ON THE COWRY SHELLS

By Nora F. McMillan, *Department of Invertebrate Zoology, City of Liverpool Museums.*

Cowry shells were not numerous; their incidence is recorded on the small finds' location tables and out of a slightly larger total only 33 shells and fragments were considered worth submitting for identification. Many of the shells are perforated by having had the back broken in and in some cases little more than a narrow ring of shell remains.

Only one species is represented, as far as one can be certain when dealing with worn and mutilated specimens. This is the ringed cowry *Monetaria annulus* (Linné) (formerly *Cypraea annulus*), one of the two species (the other being *Monetaria moneta* (L.)) imported for use both as currency and ornament over much of West Africa. The two species are about the same size, an inch or so long, and both are strong glossy shells of some shade of yellow or cream. *M. annulus* is oval in shape with a rounded back, which is encircled, when the shell is fresh, with the orange ring from which the species takes its name. *M. moneta* is broader and much flatter, deltoidal to pentagonal in shape, and distinctly knobby with two, four or five callous tubercles on the margin.

Both species, two of the commonest living cowries, have an enormous geographical range through the whole Indo-Pacific region, from the Red Sea to Natal, from Japan to New South Wales, from Hawaii to Tuomotu. But neither species lives in the Mediterranean or the Atlantic or anywhere on the West African coast and any records from these areas must be rejected as being based on dead shells used as money or ornaments or toys and lost on the seashore (Schilder & Schilder, 1936).

The traditional source of most of the cowries used in West Africa is the East African coast and an eye-witness account of their collection and preparation in the Barjun Islands off the coast of Somalia is given by Travis (1967, p. 56). He describes how the backs of the shells are smashed in with a primitive hammer, then the cowries are washed and bagged and despatched to Zanzibar for distribution. Schilder & Schilder (1939, p. 200, footnote) state that the shells have been brought also from the Maldives etc. to Suez for shipment to West Africa.

It has sometimes been suggested that these perforated shells were produced by grinding or rubbing down the back but the Benin shells, where mutilated, appear to have been broken in and in no case was any evidence found of their having been ground down. Experiments with recent shells of *Monetaria annulus* show that it is very difficult to smash in the backs of the shells with a hammer. In this connection Mr. Philip Cambridge in his observations upon kitchen-middens in the Aden area writes (1966) that there are vast quantities of broken shells and goes on to say 'There are also pebbles with a hollow pecked out on each side and these I have called "anvils" and I assume that these were used to hold a round cowry or other shell while it was being broken. Tests with living shells show that this would work'.

In Benin cowries have been used for currency since the end of the fifteenth century (Pereira; quoted from Jackson, 1917, p. 151) and probably their use as ornaments is as old. Schilder & Schilder (1936) have pointed out, as did Jackson, that the area in which cowry shells were used as currency is much smaller than that in which they were used for ornament.

NOTE BY G. C.

The majority of the cowries recovered from the excavations came from superficial contexts. In only three instances were cowries found in an earlier association. These were all on the Benin Museum site where Cutting XIV, Pit 1 contained three shells, Cutting VI, Pit 1 a single shell, and Cutting III, Pit 2 a fragment of a single shell. All of these pit-fillings belong to Daniels' early group (p. 32). The condition of the shells that were recovered was so poor as strongly to suggest that specimens in earlier deposits may normally have been completely dissolved by the soil.

7. REPORT ON WOOD AND CHARCOAL SPECIMENS

By J. F. Redhead, *Department of Forestry, University of Ibadan.*

(a) WOOD

Specimens of wood which are sufficiently well preserved to be identified were restricted, with a single exception, to one context in the Benin excavations. This was the filling of the deep cistern, Feature 21, in Cutting II on the Clerks' Quarters site. The exception consisted of wood fragments from the back of the piece of decorated sheet 'bronze' referred to as Feature 1 in Cutting III of the same site. All of the 13 specimens submitted from the first source and the single specimen from the second source were iroko, *Chlorophora excelsa* (Welw.) Benth. The following anatomical features (Department of Scientific and Industrial Research, 1952) can be clearly distinguished:

Vessels: Density: 30–35 per 10 sq. mm. Size: 5–6.

Rays: Not storied. Density: 30 per 5 mm. Width: Size 4.

Parenchyma: Predominantly associated with the vessels, surrounding the vessels, confluent, broadly banded.

The majority of the specimens from the cistern are broad pieces of timber and with one exception these are all tangential pieces from trees of large diameter. These specimens are mostly thin, some rather less than ½ in. thick, yet the cells show no sign of collapse and it is likely that this was the original thickness of the wood. To cleave or shape such pieces would require considerable skill as the natural way for wood to split is radially, and it is hard to imagine how they could be cut without the use of a saw. Double-handled saws capable of cutting such a hard timber as iroko were in use in Europe and the Mediterranean areas before the thirteenth century A.D., which is the approximate date of deposition of these specimens, but I have no information on the use of saws in West Africa.

Samples from one of these wood specimens from the cistern were used to obtain radiocarbon dates I-2721, N-376 and I-3622.

(b) OIL-PALM NUTS

The specimens submitted are the common oil-palm *Elaeis guineensis* Jacq. One whole example and a fragment of another came from deep in the filling of Pit 1 in Cutting XVII of the Benin Museum site, a context which I understand from Mr. Connah is of late date. However, another fragment was found amongst the mass burial in Feature 21 of Cutting II on the Clerks' Quarters site, a context of approximately thirteenth century A.D. date, and a number of others were found in Pit 5 at the Usama site from which same context came the charcoal used to obtain the N-380 radiocarbon date. Mr. Connah tells me that there was also a fragment amongst the charcoal which composed the sample used to obtain the I-2723 radiocarbon date. These two dates refer to the fifteenth or sixteenth century A.D.

(c) CASTS OF WOOD

Two plaster casts of impressions of wood found in the filling of Pit 1 in Cutting XI on the Benin Museum site were also submitted for examination. It is not possible to be very specific about these except to say that one is of a flat, tangential, timber surface and the other is of a piece of twig.

(d) CHARCOAL

(i) *Introduction.* Examinations have been made of 72 charcoal specimens from the Benin excavations. Samples from small branchwood or from near the centre of the stem were rejected because reaction wood and juvenile wood is often not typical of a species's normal timber. Charcoal was prepared by snapping to give a clean fracture on the transverse, radial longitudinal, and tangential longitudinal planes. These were examined by reflected light; at $\times 20$ for parenchyma tissue, at $\times 90$ for measurement of vessel diameter and density, and ray width and density, and occasionally at $\times 250$ for cellular details of the rays.

The features recorded were those employed in the Forest Products Research Laboratory Lens Key to Hardwoods (Department of Scientific and Industrial Research, 1952). The card key used was mainly compiled at the Commonwealth Forestry Institute, Oxford, from botanically identified specimens of timber. In many cases enough cellular details could be observed to identify the sample to a single species, in others a short list of possible species was obtained. It was possible to identify 53 of the 72 samples with a reasonable degree of certainty. These are listed in the appended inventory.

The most frequently occurring species was iroko, *Chlorophora excelsa,* which comprised 15 of the 53 identifiable samples. All but one of these came from Cuttings I, II and III on the Clerks' Quarters site, which I understand is situated within the area formerly occupied by the Oba's Palace. Today iroko is often regarded as the King's timber and is given a pride of place above all other timbers locally used in Benin. It may be that at one time its use was reserved for the Oba.

Timbers now employed for most furniture manufacture are members of the mahogany family, the Meliaceae. Only two of the samples were from this group, *Entandrophragma cylindricum* (Sprague) Sprague (Sapele-wood) and *Guarea cedrata* (A. Chev.) Pellegr. (Scented Guarea). Most of the other species were heavy hardwoods, many of them favourite species for house posts. Such species are also very suitable for firewood or charcoal production because their high density gives a high calorific value per unit of volume. Their traditional uses are listed at the end of this report.

(ii) *Inventory of identified material.* In the following inventory are listed the 53 specimens which have been identified. Another 19 specimens for which no identification is possible, are not listed. About half of these were rejected because they consisted of small branchwood (see above) and the rest because the material was too distorted or too fragmentary. Authorities for specific names are cited in the list of traditional uses of the timbers represented (pp. 224–225).

Benin Museum site.

Cutting I: Pit 1	—*Afzelia* sp. **or** *Calpocalyx* sp. **or** *Fagara macrophylla* **or** *Piptadeniastrum africanum*
Cutting III: Pit 1	—*Macaranga* sp. (A mixture of other species also present.)
Pit 2	—*Guarea cedrata*
Cutting V: Pit 1	—*Afzelia* sp. **or** *Piptadeniastrum africanum*
	—*Afzelia* sp. **or** *Calpocalyx* sp. **or** *Fagara macrophylla* **or** *Piptadeniastrum africanum*
	—*Erythrophleum ivorense* (Identity doubtful; did not exactly fit the key.)
	—*Afzelia* sp. **or** *Albizia* sp. **or** *Calpocalyx* sp.
Cutting VI: Pit 1	—*Afzelia* sp. **or** *Piptadeniastrum africanum.* (Tissues very distorted and obscure.)
	—*Celtis brownii* (May be branchwood.)
Cutting VII: Superficial	—(a) *Berlinia* sp. **or** *Brachystegia* sp. **or** *Calpocalyx* sp. (b) Unknown (This sample was a mixture, principally of 2 species (a) and (b). The latter did not fit any species in the key.)
Cutting VIII: Pit 1	—*Celtis mildbraedii*
	—*Chlorophora excelsa.* (A mixture of at least 2 other species also present.)
Cutting IX: Pit 1	—*Berlinia* sp.
Cutting X: Pit 1, with burial	—*Chrysophyllum* sp. **or** *Tieghemella heckelii*
Cutting XIV: Pit 1	—*Diospyros* sp. (Ebony) **or** *Homalium* sp.
	—*Berlinia* sp.
	—*Berlinia* sp. **or** *Erythrophleum ivorense* and *Strombosia pustulata* (Other species are also present but are too fragmentary to identify. Before this sample was submitted for identification, part of it had been used to obtain the radiocarbon date N-378.)

—*Afzelia* sp. or
Fagara macrophylla or
Piptadeniastrum africanum

Cutting XVI: Pit 1 —*Afzelia* sp. or
Albizia sp. or
Distemonanthus benthamianus or
Erythrophleum ivorense or
Fagara macrophylla or
Piptadeniastrum africanum

Clerks' Quarters site.

Cutting I: Late: Layer 4A—*Polyalthia suaveolens* or
Xylopia quintasii
Layer 4B—*Chlorophora excelsa*
Feature 11—3 separate samples, all *Chlorophora excelsa.*
Middle: Layer 7—*Coula edulis* or
Strombosia sp.
Early: Feature 23—*Chlorophora excelsa*
Feature 12—2 separate samples, both *Chlorophora excelsa.*

Cutting II: Late: Layer 3—*Parinari* sp.
Layer 5—*Chlorophora excelsa*
Middle: Layer 8—*Celtis mildbraedii*
Early: Layer 14—*Celtis brownii* or
Holoptelea grandis
—*Chlorophora excelsa*
Feature 21
below 34 ft. 7 in.—3 separate samples, all *Chlorophora excelsa.*

Cutting III: Late: Layer 4—*Chlorophora excelsa*
Layer 5—*Scottellia coriacea*
Middle: Layer 8—*Chlorophora excelsa*
—*Baillonella toxisperma* or
Homalium sp. or
Macaranga sp. or
Vitex sp.

The Ogba Road site.

City Walls, Cutting III:
Primary silt—*Baillonella toxisperma*

The Reservation Road site.

City Walls, Cutting VI:
Humus—*Celtis mildbraedii* (Did not fit the key exactly.)
Body of wall—*Entandrophragma cylindricum* (Did not fit the key exactly.)
—*Celtis mildbraedii* or
Klainedoxa gabonensis or
Symphonia globulifera
—*Anopyxis klaineana*

Former surface soil —*Monodora* sp. or
Xylopia sp.
(Identity doubtful as details rather obscure.)
—*Chrysophyllum* sp. or
Tieghemella heckelii
(A mixture of other species also present.)

—*Combretodendron macrocarpum* (Other species also present including non-wood charcoal.)

Usama site.

Pit 5—*Berlinia* sp.
—*Scottellia coriacea* (Also included oil-palm nut fragments.)
—*Afzelia* sp. **or**
Calpocalyx sp. **or**
Fagara macrophylla **or**
Piptadeniastrum africanum
(A mixture of several other species, mainly small branchwood, also present.)

Pit 4—*Cola gigantea* **or**
Myrianthus arboreus **or**
Sterculia sp.
—*Baphia nitida*

(iii) *The traditional uses of the timbers represented amongst the charcoal*

Afzelia sp.	—Building and furniture
Albizia sp.	—Firewood, charcoal, and building
Anopyxis klaineana (Pierre) Engl.	—Firewood; heavy carpentry, but timber is very hard to work
Baillonella toxisperma Pierre	—Building and furniture
Baphia nitida Lodd.	—House posts and rafters
Berlinia sp.	—Mainly firewood, also building and inferior furniture
Brachystegia sp.	—Firewood and building construction
Calpocalyx sp.	—House posts; tool handles
Celtis brownii Rendle	—Firewood
Celtis mildbraedii Engl.	—Highly valued firewood
Chlorophora excelsa (Welw.) Benth.	—Building, carving and furniture. Traditionally the King's wood
Chrysophyllum sp.	—Firewood and carving
Cola gigantea A. Chev.	—Firewood, but rare in Benin
Combretodendron macrocarpum (P. Beauv.) Keay	—Firewood and charcoal
Coula edulis Baill.	—Very good house posts, charcoal
Diospyros sp.	—Carving, tool handles: especially for axes, house posts, charcoal
Distemonanthus benthamianus Baill.	—House posts and building
Entandrophragma cylindricum (Sprague) Sprague	—Furniture
Erythrophleum ivorense A. Chev.	—Heavy construction and charcoal
Fagara macrophylla Engl.	—Doors and heavy carpentry
Guarea cedrata (A. Chev.) Pellegr.	—Building and furniture
Holoptelea grandis (Hutch.) Mildbr.	—Firewood, inferior building
Homalium sp.	—House posts

Klainedoxa gabonensis Pierre ex Engl. var. *oblongifolia* Engl.	—Firewood
Macaranga sp.	—Firewood
Monodora sp.	—Tool handles, house posts, firewood
Myrianthus arboreus P. Beauv.	—Firewood
Parinari sp.	—House posts, building, firewood and charcoal
Piptadeniastrum africanum (Hook.f.) Brenan	—General carpentry
Polyalthia suaveolens Engl. & Diels	—House posts
Scottellia coriacea A. Chev. ex Hutch. & Dalz.	—House posts
Sterculia sp.	—Very good firewood
Strombosia pustulata Oliv. *Strombosia* sp.	—House posts, firewood, and charcoal
Symphonia globulifera Linn.f.	—Household utensils, planks
Tieghemella heckelii Pierre ex A. Chev.	—Building and furniture
Vitex sp.	—House building
Xylopia quintasii Engl. & Diels *Xylopia* sp.	—House posts, tool handles

8. IDENTIFICATION OF SAMPLES OF TREE RESIN

By D. A. H. Taylor, *Department of Chemistry, University of Ibadan.*

I have examined all the samples of tree resin recovered during the course of the Benin City excavations 1961–4 and am of the opinion that they all derive from *Canarium schweinfurthii* Engl. One of the Bini names for this is *onumu-kyukyu,* the first part of which means 'incense tree'. The resin gives off a fragrant odour when burnt and has doubtless been used in this and other ways in Benin during the past (Dalziel, 1937, pp. 315–316).

This identification has not been tested by chemical analysis as I understand that the archaeological significance of the material is not such as would warrant the necessary expenditure of time.

NOTE BY G. C.

With the exception of some pieces found in the filling of Pit 1 of Cutting III on the Benin Museum site, all the specimens of tree resin came from late or superficial deposits.

9. GEOLOGICAL REPORT ON THE ROCK SAMPLES

By S. J. Freeth, *Department of Geology, University of Ibadan.*

From a geological point of view the area around Benin City can be subdivided, as shown on the map (Fig. 63), into four major divisions each of which is underlain by a distinctive rock type. Furthest inland is the Basement Complex which is Precambrian in age and consists of a wide variety of crystalline rocks including granites and high-grade metamorphic rocks. This is overlain by Upper Cretaceous sediments which outcrop as a narrow strip running east-west about thirty miles north of Benin City. They are in general iron-rich sandstones and over most of this area iron-cemented laterites are developed on or just below the ground surface. The area around Benin City is underlain by fairly pure unconsolidated quartz sands which range in age from Paleocene to Pleistocene. These sands, which are over 1,000 metres thick under Benin City, have a low iron content and therefore are not covered by laterite. The coastal area is mainly swamp, based on the Recent alluvium brought down by the major rivers and on beach deposits.

All the rocks found in the excavations could have been derived from one or other of these major divisions:

PRECAMBRIAN

CQ I: Late: Layer 5

This rock, which was used to make a floor, is weathered granite and must have been brought into Benin City from at least 40 miles away. The sample contains angular grains of quartz and large regular-shaped masses of kaolin pseudomorphic after euhedral microcline feldspar crystals, the alteration of microcline to kaolin being due to the processes of weathering. Other minerals have decayed to give free iron oxide resulting in the rock being stained a deep shade of pink.

CRETACEOUS

BMS XIV: Pit 1

Iron-cemented conglomerate, made up of well-rounded quartz pebbles which make up about 25 per cent of the rock, and smaller, more angular quartz fragments of sand-size, cemented together with iron oxide, which is probably in the form of haematite. This rock could possibly have been smelted to give iron but would have been a fairly low-grade ore.

BMS XVII: Pit 1

This sample appears to consist of balls of consolidated iron-rich clay, coated with a layer of large quartz grains which are cemented together by iron oxide in the form of haematite. The balls have subsequently been broken to reveal their inner parts. Because of the bright red colour of the clay it would make a good pigment and may well have been used in this way.

BMS XVII: Pit 1

Iron-stained calcareous sandstone, which consists of quartz grains of sand-size set in a matrix of silt and calcite. It is highly iron-stained and contains a green mineral in moderate abundance which we have not been able to identify. One side has been ground flat and coated with a thin layer of calcite; this surface is unlikely to have

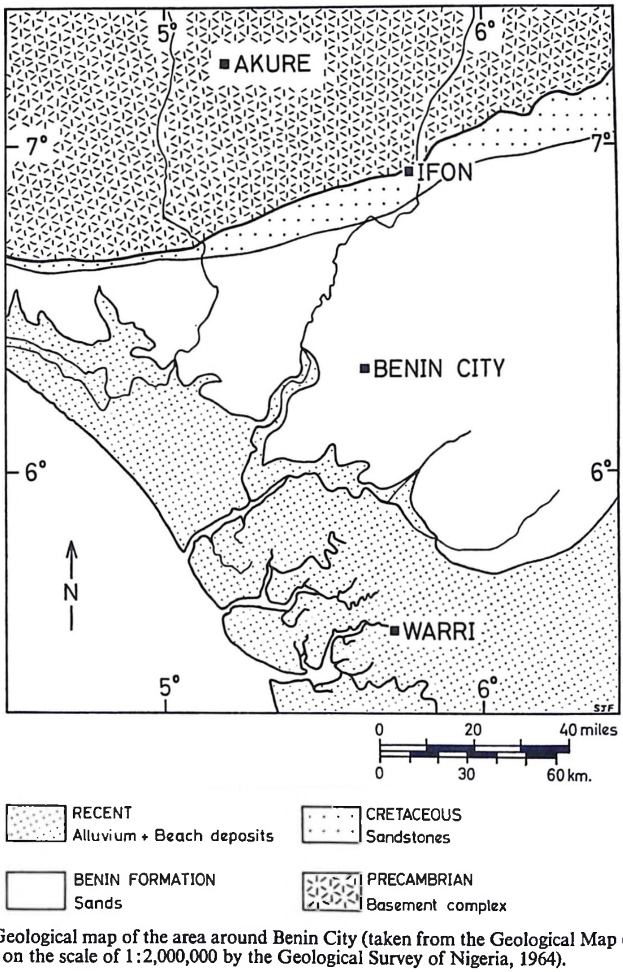

FIG. 63. Geological map of the area around Benin City (taken from the Geological Map of Nigeria published on the scale of 1:2,000,000 by the Geological Survey of Nigeria, 1964).

originated naturally. The whole sample may have been made artificially since it has many of the characteristics of a mortar.

