AN EXAMINATION OF MIDDLE BRONZE AGE II TYPOLOGY AND SEQUENCE DATING IN PALESTINE, WITH PARTICULAR REFERENCE TO THE TOMBS OF JERICHO AND FARA (SOUTH).

VOLUME ONE

by

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ABSTRACT

The thesis is concerned with the study of Sequence Dating in the MBII tombs of Palestine, particularly those from Jericho and Tell Fara (South).

In Chapter One, I have briefly discussed current views on the absolute chronology of the MBII, more to assess the length of time the period covers than to proscribe its precise dates.

In Chapter Two, I have sought to examine the system of relative chronology in the MBII which Kenyon has proposed for the Jericho tombs. The meaning of typological variation is discussed; Kenyon's chronological arguments are analysed and the application of her technique is shown. In an attempt objectively to test her hypothesis, potential statistical methods are investigated and a selection of suitable deposits is made for experimentation. These deposits are then subjected to a multi-variant trait analysis using multi-dimensional scaling. The results indicate an insufficient degree of difference in the deposits; they appear to be virtually indistiguishable from one another.

In Chapter three, I have republished the MBII tombs from Tell Fara, particularly Petrie's '500' Cemetery, in order to investigate the tombs of this period in more detail. I have redrawn all the available objects and attempted to

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clarify the confusion which surrounds each tomb. Plans, sections and drawings are grouped tomb by tomb.

In the final chapter, I have compared and contrasted Fara with Jericho. At Fara, certain unique features of the tombs do not seem to fit readily into the Jericho typological system. It is therefore proposed that typological change in the MBII may well be a function of local variation rather than of chronological difference.

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PREFACE

The MBII is a comparatively short and fairly homogeneous period, within which a relative chronology has been inferred based upon the typology of objects. The inference has been made almost exclusively from tomb evidence, particularly from Jericho. Variation in tombs of any one period may be the result of many different influences. At Jericho, Kenyon has implied a chronological order in the MBII tombs. She believes that the impiric differences in the objects are overwhelmingly the result of variations in date. With new methods now available, I believe it is possible to test these conclusions objectively.

The Jericho tombs have been well excavated and published. I am concerned that, when compared