CQ I: Late: Layer 4A

Ferruginous sandstone, the iron content of which is probably under 30 per cent; although this rock could have been smelted to give iron it would have been a very low-grade ore.

CQ I: Early: Layer 10

This is an oolitic ironstone. It contains less than 5 per cent quartz, the rest of the rock being made up of various oxides of iron. It is probably lateritic in origin, and is similar to the well-known lateritic iron ore from Lokoja (at the confluence of the Niger and Benue rivers). By analogy this ore may be expected to have an iron content of about 30 to 40 per cent and therefore be of relatively high grade.

TERTIARY

BMS XIV: Pit 1

The whole of the area around Benin City is underlain to a depth of over 1,000 metres by rock similar to this sample. It is a very friable sandstone, made up of rounded grains of quartz, as found in a beach sand, loosely held together by a matrix of iron-stained silt.

ARTIFICIAL

CQ III: Middle: Layer 9

This is a sample of glass and not a geological sample in the strict sense of the term. It has been highly altered, and would appear to have been buried beneath a fire or kiln, resulting in the surface layers mixing with the material from the surrounding 'earth'.

NOTE BY G. C.

Although stones were rare in the deposits excavated in Benin, they were not so rare as might appear from this report. Only a small selection of specimens was submitted to Dr. Freeth and their choice was based on two particular factors. Firstly he was sent specimens which looked as if they may have provided a source of iron, and secondly he was asked to examine several specimens of rather unusual appearance.

10. METALLURGICAL REPORT ON IRON SLAG AND OTHER SAMPLES

By R. F. Tylecote, *Department of Metallurgy, University of Newcastle upon Tyne.*

A selection of samples of iron slag excavated in Benin City during 1961–4 have been submitted for examination. It has been found that they fall into the following categories:

1. Plano-convex furnace bottoms which essentially consist of 2 $FeO.SiO_2$ and are the result of small-scale smelting.

2. Plano-convex smithing furnace bottoms which consist of Fe_2O_3, fuel ash, and probably magnetite which result from the heating of metal for forging.

3. Iron-smelting tap slag which has the same formula as (1) but which has been allowed to run out of the furnace in a fluid state.

4. Cinder, which is partially reduced iron ore or porous slag that has *not* flowed out of a furnace.

While the smelting slag and cinder compositions approximate to 2 $FeO.SiO_2$, they may on occasion carry some Wüstite (Fe_xO) in which case they tend to be very heavy, or free iron or magnetite (Fe_3O_4) in which case they are magnetic.

Typical examples of the composition of smelting and smithing slags will be found in Tylecote (1962).

Samples of non-ferruginous remains have also been examined. Bags 53–7 contained the remains of crucibles used for non-ferrous melting. It was found that the material in Bag 55 underwent 8·5 per cent loss of weight upon ignition and it is thought that all of this would be carbon (perhaps as charcoal) which improves the conductivity of crucibles and which is a common addition to a crucible clay.

Bag 6 contained fuel ash derived from copper-base melting. This has been examined by Dr. M. H. Battey of the Department of Geology, University of Newcastle upon Tyne, who found that it consisted of copper residues with 3 per cent zinc and no tin nor lead. It would appear that it was brass which had been melted.

The detailed identifications of all the samples submitted are given below.

Archaeological context	Sample bag number	Description	Iron slag category
Benin Museum site			
Cutting I:			
Superficial	50	Iron smelting tap slag; very magnetic	3
Pit 1	38	Small non-magnetic furnace bottom	1
Cutting II:			
Superficial	56	Fragment of crucible used for non-ferrous melting	–
Cutting III: Pit 2	32	Heavy, non-magnetic, smelting slag	3
Cutting V: Pit 1	25	Iron smelting slag	3
Cutting VIII: Pit 1	47	Heavy non-magnetic iron smelting slag	3
Cutting X: Pit 1	16	Iron smelting slag	3
Cutting XI: Pit 1	13	Smelting slag	3
	37	Iron smelting cinder	4
Cutting XIV:			
Superficial	2	Heavy non-magnetic smelting slag	3
Pit 1	4	2 pieces of slag	3
	12	Smelting slag	3
	23	1 piece of cinder	4

Archaeological context	Sample bag number	Description	Iron slag category
Cutting XVI:			
Superficial	10	Furnace bottom	1
	45	Iron smelting slag; magnetic	3
Cutting XVII: Pit 1	53	Fragment of crucible used for non-ferrous melting	–
Clerks' Quarters site			
Cutting I:			
Superficial:			
Layer 2	8	Magnetic iron smelting slag	3
	28	Iron smelting slag	3
Late: Layer 3	24	Iron smelting slag; non-magnetic	3
Layer 4	19	Heavy magnetic smelting slag	3
Layer 4A	33	Smelting slag or smithing furnace bottom	2 or 3
	34	Smelting slag or smithing furnace bottom	2 or 3
	40	2 pieces of slag, 1 furnace bottom	3, 1 or 2
Layer 4B	20	Magnetic smelting slag	3
Feature 7	27	Small piece of slag much contaminated with wood ash	4
Feature 4	22	1 piece of furnace bottom	1
Feature 9	6	Fuel ash containing copper-base alloy debris	–
Feature 1	5	Slag. Solidified in contact with flat surface	3
Layer 5	49	Iron smelting cinder	4
Middle: Layer 7	18	Magnetic slag with soil	3
	30	3 pieces of furnace bottom	1 or 2
	55	Fragments of crucible used for non-ferrous melting	–
	57	Fragments of crucible used for non-ferrous melting	–
Early: Layer 10	14	Smithing furnace bottom (magnetic)	2
Layer 8	1	Furnace bottom with adherent fuel ash	1 or 2
Cutting II: Late:			
Feature 3	44	1 piece of furnace bottom; 1 piece of slag	1, or 2, 3
	41	2 pieces of slag, 1 furnace bottom	3, 1 or 2
Layer 4C	31	2 pieces of magnetic slag	3
Middle Layer 7	48	3 pieces of magnetic iron smelting slag	3
Feature 7	52	1 piece of smelting slag with entrapped charcoal; another of slag and a furnace bottom	4, 3, 1 or 2
Layer 8	43	2 pieces of furnace bottom	1 or 2

Archaeological context	Sample bag number	Description	Iron slag category
Early: Layer 9	21	2 small pieces of slag	3
Cutting III: Late:			
Layer 5	54	Fragment of crucible used for non-ferrous melting	–
Feature 2	51	2 pieces of smelting slag; 1 heavy and slightly magnetic	3
Middle: Layer 8	29	2 pieces of heavy magnetic slag. Either from iron smelting or forging	3 or 2
Ogba Road site			
Cutting CW III:			
Primary silt	17	Smelting cinder with adherent vitrified clay	4
	36	Non-magnetic iron smelting slag	3
Reservation Road site			
Cutting CW VI:			
Body of wall	9	Iron smelting slag	3
	11	Non-magnetic smelting slag	3
Usama site			
Superficial	35	Iron smelting slag; magnetic	3
	39	1 piece of heavy smelting slag	3
	46	1 piece of very weathered slag	3
Pit 1	7	Part of furnace bottom	1 or 2
	26	Slag; probably furnace bottom	1 or 3
	42	Iron smelting slag	3
Pit 4	15	Pieces of smelting slag	3

11. ANALYSIS OF 'BRONZES' FROM BENIN

By Thurstan Shaw, *Department of Archaeology, University of Ibadan.*

The spectrographic analyses of seven of the 'bronze' (p. 138) objects excavated from Cuttings I, II, and III on the Clerks' Quarters site, and of three of those from the hoard in Cutting IV on that site, are given in Table 26. The analyses were carried out by Mrs. Ann Millett of the University of Oxford Laboratory for Art and Archaeology, by kind arrangement with the Director, Dr. E. T. Hall.

It will be seen at once from the table that the objects from the hoard in Cutting IV on the Clerks' Quarters site are quite different in composition from those excavated from the early phase of Cutting II on that site. The latter are tin bronzes with very little zinc and lead content, while the former can all be described as leaded brasses. What significance, if any, lies in these differences?

TABLE 26

ANALYSIS OF 'BRONZES'

Drilling Reference Number	Type of object	Excavation Register No.	Illustration reference	Cu	Sn	Pb	As	Sb	Ni	Bi	Fe	Zn	Ag	Laboratory Number
Bin 20	Decorated (manilla ?)	CQ II f21 M183	Fig. 44, 1	88·5	10·0	0·25	n.d.	n.d.	n.d.	n.d.	0·086	1·2	0·026	46
Bin 21	Decorated (manilla ?)	CQ II f21 M182	Fig. 44, 2	89·1	10·8	n.d.	n.d.	n.d.	n.d.	n.d.	0·060	n.d.	0·024	47
Bin 22	Decorated (manilla ?)	CQ II f21 M186	—	90·2	9·4	0·15	n.d.	n.d.	0·057	n.d.	0·030	0·11	0·029	48
Bin 23	Decorated (manilla ?)	CQ II f21 M185	—	89·4	8·6	0·18	n.d.	n.d.	0·066	n.d.	0·46	1·3	0·030	49
Bin 24	Decorated (manilla ?)	CQ II f21 M184	—	90·9	8·6	0·16	n.d.	n.d.	0·084	n.d.	0·20	n.d.	0·023	50
Bin 37	Bracelet	CQ II f21 M166	Fig. 45, 3	90·8	7·9	0·60	n.d.	n.d.	0·074	n.d.	0·21	0·38	0·027	60
Bin 35	Bracelet	CQ II f14 M126	Fig. 45, 2	88·6	11·0	0·23	n.d.	n.d.	0·046	n.d.	0·16	n.d.	0·021	59
Bin 25	Segment of armlet	CQ IV, hoard, 107/8	Fig. 43, 3	77·3	3·4	11·3	0·79	2·1	0·55	n.d.	0·36	4·1	0·13	51
Bin 26	Segment of armlet	CQ IV, hoard, 107/3	Fig. 44, 6	83·1	2·0	4·9	n.d.	0·17	0·25	n.d.	0·32	9·2	0·059	52
Bin 27	Fragment of double gong	CQ IV, hoard, 107/17	Fig. 39, 1	77·0	0·82	7·6	n.d.	0·49	0·23	n.d.	0·80	12·9	0·063	53

NOTES: 1. The figures are percentages of total metal.
2. n.d. indicates not detected.
3. Analysis was by quartz emission spectroscopy.

Until recent years there were less than a dozen published analyses of Benin 'bronzes', all made 50 years ago or more, and it was suggested that in Benin objects of brass were early and objects of bronze were late (Fagg, W. 1963, p. 35; Willett, 1964, p. 81). A recent re-examination of the evidence (Shaw, 1970*a*) has, however, cast doubt on this suggestion and the analyses of relatively large numbers of 'bronzes' from Benin in the last few years confirms this doubt.

Analyses have been carried out on 30 specimens from Benin in the Cambridge University Museum of Archaeology and Ethnology (Shaw, 1967) and on 35 specimens in the Benin Museum (Shaw, 1969). Out of these 65 pieces, among which are numbers of specimens likely to belong to Fagg's 'Middle' and 'Late' periods, only two are of tin bronze (6 per cent to 10 per cent tin, less than 1 per cent zinc), the remainder being of brass (2·4 per cent to more than 20 per cent zinc). Mr. S. G. H. Daniels has carried out a principal components analysis of 29 quantitatively analyzed 'bronzes' from Benin (including the excavated specimens) in the hope of simplifying the data and determining what constituents were alloyed with which (*In* Shaw, 1969). The results are shown in Fig. 64.

The pieces of which analyses are given in Table 26 are the only ones from Benin to have dates attached to them by means of strictly archaeological evidence, and therein lies their special value. Whatever the interpretation, they present a consistent pattern. The possible manillas and the bracelets from Cutting II on the Clerks' Quarters site, dated to the thirteenth century, are all of bronze; the objects from the hoard in Cutting IV on that site, whose deposition is dated not earlier than the nineteenth century, are of various kinds of leaded brass. This is insufficient evidence on which to declare roundly that at Benin bronze is early and brass is late, but it does cast yet further doubt on the validity of the earlier statement that the opposite holds good.

12. FRAGMENT OF IMPORTED SWORD

By A. N. Kennard, *The Armouries, H.M. Tower of London.*

This object (Fig. 50, 9) is certainly part of a European sword hilt; to be exact it is the shell-guard from a civilian hunting-sword, or 'hanger', dating somewhere between 1700 and 1750. It could be of either Dutch or German manufacture, but I suppose a Dutch origin is more likely considering where it was excavated.

13. SHERDS OF IMPORTED EUROPEAN WARES

By R. J. Charleston, *Department of Ceramics, Victoria & Albert Museum, London.*

These sherds represent glazed earthenware and stoneware from a variety of European sources, ranging in date from the late seventeenth century to the second half of the nineteenth century.

BENIN MUSEUM SITE

Cutting XVIII: Superficial. Fragment of buff earthenware with tin-glaze ('maiolica' or 'faience'), painted in blue and purple. Probably Portuguese; second half of seventeenth century. Probably from a dish.

CLERKS' QUARTERS SITE

Cutting II: Middle: Layer 4B. Fragment of red earthenware with lead-glaze on the outside tinted green and applied over a white slip. Origin uncertain, probably North Mediterranean; date uncertain. Part of an ovoid jar?

Cutting III: Late: Layer 4. Various re-assembled fragments of a bowl, whitish earthenware with moulded designs of tropical vegetation and animals, among them an elephant, under a yellow glaze. Possibly German, Belgian, or Eastern French, second half of nineteenth century. (Fig. 51, 1 and 2.)

Cutting III: Middle: Layer 8. Rim fragment of greyish-white stoneware with cream

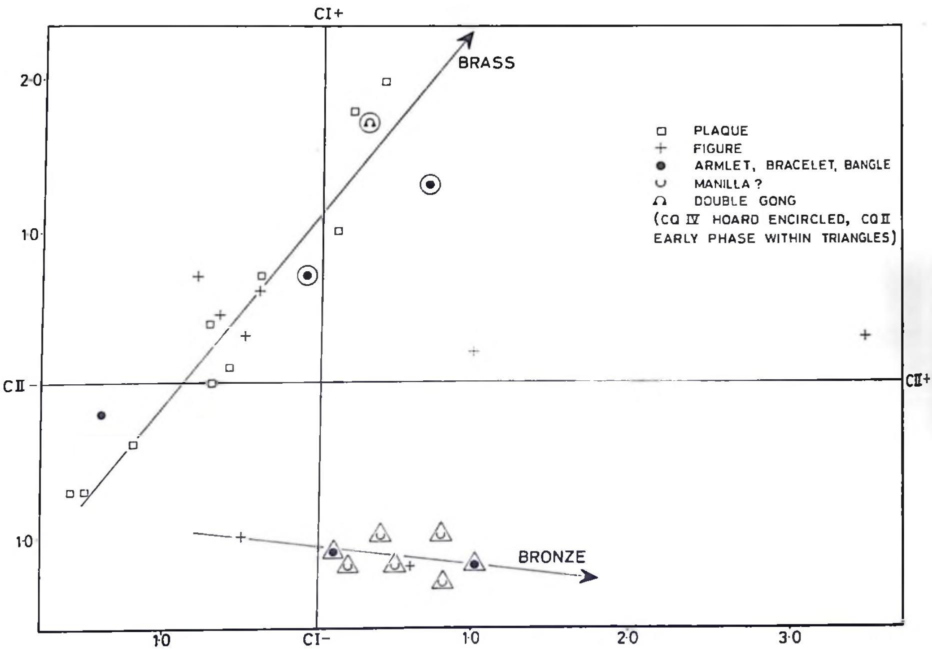

FIG. 64. Plot of principal components analysis of 29 quantitatively analyzed 'bronzes' from Benin. The two distinct cigar-shaped distributions, emphasised by the subjectively drawn arrows, appear to represent the products of two separate alloying processes. The percentage of copper in the alloy is less towards the heads of the arrows. Figure after Daniels.

slip and salt-glaze, the rim coloured brown. English (probably Staffordshire); probably first quarter of eighteenth century. Apparently part of a cylindrical mug.

Cutting III: Middle: Layer 8. Three fragments of greyish-white stoneware with salt-glaze and incised designs; the glaze partly coloured blue and purple. German (Rhineland, probably Westerwald); late seventeenth—first half of eighteenth century. They may be from one vessel, possible a wine-jug.

NOTE BY G. C.
Only a small selection of the European sherds were submitted for identification, preference being given to earlier ones.

14. EUROPEAN SMOKING-PIPES

By I. C. Walker, *National Historic Sites Service, Department of Indian Affairs and Northern Development, Ottawa, Canada.*

The comments on the pipes illustrated in Fig. 50, 2–6 are based on a copy of the illustration kindly supplied by Mr. Connah. The remarks are to some extent tentative as the pipes themselves were not examined by the writer. It is assumed that the examples, or at least Fig. 50, 2 and 4–6, are white in colour. (White-firing ball clay was used for the vast majority of European clay tobacco pipes.)

Figure 50, 2 and 4-6 appear to be typical examples of nineteenth century pipes, probably of English origin. Fig. 50, 2, according to Mr. Connah was the most common bowl-shape found, and it is certainly an example of the pipe-type known as a TD. TD pipes have a history of over 200 years, and a preliminary study of this type by the writer (dealing mainly with the eighteenth- and early nineteenth-century varieties) appeared a few years ago (Walker, 1966). The bowl-shape indicated here certainly occurs on sites of the mid-nineteenth century in North America, but apparently not on sites there of the early nineteenth century, though at present there is a lack of stratigraphically excavated sites which would add precision to this dating. However, on present evidence this shape seems not to be earlier than *c.*1840.

TD pipes of this shape were extremely common in the last century, and appear to have been primarily a product of the Glasgow pipe-industry, Glasgow being at that time the centre of the British industry. As late as 1900, when Glasgow's heyday as a pipemaking centre was over, four makers there were still listing among them forty-one varieties of TD pipe. McDougall's, who appear to have been the major exporting firm, listed twenty-two types and one of these was still being made when the firm closed in 1967—the last surviving pipemaking firm in Glasgow and the second-last in Britain (Walker & Walker, 1969). Normally the letters T and D appear on the side of the bowl facing the smoker, though often they become blurred and indistinct either from clay adhering to the letters in the mould or from the wear of the clay itself on the mould.

Fig. 50, 4–6 bear decoration typical of many nineteenth century pipes. Unfortunately there are so many types, and so many makers used identical designs, that it is generally impossible to identify a maker from bowl-ornamentation. Fluted decoration was appearing on bowls of pipes sent to North America by *c.*1780 (Noël Hume, 1963, p. 262, Fig. 105)—generally it can be assumed that pipe-bowls decorated in the manner of the examples here will not occur in contexts datable much before the end of the eighteenth century at the earliest.

Fig. 50, 3 presents a problem. It seems likely that it is not European-made at all but a native-made example. The shape has some similarities to Dutch bowls but neither form of decoration nor the angle at which the bowl is set to the stem, nor indeed the over-all appearance, suggests this to be a Dutch pipe.

NOTE BY G. C.

Fig. 50, 3 was of brown clay.

15. IDENTIFICATION OF FIBRES AND WEAVES IN CLOTH FRAGMENTS FROM FEATURE 21 IN CUTTING II ON THE CLERKS' QUARTERS SITE

By M. Greeves, *Shirley Institute, Manchester.*

The specimens consisted of fragments of fabric which, considering their probable age, were in a very well preserved condition, the fabric and yarn structures being clearly visible with a low-power microscope. All six specimens consisted of fragments of similar types of fabrics. The condition of the fibres was such that it was not possible to identify them with certainty; they were completely opaque and brittle. There were, however, with two exceptions, distinguishable features such as convolutions, lumen, and cross-sectional shape, which suggested that the yarns were most probably spun from cotton fibres. The two exceptions were obviously woven from some flat grass or straw-like material possibly obtained from the leaves of the raphia palm, but again positive identification was not possible. Plate 45 illustrates one of these fabrics and it is interesting to note the two pairs of fine two-fold yarns inserted into the weave at intervals, presumably to give the fabric stability.

The fabrics were made up of single, two-fold, and multi-ply yarns, the latter having as many as seven components. All the single yarns were highly twisted in the Z direction and in all cases the doubled yarns were twisted Z on S.

The majority of the fabrics were woven with a plain weave structure and many of them resembled the poplin type of fabric, i.e. a fabric in which there are about twice as many warp yarns as weft yarns, the highly crimped warp yarns forming a distinct weftway rib where they bend round the almost straight weft yarns. In some instances the plain weave was decorated by blocks of matt or basket-weave and in some specimens coarse, cord-like threads were woven into the fabric to form a pattern on one face. Several fragments of fabric contained open lace insertions and long floats of yarn on the fabric surface which were obviously part of a decorative design. Plate 46 shows the coarse cabled yarns and the fine plain weave backing fabric beneath. Plates 47 and 48 illustrate the open lace-like effect. The structure of these fabrics suggests that they are more likely to be fragments of lace (or similar structure) rather than parts of a woven fabric. There were also pieces of plain weave fabric which contained coarse folded yarns at regular intervals and these gave the fabric a pronounced rib effect. Some other fragments appeared to be either a satin or sateen weave.

From the accuracy and precision with which the yarns and fabrics were made, and the intricacies of the patterns, it seems certain that they were made by skilled craftsmen of a fairly advanced civilization.

16. A WALL AND DITCH SYSTEM NORTH OF BENIN CITY

By A. R. Rees, *Glasshouse Crops Research Institute, Littlehampton, England, formerly of W.A.I.F.O.R., near Benin City.*

The existence of earthworks other than those associated with the larger towns and villages in Mid-West Nigeria has been realized for some time. Even the casual traveller observes large walls and ditches running parallel with or at an angle to the main roads, then disappearing into the forest. Others, more concerned with soil or vegetation—soil scientists, surveyors, foresters—come across man-made, or apparently man-made, mounds, pits, and walls in the forest, but even these observers can have little idea of the extent and frequency of occurrence of the walls in forest conditions.

A unique opportunity for a survey of a wall and ditch system occurred at the Main Station of the Nigerian Institute for Oil Palm Research, formerly the West African Institute for Oil Palm Research, and before that the Oil Palm Research Station, situated just off the Benin–Ibadan road, eighteen miles (by road) north of Benin.

(a) THE INSTITUTE

A total of 4,285 acres of land formerly in forest reserve was acquired just before the Second World War. Nearly the whole of the area has been marked out into 100-acre fields, each of dimensions 800 by 605 yards, and as the planting programme progressed, these fields were surrounded by roads. The vegetation was cleared from parts of fields, or whole fields, depending upon the experimental requirements, usually, but not invariably, by directional felling of the trees, followed by burning-off. After planting with palms, the areas were kept free of vegetation re-growth during the early years of palm establishment.

The grid layout considerably facilitated the marking-out of positions of walls and other features of interest, and the method of bush clearing allowed (at certain stages in plantation development) fairly easy access to the fields and reasonable sightings of directions taken by the wall.

An aerial survey of the Institute was made in 1950, but the photographs were of only limited value because even secondary forest growth conceals all traces of surface features. For farmed areas near the Institute boundary, however, wall sections were clearly visible on the aerial survey photographs.

The Institute's Main Station (6° 33′N., 5° 37′E.) is at an altitude of 490 ft. above

Mean Sea Level, somewhat higher than Benin City and occupying a fairly prominent position on land variously described as rolling upland surface or a dissected plateau. About 3,500 of the total of 4,285 acres are on the upland surface and the remainder are on the irregular slopes or terraces of a valley which is 400 ft. deep and has a small, permanent, fast-flowing river at the bottom—the Okhuo. The areas of steep slope are indicated on Fig. 65.

(b) THE FOREST

There is no virgin forest in the part of Benin Province occupied by the Institute's

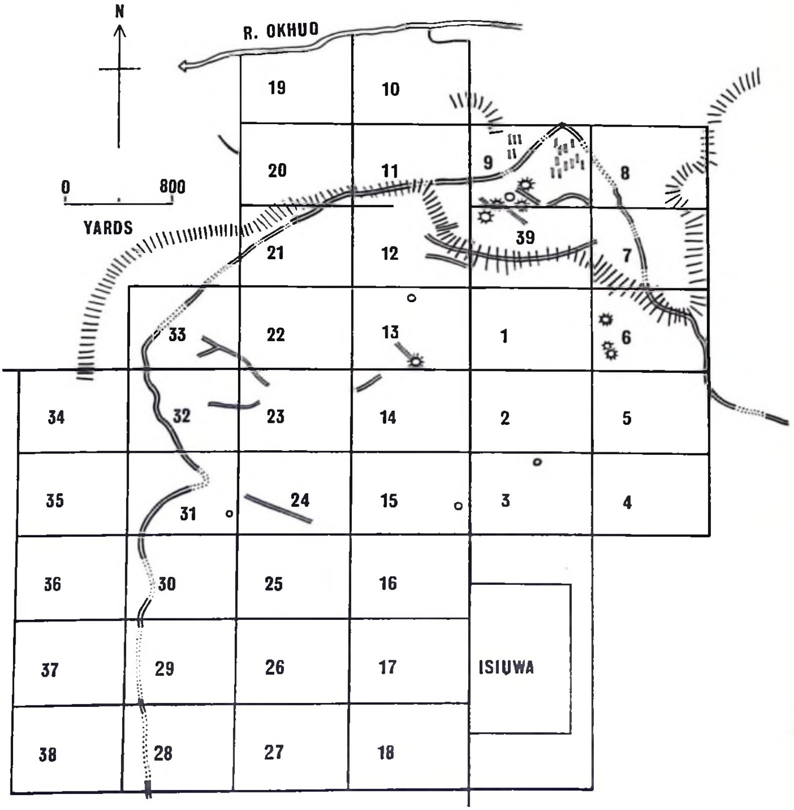

FIG. 65. Map of the Main Station of the Nigerian Institute for Oil Palm Research near Benin City. Observed sections of wall are shown as a double line; where sections have been destroyed, or were not followed, the probable course is dotted. The steep slopes to the north of the Institute have been indicated by hachuring, pits by circles, mounds by circles with starred rims. The fields, each 800 × 605 yards are 100 acres in area, and are numbered according to the Institute plans.

Main Station, but there are considerable areas of very old re-growth (forming High Forest) and many large valuable timber trees, together with land which has been periodically cropped for a short time and then allowed to revert to secondary forest for periods of the order of 15 to 20 years. The site is midway between the boundaries of the lowland rain forest belt. The population was low (fewer than eighty per square mile) until the Institute expanded in the 1950s.

As might be expected, little is known of the history of the forest. Pottery is frequently found, together with fragments of oil-palm fruit shells and charcoal or fire-blackened layers in the soil. These are all indicative of human habitation. Jones (1956) argued that the pottery and charcoal leave no doubt that the whole of even what is now continuous forest has been cultivated and inhabited at one time, supporting at most patches of secondary forest or palm groves which grew into continuous, supposedly 'primary', forest after depopulation. Jones envisaged a country very different from that now existing and more like that near Owerri at the present time: abundant oil-palm groves, and groups of huts and small patches of cultivation covering very large areas, a form of 'derived savannah'.

(c) THE WALL

About 6·3 miles of wall and ditch similar to the Benin City outer walls are traceable on the Institute's Main Station (Fig. 65). The tracing of the wall was done largely in 1961 and 1962, using the roads then opened up and the fields then cleared. Only those parts which were clearly visible or were followed, are shown on Fig. 65; where it is assumed that the wall continues, the line has been dotted in.

In general, the wall follows a single course, so that the dotted lines may be accepted with some certainty. Only at one position was there a marked change in direction which was not seen; this was in Field 31, and associated with the change in direction was a subsidiary wall, running north-west to south-east across Field 24. The main wall, if this term can be retained for what appears to be a peripheral wall, continued across the Field 31–30 boundary and on, southwards. There was a large depression in the middle of Field 31 where the main wall was not followed, and this may have been a meeting place of the three walls. The main wall, with ditch on the outside, varied in height but was seldom higher than 5 ft. above the surrounding ground level, being considerably less impressive than some of those of Benin City and comparable with the outer walls.

In addition to the main wall, the smaller walls were observed frequently ending blindly and often having no connection with the main wall. These were usually less well-defined and lower than the main wall, and it is suspected that many smaller walls have been obliterated, especially during the laying out of the residential area. Others, either in high forest or under well-established palms would not have been observed, and no claim is made for completeness.

As the wall left the Institute in two directions at right angles, to the east and to the south, an attempt was made to observe its relation to the Benin–Akure road (Fig. 66). A wall clearly crosses this main road about a mile west-south-west of the Institute road junction, and is the same wall as that leaving Field 28. The course was followed on foot south from the Institute. Somewhere between Field 28 and the main road, a major branch to the west was observed and followed for some distance, beyond which the wall continued. South of the main road, the wall was again followed, but without surveying equipment. It was estimated that about two miles south-east of the road the wall turned eastwards, about a mile from the stream running west–east in the forest. Eastwards from Fields 5 and 6 the wall was visible on an aerial survey photograph. A wall crosses the Benin–Akure road at mile 216. It can only be assumed, with no supporting evidence, that this is part of the same wall. Necessarily the observations made on the wall south and east of the main road, and those between mile 216 and the Institute are very speculative, and a full survey would be required to confirm the tentative course. If it is assumed that the two ends of the wall do meet, then the whole length of the wall would be not less than 16·5 miles.

The relation of the wall to topography is not easy to illustrate on Fig. 65. Certainly there is no close correspondence between the position of the wall and the steep slopes between the terraces to the north of the Institute, and at more than one spot the wall follows a diagonal course down a steep slope (Fields 11 and 6). The highest point on the Institute is probably that occupied by the water tower along the roadside between Fields 2 and 14, and is about 150 ft. higher than the 490 ft. quoted earlier as the height of the Institute, which is actually at the meteorological site in Field 1. Perhaps it is coincidence that this is near the centre of the three-sided figure bounded by the main wall on the Institute, and that the wall follows very approximately the higher ground in the northern part of the Institute. The position of the wall between two watercourses may indicate that they form a more natural barrier than steep slopes.

Subsidiary walls were observed on a number of sites, but especially in the area of Fields 9 and 39, and, more scattered, in the region of Fields 32, 33, and 24. A number of mounds of the type described by Jones (1956) were scattered over the whole area, and were accompanied by some considerably larger mounds, up to 7 ft. tall and 40 ft. in diameter. A number of pits were also found, and whilst it is felt that a number of these may be old sawpits or even animal traps, perhaps of considerable age, some must surely not be. Their enormous size, and the absence of any corresponding heap nearby, suggests that they were made in order to remove soil, possibly for constructing houses. Three of these pits are very large; these are in Fields 31, 15, and 3, and there is a group of pits and heaps in Fields 9 and 39. A further curious feature in Field 9 is a series of almost parallel walls, but as there is a village north of this site at present, these walls may be more recent.

Apart from artefacts of pottery and glass, only one of the objects found, an iron spearhead now in the possession of the author, was worth mentioning. This 'appeared' when part of the main wall was removed during the levelling of the compound of a new house.

Vine (1956), describing soil profiles on the Main Station, especially in Field 33, stated that the construction of the 'defence ditch' appears to have caused disturbance of the soil only for a few yards on either side.

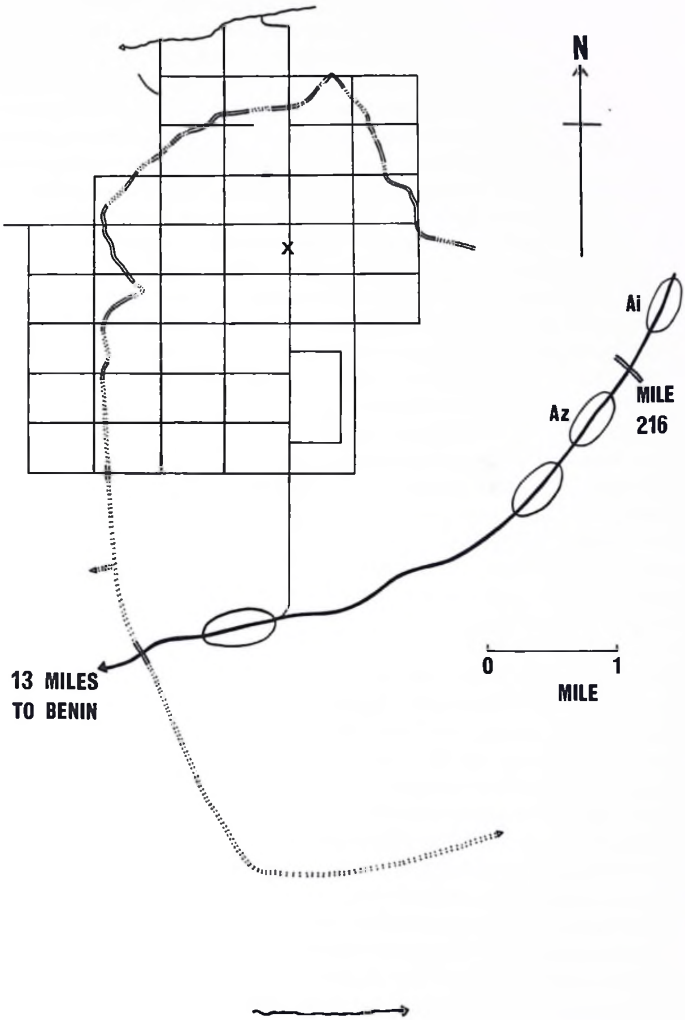

FIG. 66. Sketch map of the relation between the Main Station of the Nigerian Institute for Oil Palm Research, the Benin–Akure road and the wall. Villages are marked on the road: Az = Azalamoa, Ai = Aihuobabekun. The highest point on the map is shown by an X.

(d) DISCUSSION

The wall encloses or partly encloses a considerable area of land, not well-demarcated topographically, and it may be speculated that it is a boundary of a village or group of villages and their associated territory. The length of the wall, probably 16·5 miles, and the area enclosed, about 17 square miles, argues for a considerable population density in order to construct and/or defend the necessary length of wall, and to enclose such a large area. Further, such a wall would have only a limited value in a forest as a defensive structure, and it perhaps supports such meagre evidence as is available that the vegetation was less thick than at present—perhaps more savannah-like. Zeven (1963) estimates population densities of 200–525 per square mile for the development of 'Bush Fallow Rotation', described as 'all land is in use . . . farmland communally owned'. This estimate would give a total population in the 'community' of about 6,000.

Perhaps one can imagine a village or village complex, surrounded by open farmland, and supporting a high population density. The present high forest with low population must have resulted from a major depopulation, possibly caused by warfare, which allowed forest regeneration and the decay of the villages. The enclosed area is larger than those developed around Benin, and has a less complex 'cellular' structure. In the 11·5 miles or more investigated closely, there is only one, and possibly a second, branch wall. This might perhaps be expected in a more rural community with a fairly high population density but without the land pressure which occurs around a city. The true relation of these walls to those of Benin and to other earthworks in the forest must await further investigation.

17. HISTORICAL IMPLICATIONS

By A. F. C. Ryder, *Department of History, University of Ibadan.*

Two years before Graham Connah began his work in Benin the late Dr. R. E. Bradbury had written, 'The primary requisite for a historical study is some kind of time-scale, however tentative or relative. The problem of setting up a chronology for Benin history involves all the disciplines and methods at our disposal and at this point it is impossible to assemble and analyze all the evidence' (Bradbury, 1959, p. 264). He then proceeded to examine chronologies based on oral tradition (in particular those recorded by Talbot (1926) and Egharevba (1960)) in order to arrive at what he described as 'a useful tentative time-scale for our historical studies'. Documents available in a number of European archives have enabled me here and there to modify or confirm various points in that time-scale (Ryder, 1969), but only too often I have been conscious that the accepted broad outlines of Benin history rested almost entirely on faith in oral tradition and too many untested hypotheses. With a substantial body of archaeological findings now at our disposal the position is radically changed and we can handle Benin chronology with far greater assurance than ever before.

By making the two palace sites the focus of his excavations, Mr. Connah has made significant progress towards stabilizing the dynastic chronology and suggested very clearly what more needs to be done to make it secure. He has also, by mapping the so-called walls, established a frame of reference within which the problem of the development of Benin as a city and capital may be pursued. The map (Fig. 23) shows these 'walls' to be a honeycomb of linear earthworks delimiting territory, and not, with the possible exception of the large inner rampart and ditch attributed to Ewuare, defensive fortifications. They suggest that Benin City may originally have been an aggregate of small groups living in proximity to one another in forest clearings. Further afield the clearing of the NIFOR estate has revealed an analogous but simpler system, and one suspects that investigation of the many isolated stretches of earth rampart observed in several parts of the Benin region would bring to light numerous other examples.

Tradition has nothing to say directly about these earthworks, except to make a probably erroneous attribution of two series of defensive works to Oba Oguola. So strong has become the hold of the city idea that the older form of territorial organization has vanished from memory, and its material remains are explained by reference to the concept of a citadel where they have not equally vanished from sight beneath a thick tangle of thorn bush and secondary forest. Thus it is that we get comparatively little help from tradition if we seek to follow the evolution of the city: a feeling exists that it must always have been there. Perhaps the sequence of events was one in which the typical Edo village was enlarged by an aggregation of lineage groups; from these could have evolved the system of hereditary chieftaincy represented in Benin by the Uzama chiefs, while the position of the Ogiso, the semi-legendary rulers of the first dynasty, may have been that of a paramount chief. Further study of the lesser earthworks, with a view to establishing their age and order of construction, should shed some light on these problems.

For the next phase of Benin history, beginning with the establishment of the Oranmiyan dynasty, we are on somewhat firmer ground now that it has become possible to relate the traditional account to archaeological data. Egharevba (1960) puts the arrival of Oranmiyan in 1170, Talbot (1926) in 1300; Bradbury (1959), basing his calculations on the genealogical evidence, inclined towards the latter date. The excavations at Usama are relevant to this point because tradition has it that 'Prince Oranmiyan took up his abode in the palace built for him at Usama by the elders' (Egharevba, 1960, p. 7). Although only part of the site has been excavated, it has revealed remains of an early building beneath deposits which suggest only intermittent occupation: a sequence which accords well enough with the tradition that the early palace was occupied for only three reigns, and that the area thereafter remained open, being used only for temporary structures erected during coronation ceremonies. The radiocarbon date obtained from Usama does not enable us to be any more precise in fixing the arrival of the new dynasty, but it does indicate a period consonant with the genealogical and traditional evidence, and this is a great gain, for there was previously no means of gauging their reliability.

The removal of the palace from Usama to the present site is believed to have taken place in the reign of Ewedo, the fifth ruler of the new dynasty. By 1897, when the palace was largely destroyed by fire in the aftermath of the punitive expedition, it had grown into a very extensive complex of buildings ranged around several open courtyards. While we know that the excavations on the Benin Museum and Clerks' Quarters sites both fell within the boundaries of the 1897 palace, we have no certain knowledge of its earlier size and position. Very much more extensive excavation in the area will have to be undertaken before we shall possess the comparative data to offer a reasonably assured answer to this question. In the meantime we cannot be certain that the earlier deposits on these sites are related to the palace, though it is at least highly probable that the post-fifteenth-century remains do belong to it. Considering the fact that these excavations were carried out in an area which is now, and has for centuries been, at the very heart of Benin City, it is perhaps noteworthy that the earliest sign of occupation seems to belong to the thirteenth century.

After the founding of the palace, the next events in Benin history for which one might expect to find archaeological evidence are those associated with the reign of Ewuare around the middle of the fifteenth century. It was then, according to Egharevba (1960, p. 14), that 'the town rose to importance and gained the name City'. One of the features of the city specifically attributed by tradition to Ewuare is the great central ditch and rampart, and here the radiocarbon date for charcoal found beneath the 'wall' may be said to support tradition. Substantial stretches of this 'wall' still stand as manifestations of the drastic changes in the government and physical organization of Benin that are believed to have occurred under Ewuare. The unsophisticated look upon it as the work of a race of giants uncorrupted by the belittling influence of imported European salt! Daniels' calculations (p. 105) show that a relatively modest force of ordinary mortals could have constructed this impressive earthwork. Besides enabling the ruler to control his subjects more effectively the wall offered them magical protection, for Ewuare 'made powerful charms and had them buried at each of the nine gateways to the City, to nullify any evil charms which might be brought by people of other countries to injure his subjects' (Egharevba, 1960, pp. 14–15). Destruction of these gateways since the British occupation of Benin makes it very unlikely that we shall ever uncover any trace of either gates or charms, but the pots found buried in the foundations of the palace walls presumably had a similar magical function. The section cut through the 'wall' has revealed that it obliterated earlier building sites; further investigation should show whether it also cut across earlier earthworks—a report of remains of an earthwork within the main enclosure would suggest that it did.

Rebuilding on the scale attributed to Ewuare might be expected to leave substantial marks in the archaeological record and there is good reason to think that it has done so. It will be noted that the radiocarbon date from one of the two pits in which fragments of potsherd pavement were found (A.D. 1305 $\pm$ 105) matches closely the date from the charcoal beneath the 'wall' (A.D. 1340 $\pm$ 105). The pit in question lay almost certainly within one of the extensive palace courtyards which would have afforded a convenient source of building material as well as a dumping ground for debris disposed of during rebuilding of the palace. From the correspondence of the radiocarbon dates one might infer that the throwing up of the 'wall' and some reconstruction in the palace occurred about the same time; and pressing the evidence a little farther, it is tempting to think of the potsherd pavements as features of an earlier palace which were disposed of in order to clear the ground for a building with a different cultural orientation. I have elsewhere suggested that Ewuare's reportedly violent accession to the throne may have been a conquest that brought fundamental changes in the customs and institutions of Benin (Ryder, 1965).

At present very little is known of the extent to which Ewuare refashioned the 'town' part of his city, but I think it probable that it owes its definitive form to this period. Not only were its leaders, the 'town' chiefs, given a formal role in government, but the whole population within the 'wall' was drawn by means of the guild organization —which was territorial as well as functional—into a working relationship with the palace.

Little material evidence is likely to be available in support of this supposition because few of the guild activities would leave any archaeological record. The most important exception is the guild of brass-smiths whose skill was devoted exclusively to royal service and whose work has the quality of survival. Their most distinctive and highly-skilled technique, the lost-wax process of casting, is generally believed to have been introduced from Ife during the reign of Oguola, the son and successor of Ewedo. Excavations so far carried out in Benin do not appear to lend much support to this tradition in that there is a notable lack of evidence for 'bronze' casting in the early phase of the cuttings. (See p. 138 for an explanation of the use of the term 'bronze' throughout this book. G. C.) It may be that, while the use of 'bronze' came to Benin in the early period, the technique of the lost-wax casting is a later innovation which was practised on a scale large enough to leave archaeological traces only from the sixteenth century, when European 'bronze' began to be imported in large quantities. Tradition does allude to some unspecified development in the brass-smiths' art during the reign of the sixteenth-century Oba Esigie who 'improved the brass work which had been introduced to Benin by Oba Oguola' (Egharevba, 1960, p. 30). Surveying the extant corpus of Benin 'bronzes', I feel that a later date for the introduction of the technique carries more conviction than an earlier one. On the other hand it is again necessary to bear in mind that only a small area of the old palace has been investigated and that the missing evidence may turn up elsewhere. Even if it does, I imagine that it will be found that most of any pre-fifteenth-century brass-work went into the melting pot at the time of the cultural revolution which accompanied Ewuare's development of the city.

It may seem strange that the activity of the fifteenth century should be followed on the palace sites by a long period of apparent quiescence when it is known that the century after Ewuare saw Benin expanding rapidly under the leadership of a succession of warrior kings. However, it must be remembered that the next major development likely to have affected the physical condition of the palace was the transformation of the ruler from a warrior into a ritual figure rigorously secluded within the palace. This change took place following the death of Ehengbuda early in the seventeenth century. Subsequent rulers lived all their lives within the confines of the palace. A prolonged civil war at the close of the seventeenth century, in the course of which the palace was once more destroyed, did not alter this state of affairs, though its outcome did enhance the authority of the ruler. The middle phase of the Clerks' Quarters site excavation seems to correspond with this more intensive use of the palace as the permanent abode of a sacrosanct king with a multitude of attendants, and more particularly to the period following the rebuilding by Akenzua I in the second decade of the eighteenth century. His reputation as one of the richest kings to reign in Benin acquires greater substance from the marked increase in the number of artefacts, many of them imported, appearing in the deposits associated with that period.

Most of the interpretation advanced in the course of this discussion has been highly speculative; indeed much of the early history of the city and state is probably destined to remain obscure and therefore an arena for conflicting points of view. And yet one cannot but be conscious that a most encouraging correspondence is beginning to emerge between the major categories of evidence; things are beginning to fall into place, and the picture grows more complete and convincing.

G. DISCUSSION AND CONCLUSIONS

IT is the field archaeologist's task to present his evidence and his interpretation in clearly separated compartments. In practice this often proves very difficult because of the complex nature of the data involved and the desirability of keeping each part of it and its interpretation in reasonable physical proximity to each other. This is especially the case with excavations and other researches spread over a number of seasons, on a number of different sites, in an urban setting such as Benin City. For this reason this study of the archaeology of Benin has presented interpretations and discussion of the primary data as it has progressed, although every effort has been made to render the division as clear as possible. It remains necessary, however, to review the over-all situation. It is necessary to consider the basic questions: what have we learnt so far, what can we hope to learn in the future and how should we set about doing it?

At the inception of the project under discussion, it was quite clear that the unique role of Benin City in the history of West Africa made the investigation of its potential for archaeological field research a matter of priority. This has now been done. We now know that an archaeological approach to the problems of Benin history is indeed worth while, and we also have some idea of the sort of technical problems that are liable to be encountered and of ways in which they can be dealt with. Previously our knowledge of the history of Benin depended firstly on an extensive and rich oral tradition, secondly on the writings of European visitors from the fifteenth to the nineteenth century, and lastly on art-historical studies. Yet there existed a pressing need for two things which the available sources seemed unlikely to supply. Firstly, as Ryder (citing Bradbury, 1959) has pointed out (p. 242), an improved time-scale for Benin was required. Secondly, more information was needed about the material culture of ancient Benin, which had formed the background to the art objects and created the circumstances within which Benin had grown to power and fame. In both these directions some progress has now been made. The beginnings of an archaeological sequence based on radiocarbon dates for stratified deposits, on a statistical examination of pottery form and decoration, and on datable European imports, is now available. Furthermore, a beginning has been made on the construction of a corpus of archaeological material for Benin. It is hoped that a foundation has thereby been laid on which others will be able to build.

Shaw's work at Iwo Eleru near Akure has demonstrated that by the Late Stone Age man was already living in the rain forest of southern Nigeria (Shaw, in press). This is indeed a zone in which finds of ground stone axes are relatively common. It is against this background that the stone axes used in Benin ritual must be considered. It would seem reasonable to suggest that man was already living in the Benin area by

3000 B.C., and that as research work progresses evidence may be found that will indicate that he was there long before that.

It is as yet impossible to say when iron-working first penetrated the rain forest, but evidence from sites in the savannah areas of Nigeria, particularly from Taruga, RS 63/32 and Daima (Connah, 1969) would suggest that the first half of the first millennium A.D. would be a reasonable guess. Certainly the evidence from Igbo-Ukwu indicates that it was well-established by the ninth century A.D. (Shaw, 1970*b*). The knowledge of iron-working must have constituted an enormous step forward in the successful exploitation of the forest environment. The material cultures of ancient Igbo-Ukwu, Ife, and Benin represent high points of Iron Age development. Given iron tools and weapons the forest could be made to yield great wealth, and given ideas of urbanization and social and religious organization that may have migrated from the savannah zone, the growth of such high points is perhaps not surprising. Trading contact with the Arab world in North Africa probably also played an important part in the development of these centres of civilization; certainly it may well, as Shaw suggests, have been the means by which the art of lost wax metal casting was learnt in West Africa (Shaw, 1970*a*). Concerning these 'high points' of Iron Age development, however, it is necessary to sound a note of caution. Such is the terrain and vegetational cover of much of southern Nigeria, and so few and far between are archaeologists, that the apparent uniqueness of such 'high points' may be as much a product of our ignorance as of historical reality. Sheer accident is to some extent responsible. If a certain man had not dug his new water cistern in a particular place we might never have heard of Igbo-Ukwu, or if the town of Ife had not been reoccupied after its abandonment in the second half of the nineteenth century would its famous 'bronze' heads have come to light as they have? In short, our present 'high points' cannot as yet be studied in the general context of the over-all development of Iron Age material culture in southern Nigeria. Until that can be done we should remember that they may perhaps not be the highest points of attainment and that very likely they may not be the only points. One might predict that, in the years to come, archaeological endeavour will find further startling instances of Iron Age development in southern Nigeria, whose possible identity we can at the moment merely guess at.

The earliest archaeological evidence for settlement at Benin itself is at the moment that referred to about the thirteenth century in the earliest deposits at the Clerks' Quarters site. This might be interpreted as indicating that Benin's position deeper in the forest than either Igbo-Ukwu or Ife caused its initial development to be a little later than theirs. It must be remembered, however, that earlier settlement deposits might well exist and that excavation may not as yet have been conducted in the right places to locate them. The present writer suspects, indeed, that settlement at Benin may well date from about the eleventh century A.D. and perhaps earlier. Here the mapping of the Benin City walls suggests that we should be careful, however. As Ryder has pointed out (p. 243), this mapping has 'established a frame of reference' within which we can examine the history of the city's development. (Ozanne (1969) has more recently done the same for Ife.) Examination of Fig. 23 makes one wonder very much what the pre-Ewuare city was like, and the conclusion that it may have been of a somewhat dispersed character suggests that a quest for its origins may become a hunt for the non-existent. To seek for evidence of the earliest settlement in the area at present occupied by the city of Benin is one thing, but to seek for evidence of the origins of the city, as such, is entirely another. There are a number of ways in which the latter objective might be pursued but perhaps the most immediately worthwhile would be an attempt to date the different components of the 'outer' Benin walls and to construct from them an over-all sequence of urban growth. This possibility is discussed below amongst the suggestions for future research work.

Following the earliest archaeological evidence for settlement in Benin we have some sort of a sequence right down to recent times, although it is unfortunate that the sixteenth and seventeenth centuries, which seem to have been so important in the history of Benin, should be so poorly represented in the archaeological record which has been constructed so far. A number of elements of our sequence are of special importance and merit individual comment.

The apparently thirteenth-century mass burial at the Clerks' Quarters site suggests the practice of human sacrifice at a rather earlier date than has previously been suspected. The coincidence of this date with Egharevba's date for Ewedo's adoption of this site for the palace may be of significance, although Egharevba's statement that Ewedo built his palace 'on land which had been used as a public cemetery in the days of Oba Ogiso' (Egharevba, 1960, p. 11) should perhaps also be taken into account.

The discarded remains of potsherd pavement, on the Benin Museum site, in contexts of thirteenth or fourteenth century date, demonstrate the former existence in Benin of a phenomenon which neither oral tradition nor European commentators have recorded. As already argued (pp. 32–33), the existence of potsherd pavement need not necessarily imply contact with Ife particularly, although it does suggest some sort of common relationship with the savannah areas to the north.

Another element in the archaeological sequence which merits particular attention is the general agreement of the radiocarbon date for the innermost city wall with the dating arrived at independently from oral traditional and historical sources. A date around the middle of the fifteenth century for the construction of this huge earthwork seems quite possible.

For general dating purposes in Benin, the European trading connection is particularly important. The very small part as yet played in the archaeological record by the sixteenth and seventeenth centuries means that the earlier periods of this trade are not represented in the evidence so far recovered. Further excavation might well correct this imbalance but it is nevertheless likely that neither the volume nor the character of trade in the earlier periods was such as to have left any large quantity of evidence for recovery by archaeological endeavour. At present the earliest signs of the European trading connection date to the second half of the seventeenth century; the evidence becomes more common in the eighteenth century and grows to substantial proportions in the nineteenth. Apart from its value for dating the more recent deposits in Benin, such evidence has also a negative value. Benin City has been continually occupied for hundreds of years and its present population must be well over 50,000. The ground on which the city stands has been disturbed repeatedly in the past and is probably now being disturbed more than ever before. Thus, an archaeologist excavating in Benin City, who finds any deposits completely lacking in items of European origin, can tentatively assume that he is dealing with material dating from before the earliest European trade and can risk the financial expenditure necessary for a few radiocarbon dates. In this way it would be possible to study the earlier periods of which we know so little, without wasting time and money on the relatively well-known recent periods.

Another aspect of the archaeological sequence which merits special attention is the chronological ordering of pottery form and decoration which has been made possible by Daniels' statistical analysis. At the commencement of field-work in Benin in 1961 it was quite impossible to date any pottery, except that which was quite obviously the same as pottery still in use. Even now, we are far from having a regulated pottery sequence for Benin, but, as Figs. 60–2 show, we have some idea of what belongs where. Thus, for instance, pots of Form 6 seem to be more common in the earlier part of our sequence, whilst Decoration 8 is confined to the later part. We have at least made a beginning on the task of dating different types of pottery so that they in turn might be used for dating archaeological deposits.

The last item of the sequence requiring special notice is the question of the artistic use of copper and its alloys. We now have evidence of this use by about the thirteenth century A.D. but the manner of working seems at that time to have been by smithing rather than by casting. Moreover, slender though the evidence is, it seems to have been tin bronze that was so worked and not the leaded brass which is the most usual material of the famous Benin 'bronzes' which have so far been analyzed. It is tempting to conclude that the working of these metals only grew to large proportions after the earliest European trade made large quantities of raw materials available. It may well have been only at that time that the use of the lost wax casting technique became important. Certainly excavation has not revealed in earlier deposits any trace of cast objects stylistically similar to those of Ife.

The building up of a corpus of archaeological material for a site or group of sites is always one of the priorities of the field archaeologist. Such a corpus must, of course, be widely available in a published form and not just consist of a collection of dusty items in a museum store-room. The previous lack of such a corpus for Benin has made archaeological research there more difficult than it might have been. It is felt, however, that some progress has now been made towards supplying this need. The finds' illustrations in this book demonstrate how varied the body of Benin archaeological material is and suggests that a rich harvest of information about ancient Benin can be gathered from it. For instance, formerly we were not aware of the variety and quality of Benin pottery in the past, but now we can examine a cross-section of the potting that has been done during perhaps the last seven centuries. Considering that all pottery was hand-made, without the assistance of any form of wheel, it reached remarkably high standards at times. With its carefully prepared fabric, its frequently thin walls, and its rich surface decoration, it is an aspect of ancient Benin art and technology which merits far more attention than it has previously had.

The skill of the metal-workers of ancient Benin is well known. Yet the collection of admittedly rather fragmentary evidence that we now have from excavated contexts in Benin is nevertheless of considerable value. We can see from it that elegant bronze bracelets were made possibly as early as the thirteenth century A.D. and that perhaps by a similar date blacksmiths were already producing iron knives in what might be regarded as a distinctive Benin shape. We can gain also a clear reminder of the great versatility of ancient Benin's metal craftsmanship and examine some of its humbler products which have not previously been given much attention, such as nails, tacks, and staples.

Two types of item in the present corpus of material have been described with little or no comment: beads and indigenous smoking-pipes. The first of these represents an international problem of great complexity, the second a more strictly Nigerian problem of a lack of published parallels. In both cases the present writer has been of the opinion that published descriptions of such stratified material would be useful, but that comment would be premature.

The collection of archaeological material also sheds light on a number of rather unexpected aspects of Benin's past. Thus it is of interest to find evidence of the use of oil-palm nuts possibly as early as the thirteenth century A.D. The evidence that at a similar date there were in use iron saws capable of cutting timber as hard as iroko is of great importance, as also is the information derived from the charcoals that hardwoods in general were being exploited from an early period. Similarly important are the implications of the possibly thirteenth-century cloth fragments that were excavated from the Clerks' Quarters site. A leading textile research institute in Britain, concerned normally with the highly advanced technology of modern fibres and weaves, has examined these fragments and commented (p. 237) that: 'From the accuracy and precision with which the yarns and fabrics were made, and the intricacies of the patterns, it seems certain that they were made by skilled craftsmen of a fairly advanced civilisation'. One might wonder whether the cloth could have been of imported origin, but then where could it have come from in about the thirteenth century? The Arab world of North Africa? Or perhaps the radiocarbon dating of the context in which the fragments were found is misleading, a date perhaps for timber and charcoal that had derived from the destruction of an already old building? In that case the cloth might be of sufficiently late date to be of European origin. Yet for the moment, the most likely possibility is that it is of about thirteenth-century date and that it is of Benin manufacture.

One further matter of rather unexpected character has also emerged from the excavated material. Investigations of the human skeletal remains from the presumed thirteenth-century mass burial have shown that the forty-one or more individuals present were, so far as examination of the bones alone can indicate, singularly healthy. Yet amongst the little disease that may have been present were two possible cases of sickle cell anaemia which may be amongst the earliest recorded instances of this disease in the world.

So much for the present state of our knowledge, but what of the future? Research, it is often said, seldom solves problems, but it frequently helps to define them more exactly. In particular, it helps us to frame the questions which should next be asked. What are these questions in the case of the archaeology of Benin?

Possibly the most pressing problems concern the origins of settlement at Benin and the development of the city; concern, that is to say, the events of the first half of the second millennium A.D. and perhaps earlier. As has been suggested above (p. 249) these problems might be tackled by attempting to determine the sequence of the 'outer' city walls. This could be done by excavating a fairly extensive series of cuttings through the major junctions of the different components. It might prove difficult in practice to demonstrate the stratigraphic priority of one earthwork to another, however, and a better way might be to cut as many different bank sections as possible and to build up a series of radiocarbon dates for charcoal in the former surface soils. This is the sort of archaeological excavation that offers very little in the way of finds but can nevertheless be very valuable from the point of view of the historical data that may be obtained. As an archaeological research project in Benin, the present writer would give this first priority at the moment. As a development from such a project, it might be worth while to examine by systematic stripping the interior of the small triangular enclosure mentioned on page 106.

A more devious way of gaining information about early Benin would be to section as many pieces of available ground in the centre of the present city as possible. Early deposits would most likely take the form of pit-fillings, and in order to conserve his time, his energy, and his available finance, the excavator would have to abandon immediately the excavation of any deposit in which the presence of European imports indicated a late date. Not only could this approach extend our chronological knowledge, but by plotting all deposits of similar radiocarbon age onto a map, it might be possible to gain some idea of the extent and the character of settlement at different times. Such an approach would take some time, but there is nevertheless an urgent need for this work to be started. With every year that passes, modern building and development in the centre of the city will destroy more and more of the available archaeological deposits: deposits of which those of earliest date are likely to form only a small percentage.

Whilst on the subject of destruction by the agencies of modern development, it should be noted that urgent action is also required, not indeed to preserve the whole of the increasingly battered innermost city wall, as legislation has so far failed to do, but to preserve intact a sample mile, or even half mile of it, which would remain untouched as an example of what the whole wall was once like.

It is of course desirable that further excavation should be conducted in the area of the pre-1897 Oba's palace, particularly to obtain more information on the sixteenth and seventeenth centuries, a period virtually unrepresented in the Clerks' Quarters sequence, but probably of great importance in the development of copper-base alloy casting. It is to be hoped that in time permission might even be granted for someone to excavate within the area of the present Oba's palace, which occupies part of the former site, and in which there is unlikely to have been so much modern disturbance as in those parts now covered by the modern city. There are in fact numerous sites belonging substantially to the later centuries of Benin history which might be worth excavation. It has sometimes been suggested, for instance, that the supposedly known sites of the two sixteenth-century Christian churches, constructed by the Portuguese, should be investigated. This is possibly so, but before attempting to do so the archaeologist concerned should consult Ryder (1961) and form his own conclusions. Another interesting site, that during the present writer's time in Benin was still not built on and presented an intriguing series of bumps and hollows, was that of the Edaiken's Palace at Uselu. Furthermore, the site of Usama, probably earlier in origin, certainly needs more investigation than has been carried out so far. Also, it might be suggested that problems concerning the history of 'bronze'-working in Benin might have some light thrown on them by excavations in the brass-workers' quarter, although Ryder's suggestion (p. 245) that this quarter was originated by Ewuare might, if true, preclude the possibility of finding out about the earliest developments. Again, a renewal of Goodwin's hunt for the palaces of the Ogiso might be worth attempting. And finally it would be a good idea to excavate at Gwato, the onetime port for Benin, and to attempt to correlate an indigenous pottery sequence with datable European imports. As there were at various times in the past European traders resident at that place, with stores of their goods there also, the chances of getting a good deal of datable material would probably be high.

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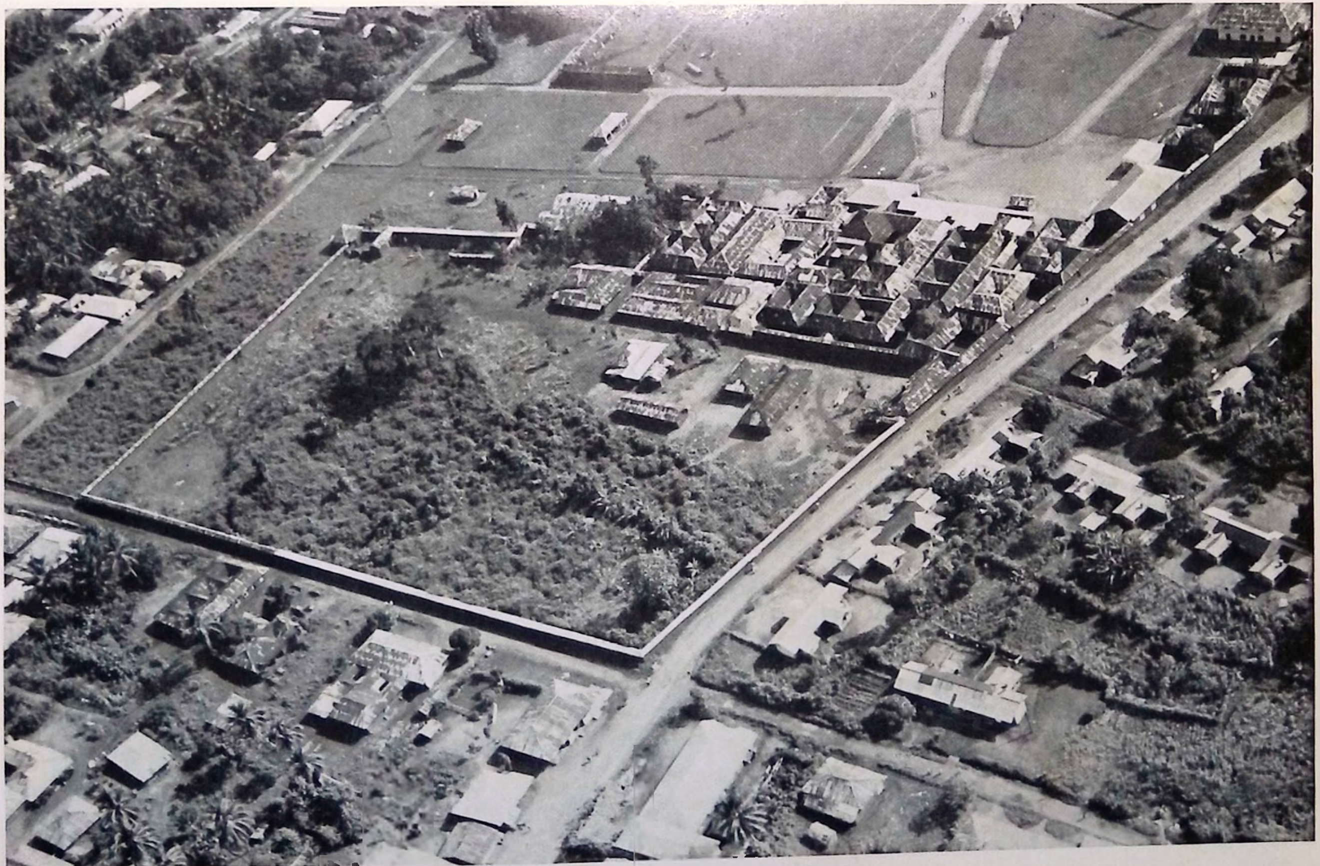


PLATE 1. Aerial view of the Oba's Palace from the south. (Photograph by B. E. B. Fagg, May 1963)

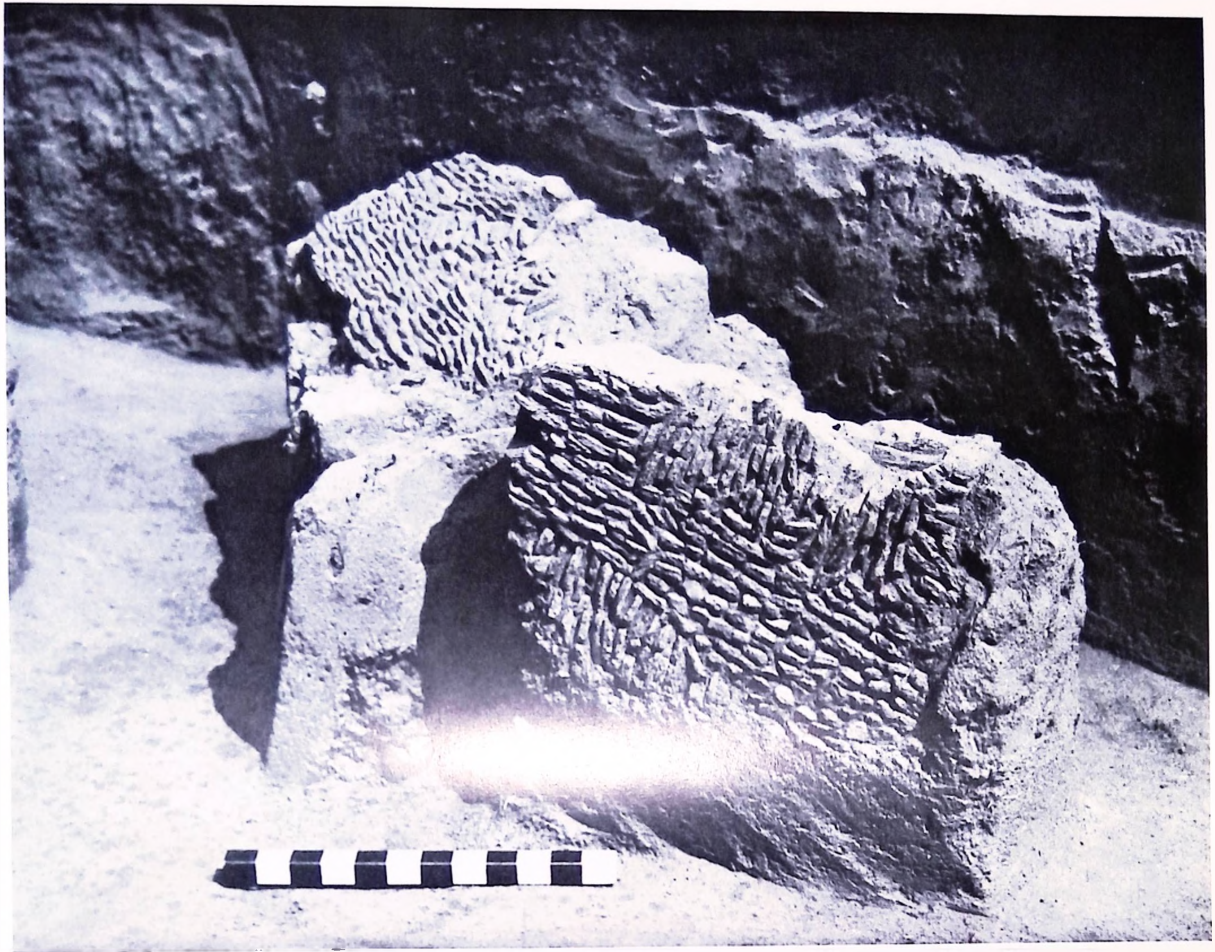


PLATE 2. Benin Museum site, Cutting III, Pit 1. Close-up of lumps of potsherd pavement. Scale of 1 ft. divided in inches. *See page 13*

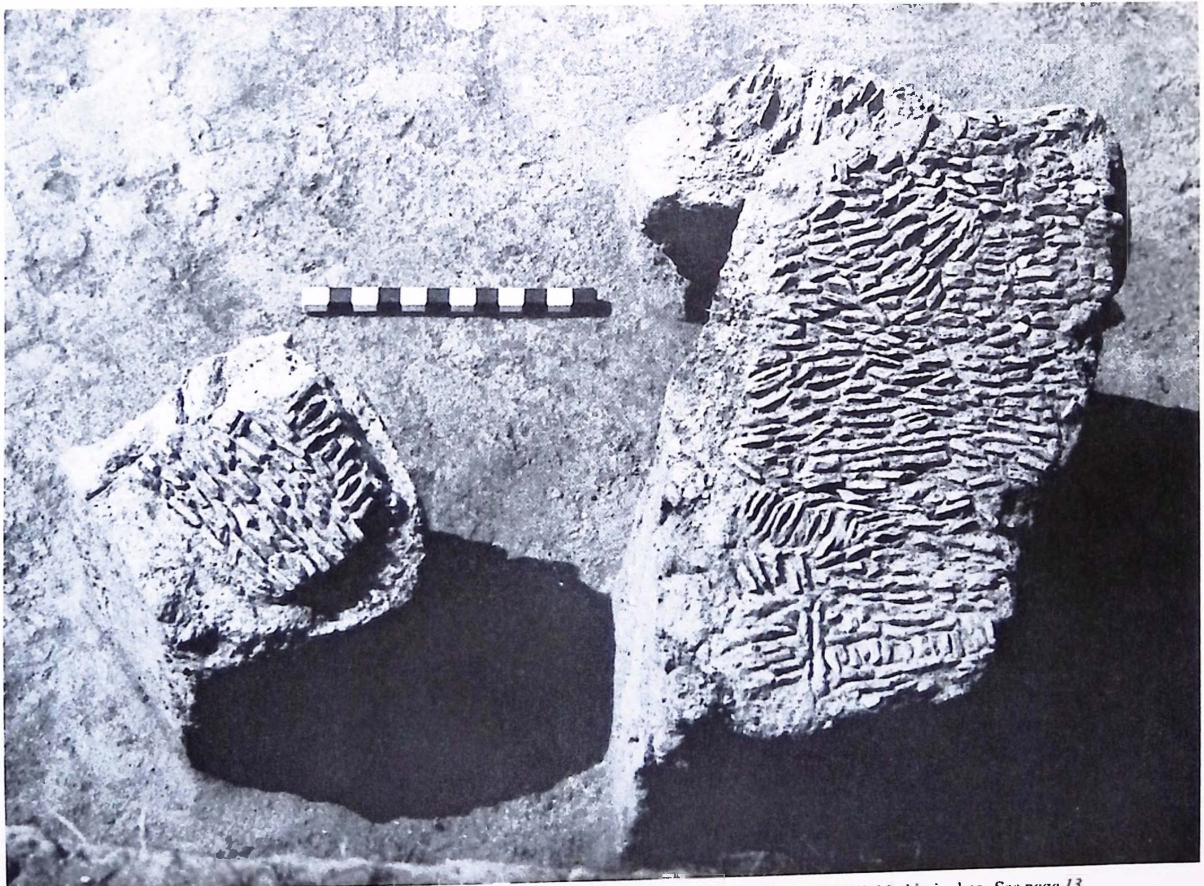


PLATE 3. Benin Museum site, Cutting III, Pit 1. Close-up of lumps of potsherd pavement. Scale of 1 ft. divided in inches. *See page 13*

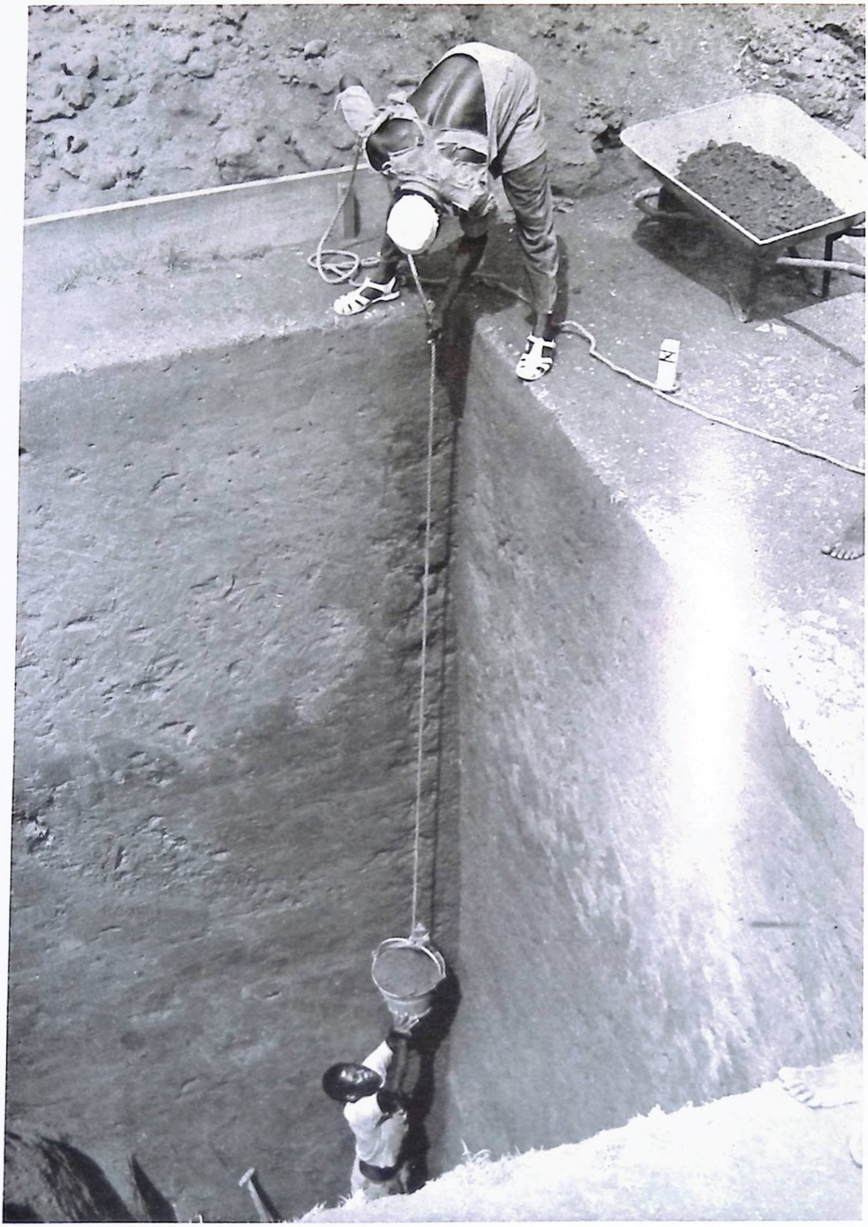
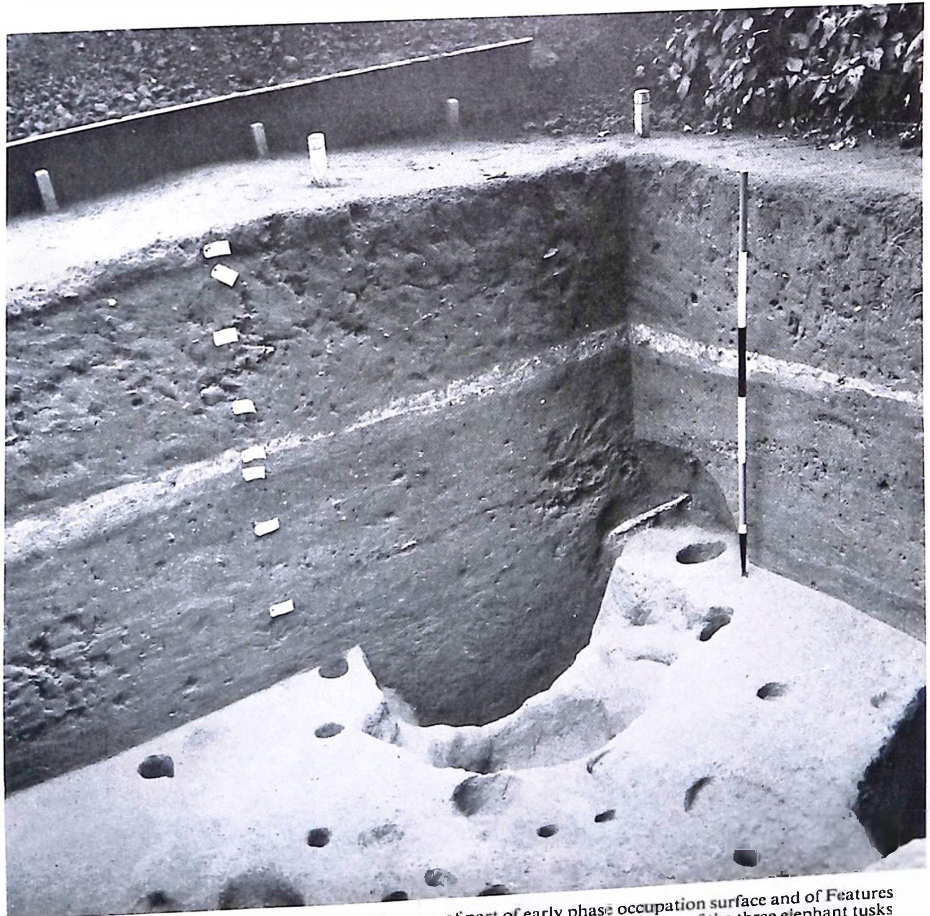


PLATE 4. Benin Museum site, Cutting XI, Pit 1. View from west showing a bucket-team in action removing the lowest of the filling. This was an example of a Type 1 filling. *See page 19*

PLATE 5. Benin Museum site, Cutting XIV, Pit 1 completed. View from east, showing lumps of potsherd pavement isolated in the bottom of the filling. This filling was predominantly of Type 2. Scale of 6 ft. divided in feet. *See pages 20–22*

PLATE 6. Benin Museum site, Cutting XIV, Pit 1. Close-up of lumps of potsherd pavement. View from south. Scale of 1 ft. divided in inches.
See pages 20–22



... Quarters site. Cutting I. Close-up of part of early phase occupation surface and of Features ... floor in section and one of the three elephant tusks

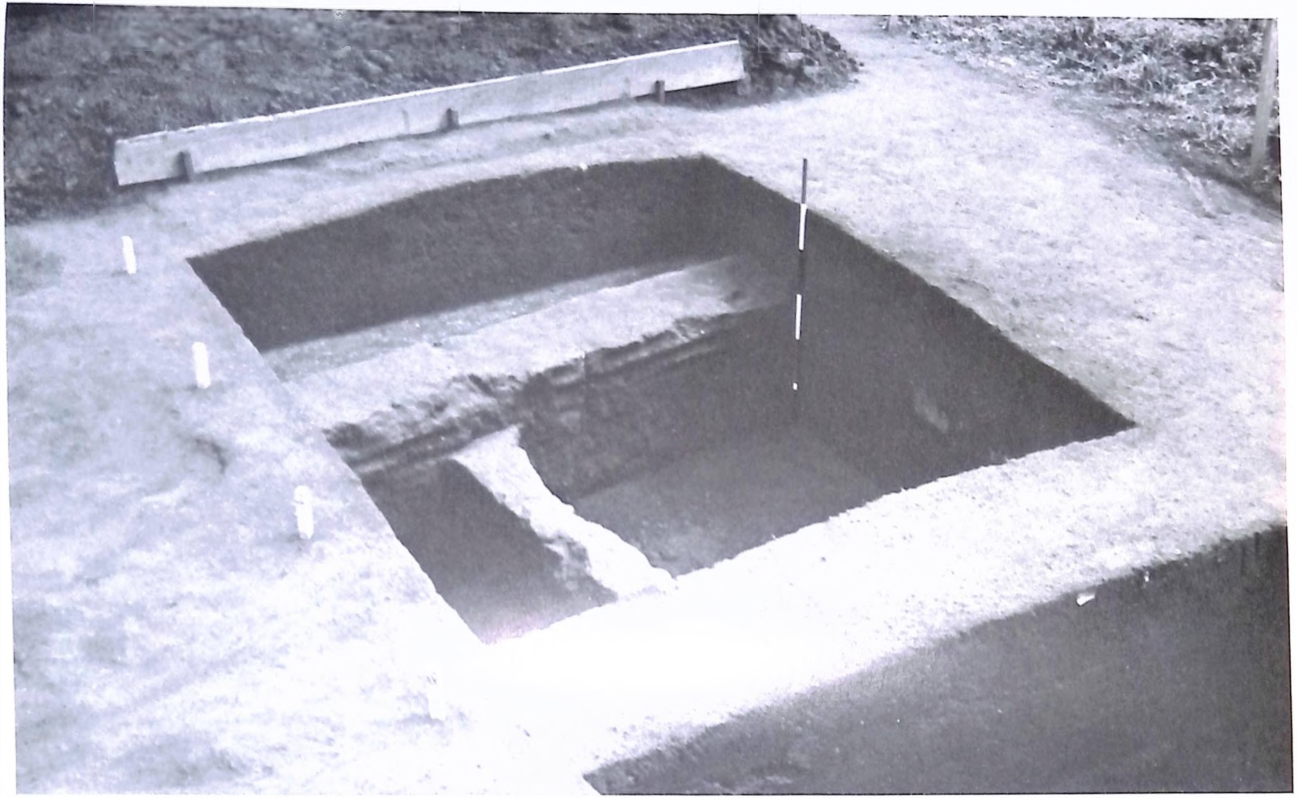


PLATE 8. Clerks' Quarters site, Cutting II. Remains of mud building of the late phase. View from north showing the grooved north-western face of one of the mud walls (Feature 3). Scale of 6 ft. divided in feet. *See pages 50–54*

PLATE 9. Clerks' Quarters site, Cuttings II and III. Early phase in course of excavation. View from north-west showing the complex surface presented by the top of Layer 16. Scale of 6 ft. divided in feet. *Compare with the lower plan in Figure 15 and see pages 57–67 and 73–75*

PLATE 10. Clerks' Quarters site, Cutting II. Disarticulated human bones in Feature 14. View from south-west. Surveyors' arrows with attached labels indicate the positions of two of the four bronze bracelets found among these bones. Scale of 1 ft. divided in inches. *See pages 60–61*

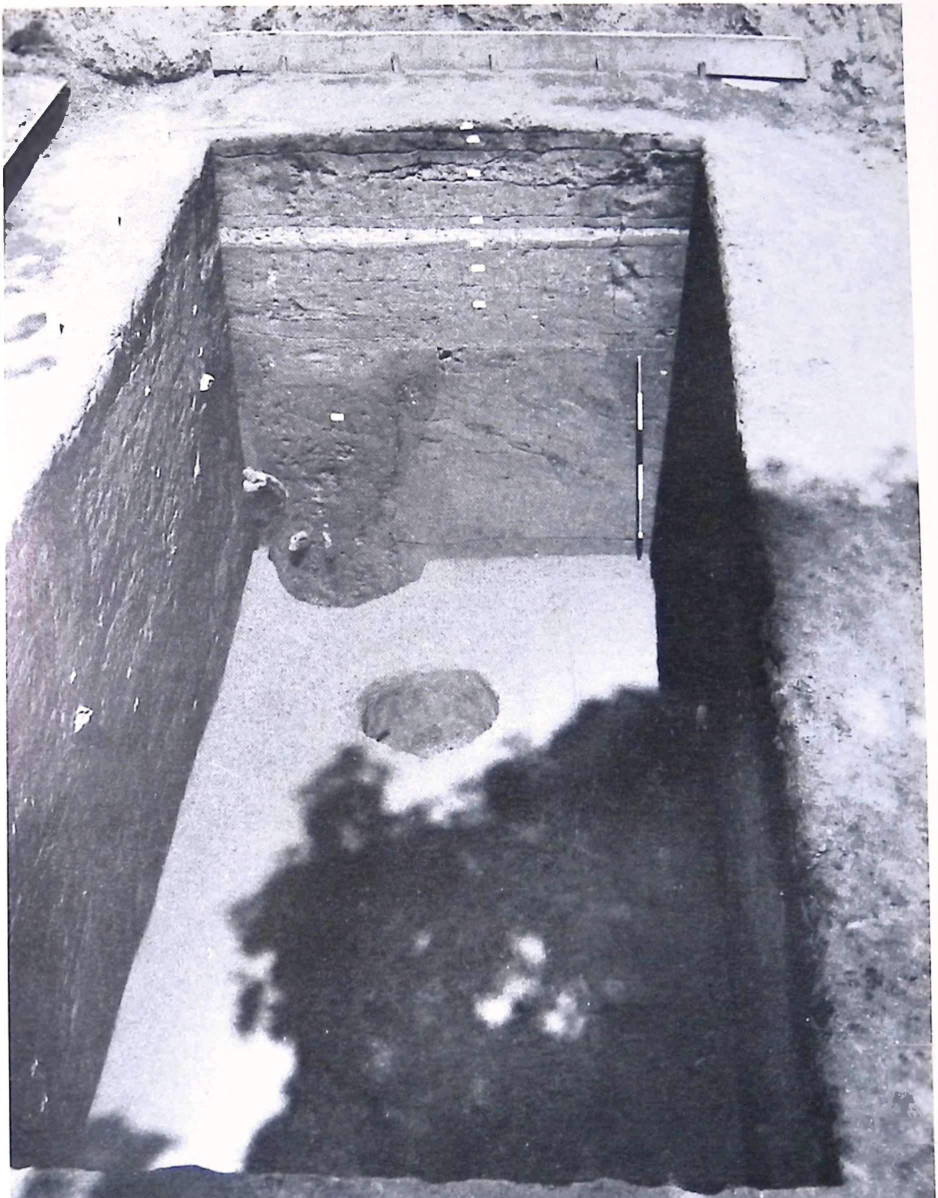


PLATE 11. Clerks' Quarters site, Cuttings II and III completed. View from north-west. In the far left-hand corner is Feature 21 (Cutting II) with Feature 20 (Cutting II) in front of it. Scale of 6 ft. divided in feet. *See pages 50–75*

PLATE 12. Clerks' Quarters site. Cutting II completed. Close-up of south-east section. The stratification has been outlined with the point of a trowel to make it show more clearly. The late phase pink floor can be seen in section towards the top. Feature 21 is to the left, its top 5 ft. 11 in. being cut away in section. *See pages 50–67*

PLATE 13. Clerks' Quarters site, Cutting IV. The residue of the 'bronze' hoard *in situ*. The neck of a trade-gin bottle to the left and the glass bead at the centre indicate a deposition date probably some time in the nineteenth century. A close-up of the bead is shown in Plate 41, 14. Scale of 1 ft. divided in inches. *See pages 75–77*

PLATE 14. The flooded ditch of the innermost city wall, north-west of Ogba Road, July 1962. During the dry seasons this ditch dried out and it was at a point in the middle distance of this photograph that the 1963 excavations were situated. *See pages 77–84*

PLATE 15. Innermost city wall at Reservation Road. Wall cutting completed, viewed from the outer lip of the ditch. The man crouching on part of the excavation timbering gives some idea of the size of this earthwork. View from south-west. *See pages 84–89*

PLATE 16. Potter of Use village, near Benin City, finishing a modern version of a Form 1 pot, July 1962. The potter is making grooves on the inside of the rim. *See page 108*

PLATE 17. Oba Akenzua II's shrines to his grandfather (foreground), his father, and great-grandfather (hidden). Ground stone axes and other stone tools can be seen on the front of both visible shrines and leaning against the second shrine. Scale of 1 ft. divided in inches. *See pages 109–110*

PLATE 18. Ground stone axes and other stone tools on the shrines to Eweka II. They are streaked with dried blood from sacrifices. Note the centrally nicked blade of the very long tools leaning against the front of the shrine, particularly that of the middle one. The scale is indicated by a matchbox measuring 2¼ in. in length. *See pages 110–112*

PLATE 19. Part of a shrine group in 'bronze', thought to depict Oba Ohen at the *Agwe* festival. In his left hand the Oba holds a representation of a ground stone axe. The scale can be judged from the length of the axe which is 2¾ in. This group is Benin Museum accession number 1. *See pages 109–110*

PLATE 20. Pottery, Decoration 1: coarse string roulette. *See page 121*

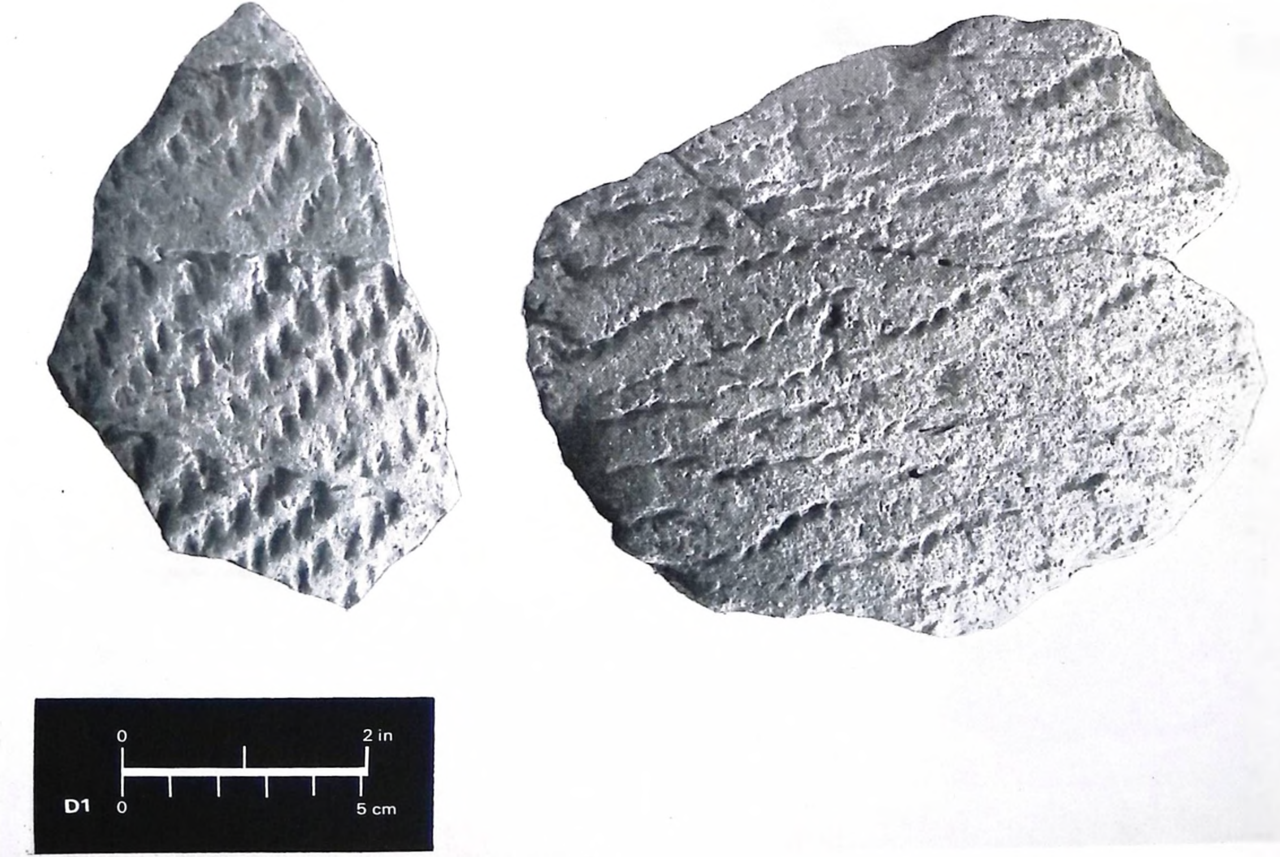


PLATE 21. Pottery, Decoration 1: coarse string roulette. *See page 121*

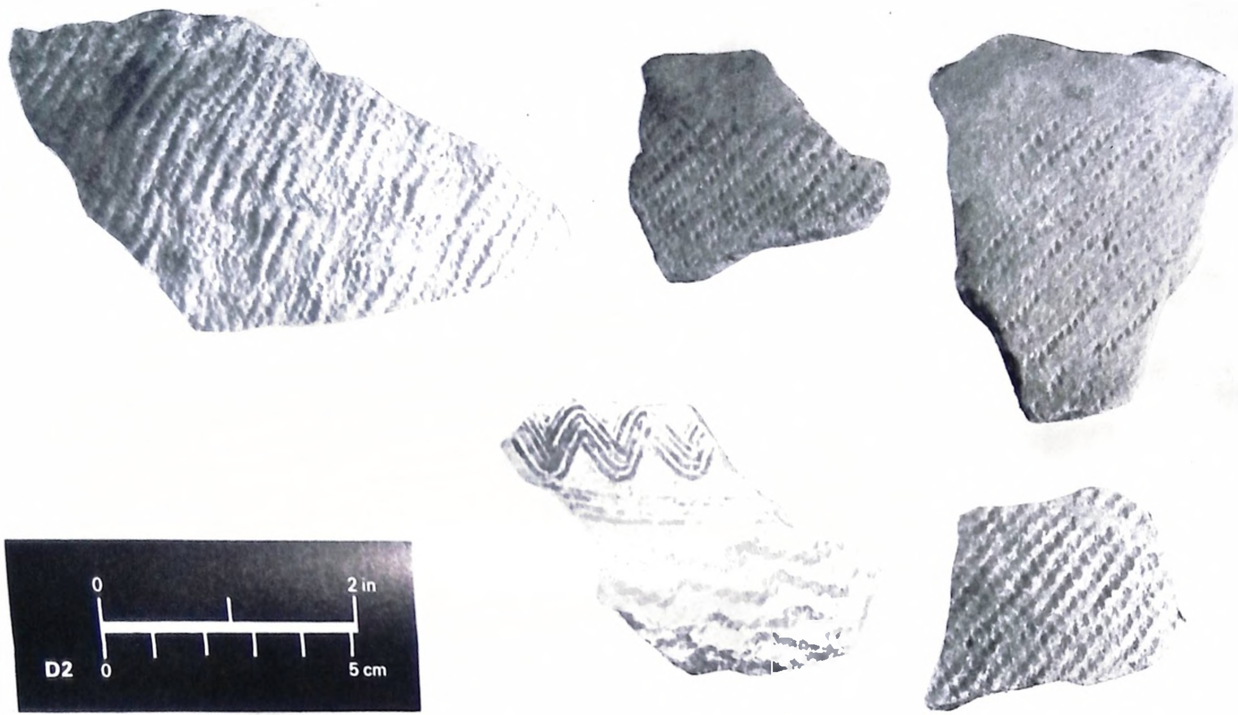


PLATE 22. Pottery, Decoration 2: fine string roulette. *See page 121*

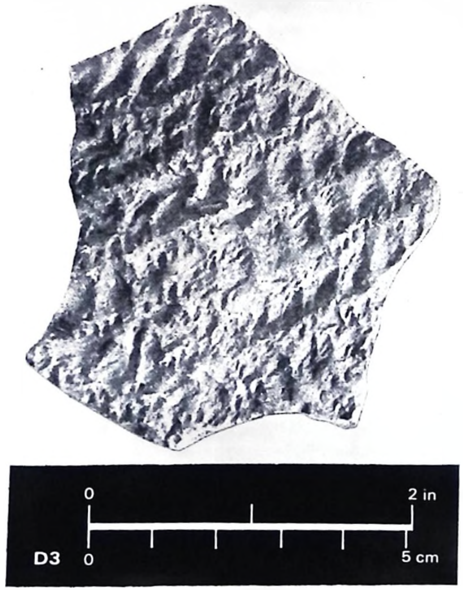


PLATE 23. Pottery, Decoration 3: coarse and fine string roulette combined.
See page 121

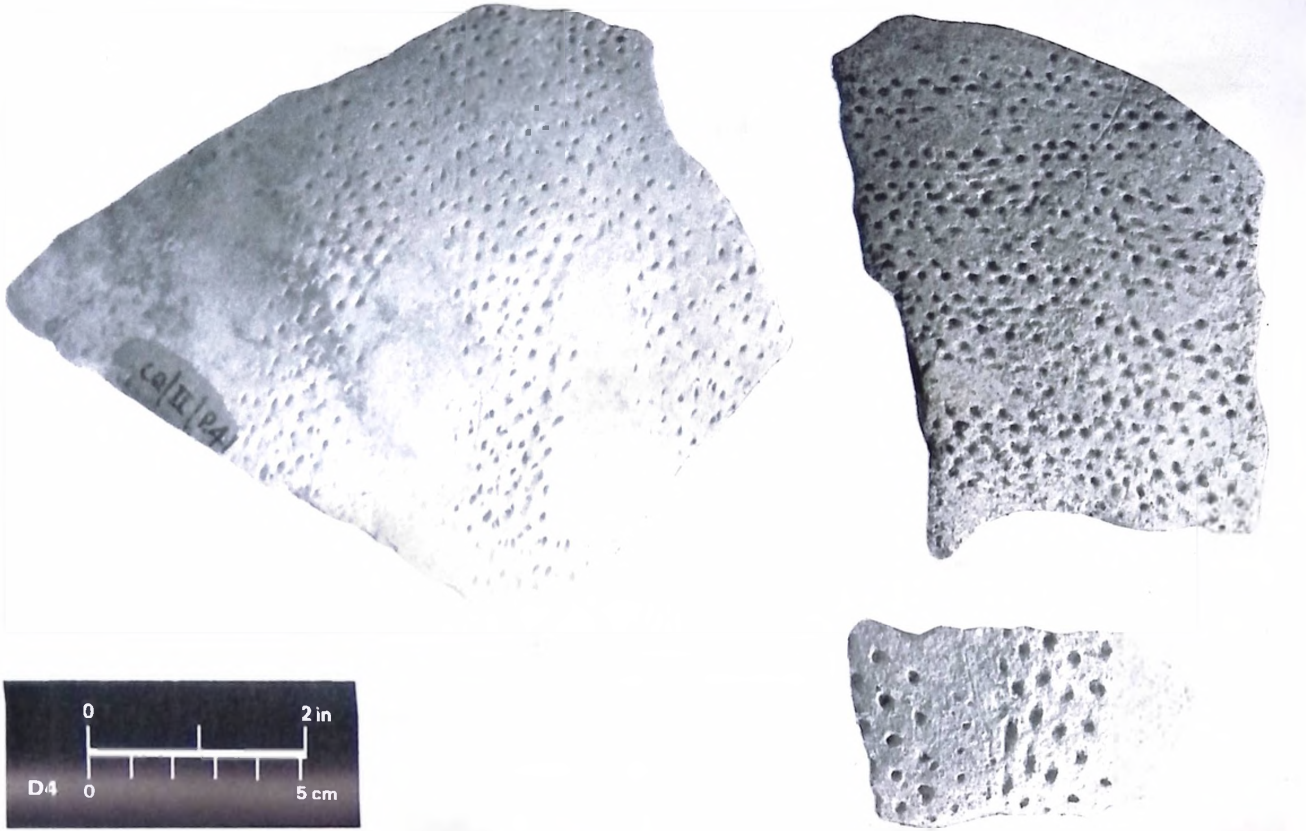


PLATE 24. Pottery, Decoration 4: stippling roulette (punctate). *See page 121*

PLATE 25. Pottery, Decoration 5: stippling roulette (cluster punctate). *See page 121*

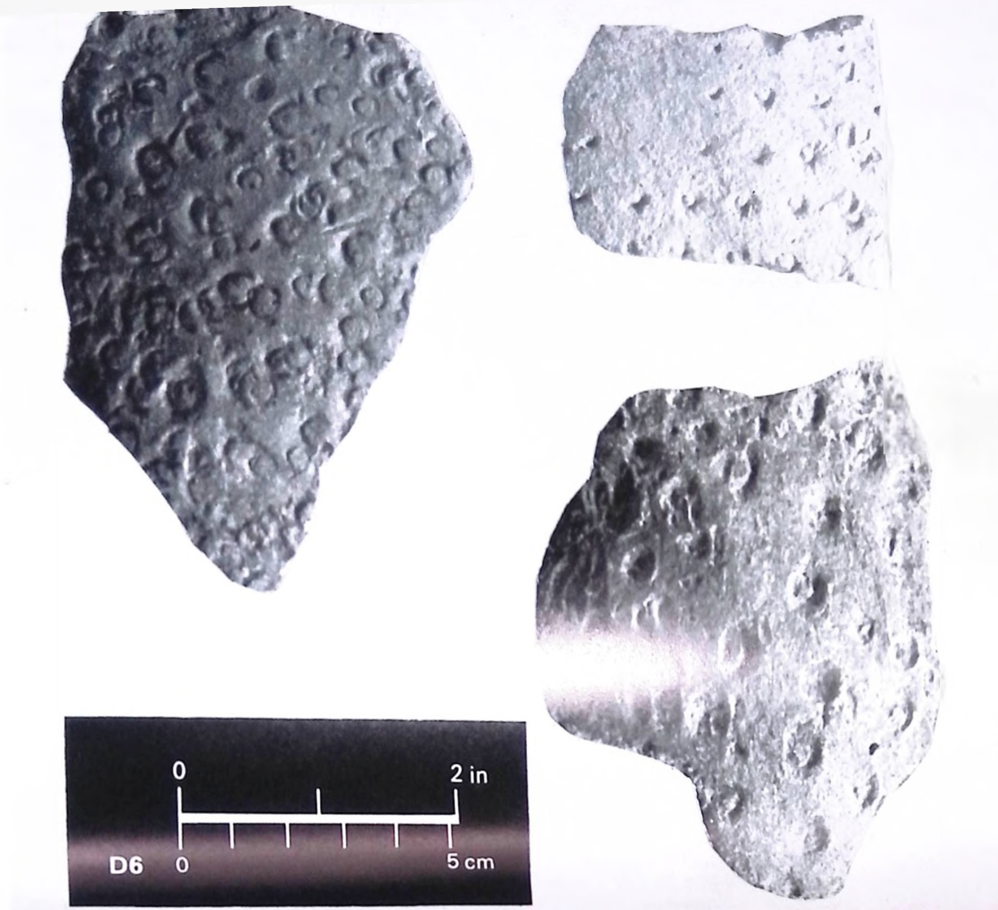


PLATE 26. Pottery. Decoration 6: stippling roulette (circles). *See page 121*

PLATE 27. Pottery, Decoration 7: stippling roulette (miscellaneous). *See page 132*

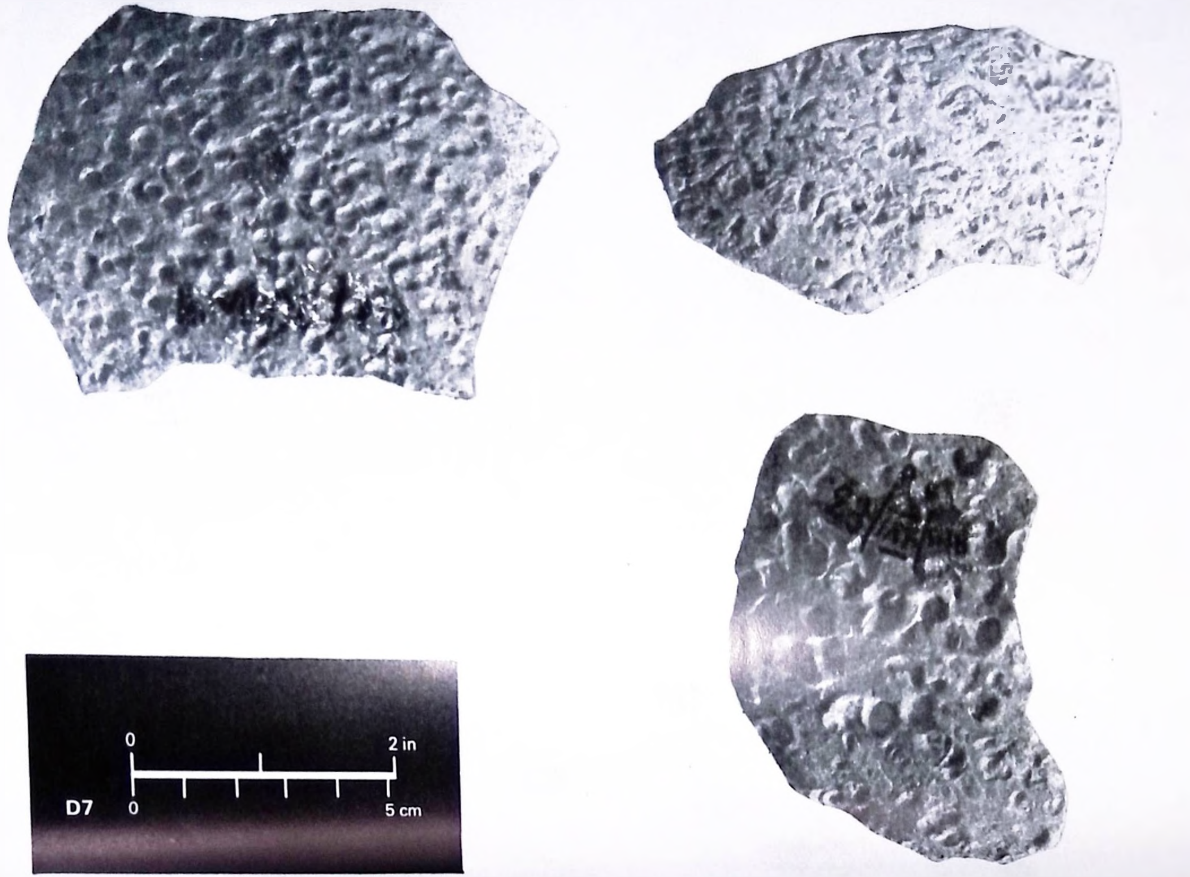


PLATE 28. Pottery, Decoration 7: stippling roulette (miscellaneous). *See page 132*

PLATE 29. Pottery, Decoration 8: carved roulette. *See page 132*

PLATE 30. Pottery, Decoration 9: combing. *See page 132*

PLATE 31. Pottery, Decoration 10: incision. *See page 132*

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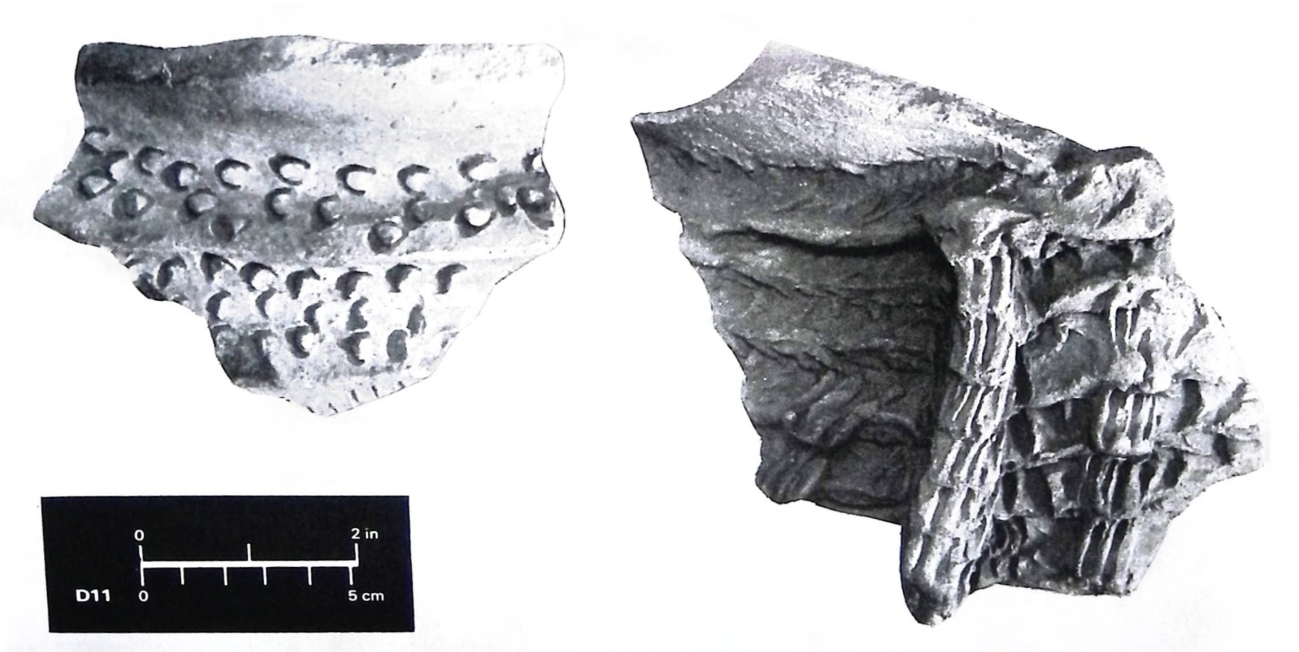

PLATE 33. Pottery, Decoration 11: rustication and incrustation. *See page 132*

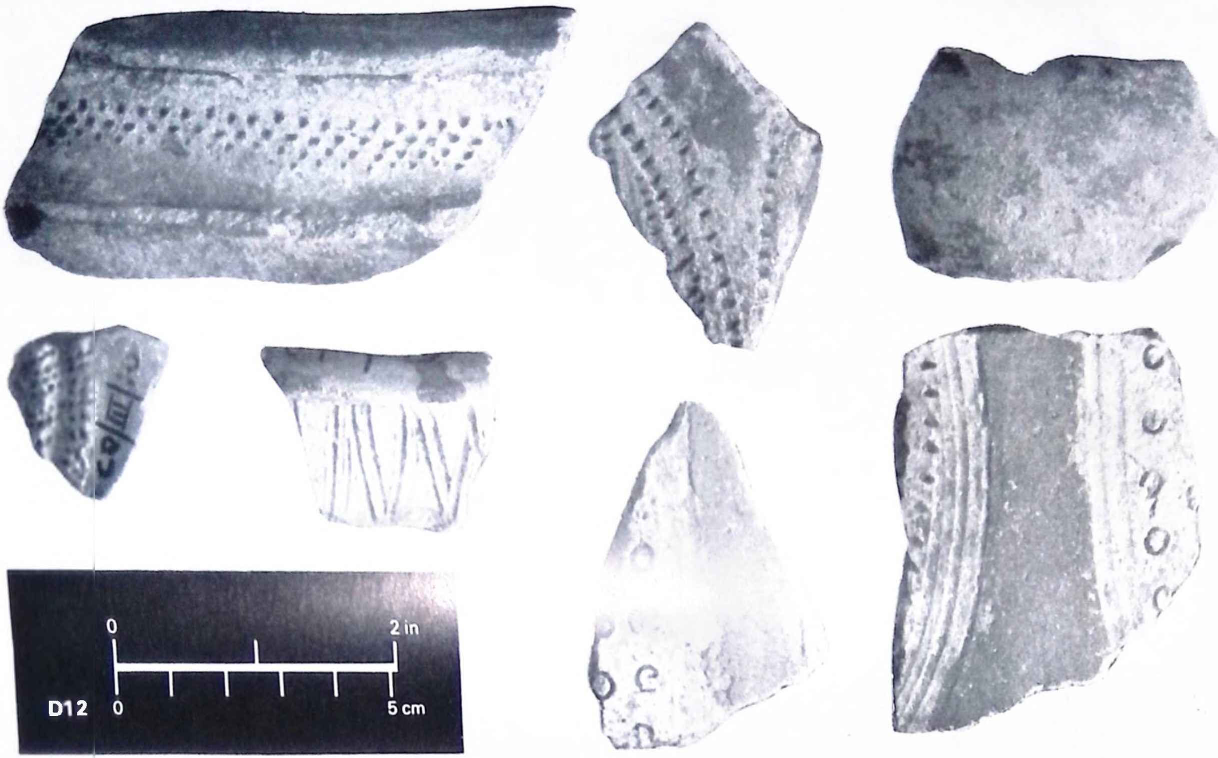

PLATE 34. Pottery. Decoration 12: painting. *See page 132*

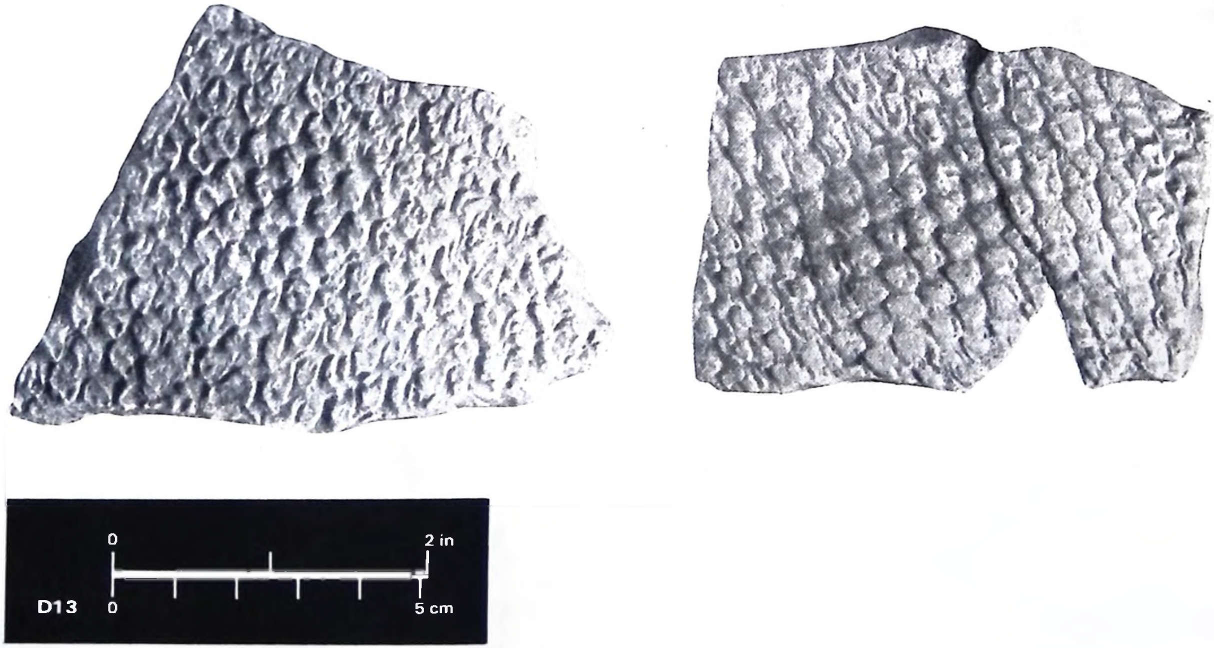

PLATE 35. Pottery, Decoration 13: unidentified roulette. *See page 132*

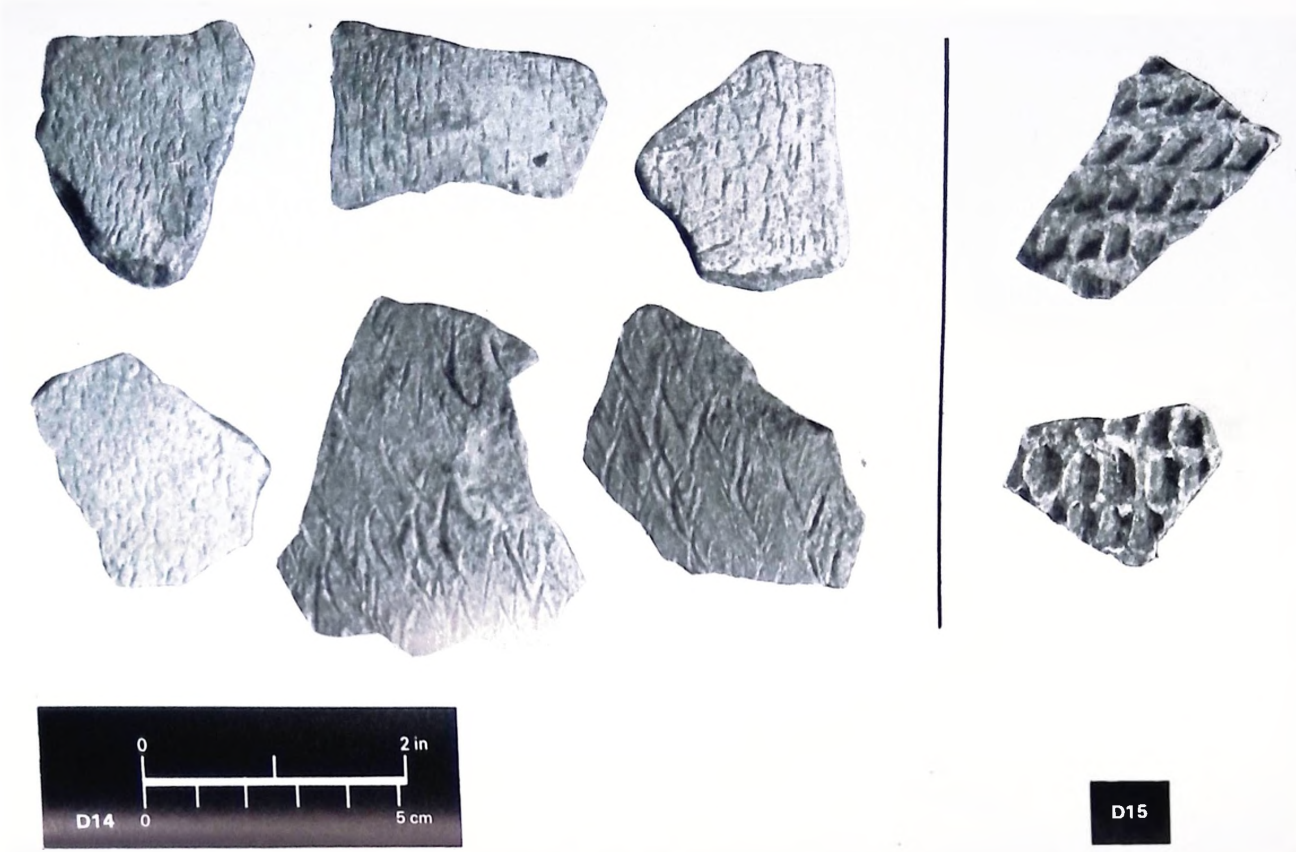

PLATE 36. Pottery, Decorations 14 and 15: unidentified roulettes. *See pages 132–133*

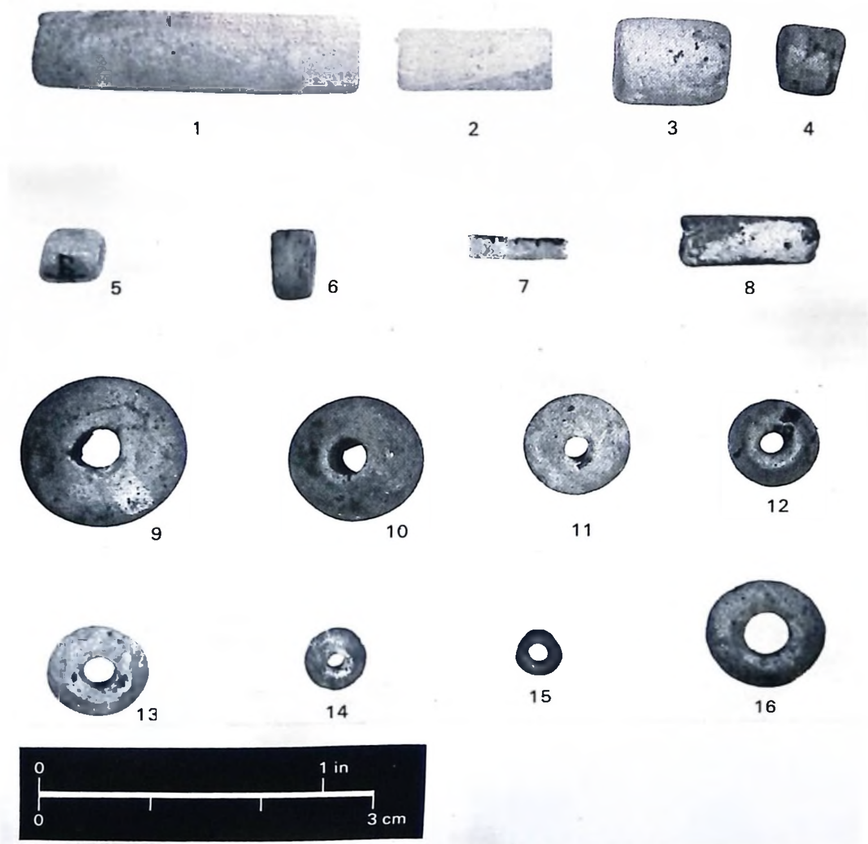

PLATE 37. A selection of excavated beads. **1–8**: Category 1. **9–15**: Category 2. **16**: Category 3. The tendency for beads of yellow glass to disintegrate is illustrated by **8** where the lighter area is due to the destruction of the surface. *See Table 19 and pages 170–177.* (Photograph by D. Simmonds)

PLATE 38. A selection of excavated beads. 1–3: Category 3. 4–9: Category 4. 10–12: Category 5. 13–16: Category 6. Item 3 consists of three beads fused together by [illegible]
See Table 19 and pages 170–172. (Photograph by D. [illegible])

PLATE 39. A selection of excavated beads. **1**: Category 7. **2**: Category 8. **3**: Category 9. **4–8**: Category 10. **9–10**: Category 11. **11–12**: Category 13. **13**: Category 15. **14**: Category 16. **15–16**: Category 18. *See Table 19 and pages 170–177.* (Photograph by D. Simmonds)

PLATE 40. A selection of excavated beads. **1–3**: Category 18. **4–7**: Category 19. **8–15**: Category 20. **16**: Category 21. *See Table 19 and pages 170–177.* (Photograph by D. Simmonds)

PLATE 41. A selection of excavated beads. **1**: Category 21. **2–4**: Category 22. **5–6**: Category 23. **7**: Category 24. **8–9**: Category 25. **10**: Category 26. **11**: Category 27. **12**: Category 28. **13–14**: Category 29. **15**: Category 30. **16**: Category 31. *See Table 19 and pages 170–177.* (Photograph by D. Simmonds)

PLATE 42. A selection of excavated beads. **1–2**: Category 31. **3**: Category 32. **4**: Category 33. **5–6**: Category 34. **7–9**: Category 35. **10–12**: Category 36. **13–14**: Category 37. **15**: Category 38. **16**: Category 39. *See Table 19 and pages 170–177.* (Photograph by D. Simmonds)

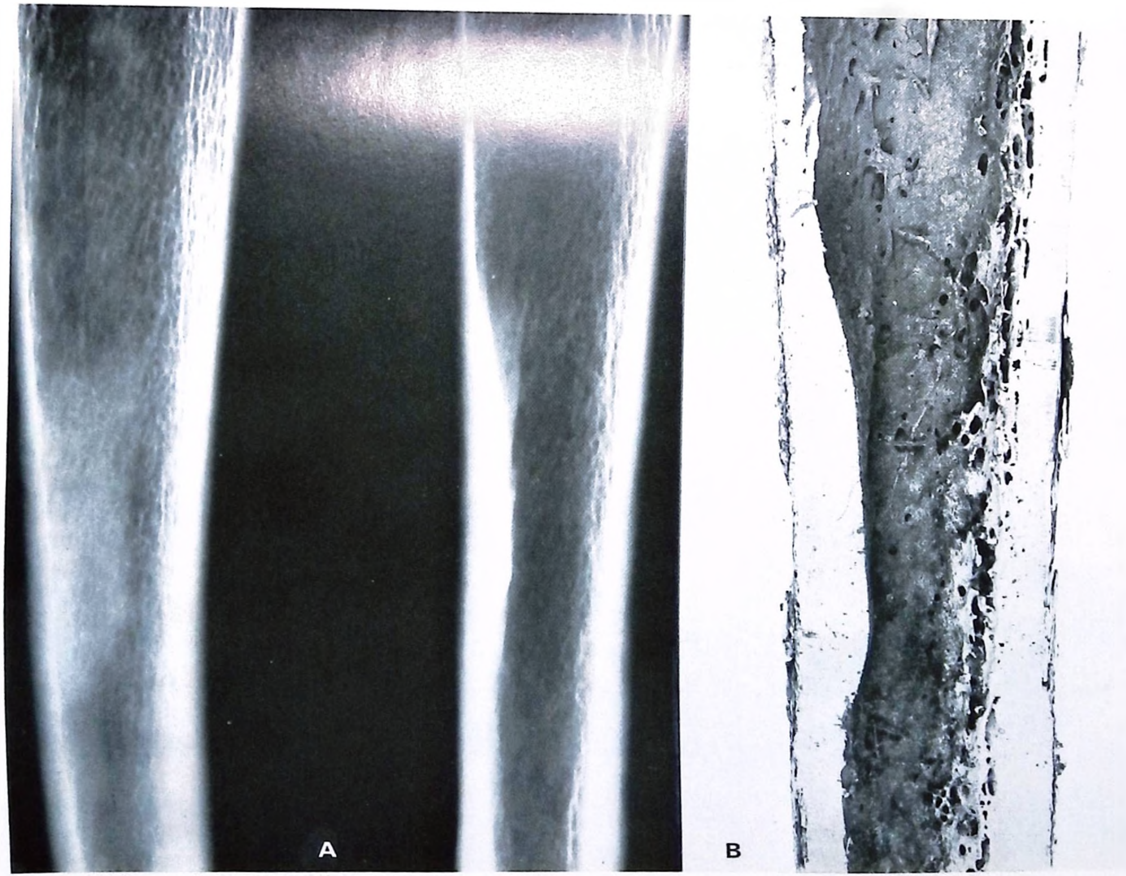

PLATE 43. Endocortical thickening in the distal femur: A—radiographs (antero-posterior and lateral views); B—cut specimen. Clerks' Quarters site, Cutting II, Feature 21. *See page 214.* (Photographs by Medical Illustration Unit, University of Ibadan)

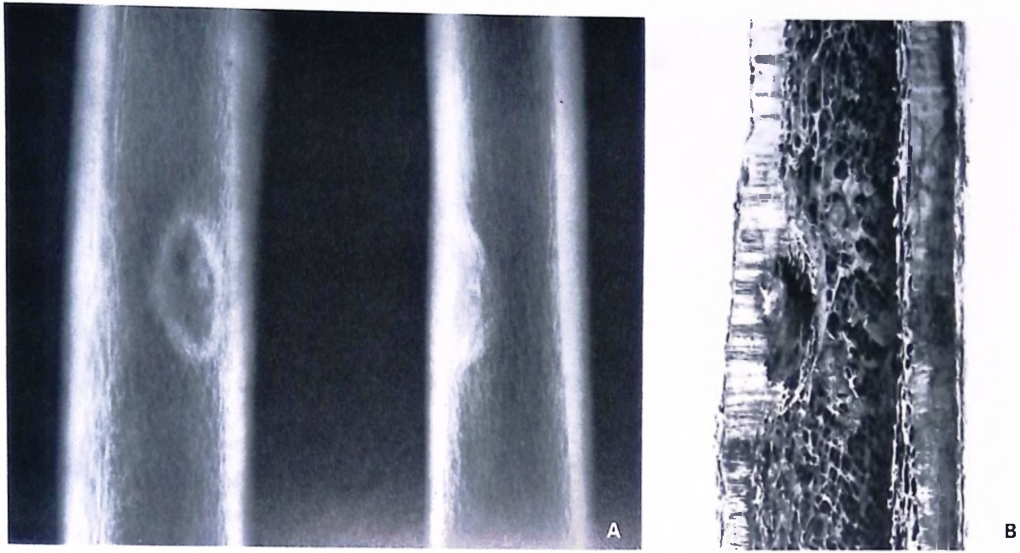

PLATE 44. 'Doughnut' lesion wit[illegible]—radiographs (antero-posterior and lateral views); B—cut specimen. Clerks' Quarters site, Cu[illegible]. (Photographs by Medical Illustration Unit, University of Ibadan)

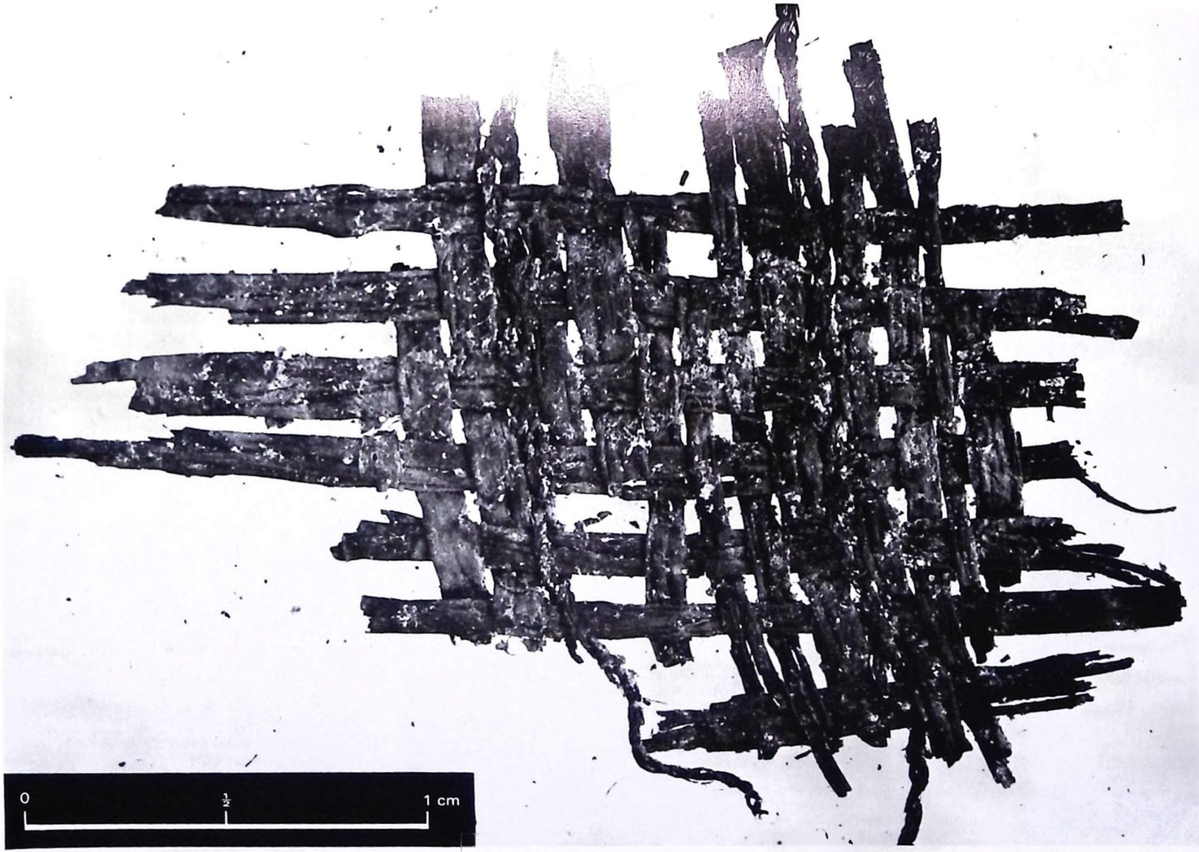

PLATE 45. Photomicrograph of fragment of cloth from the lower filling of Feature 21 in Cutting II on the Clerks' Quarters site. *See page 236.*
(Photograph by Shirley Institute)

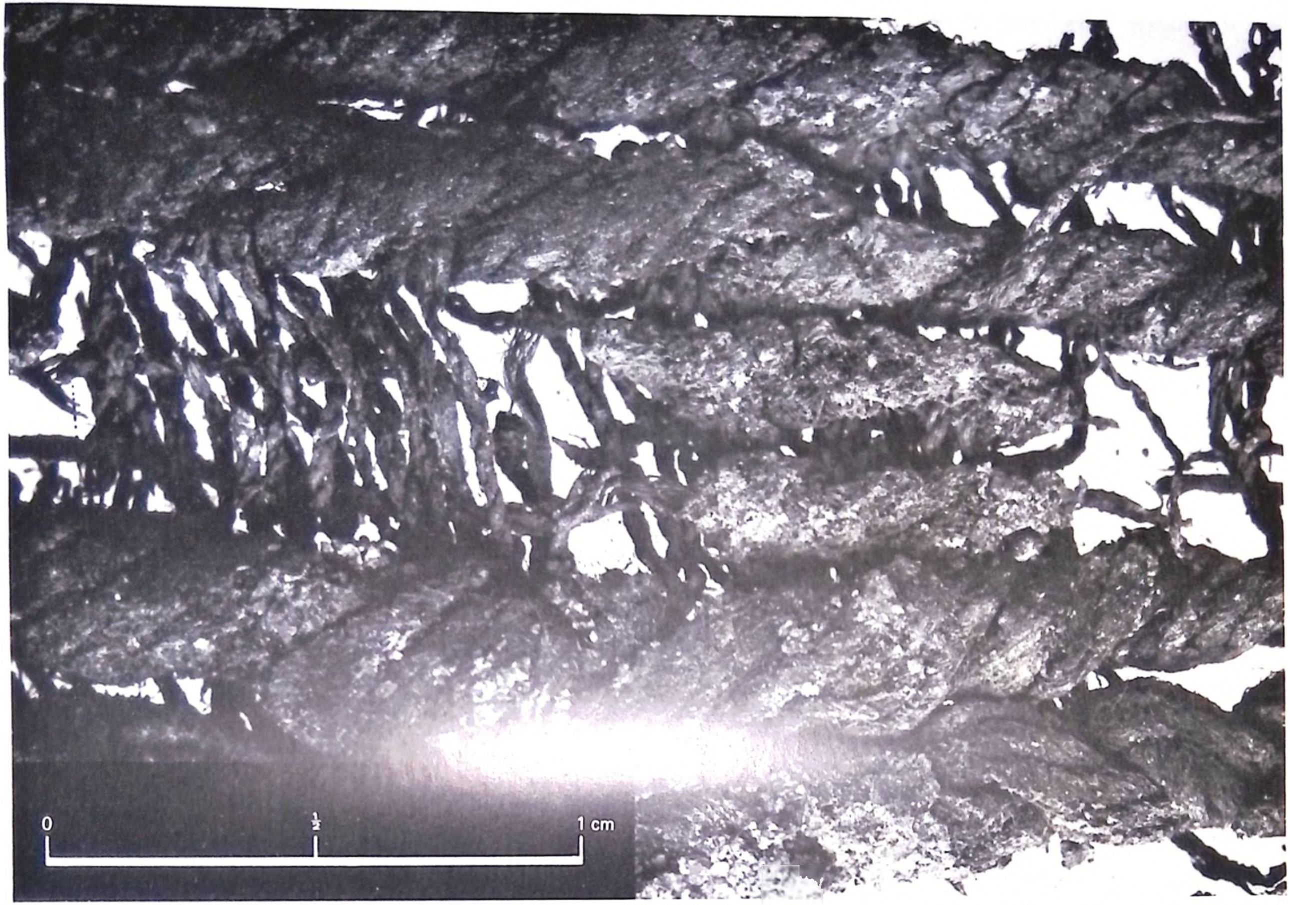

PLATE 46. Photomicrograph of fragment of cloth from the lower filling of Feature 21 in Cutting II on the Clerk's Quarters site. *See page 236.*
(Photograph by Shirley Institute)

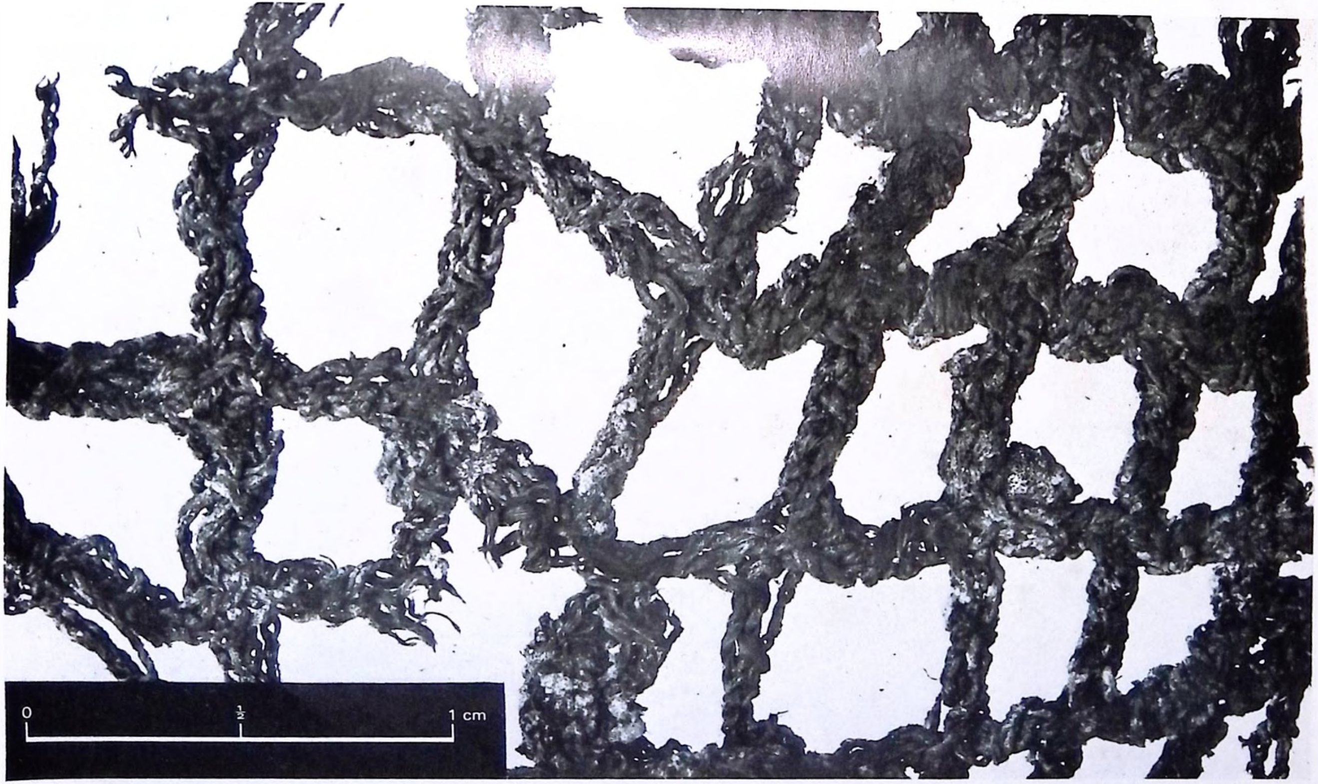

PLATE 47. Photomicrograph of fragment of cloth from the lower filling of Feature 21 in Cutting II on the Clerks' Quarters site. *See pages 236–237.*
(Photograph by Shirley Institute)

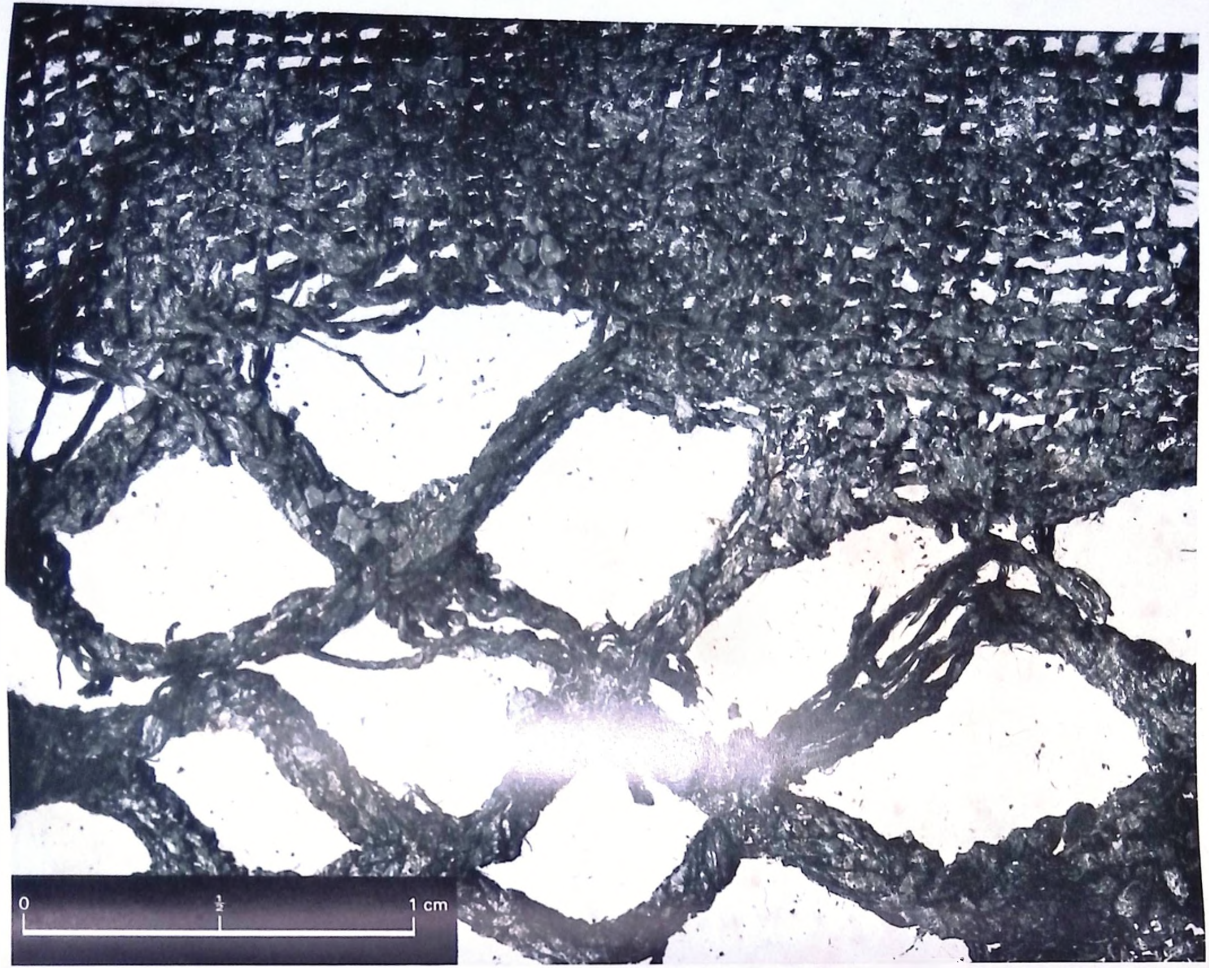

PLATE 48. Photomicrograph of fragment of cloth from the lower filling of Feature 21 in Cutting II on the Clerks' Quarters site. *See pages 236–237.*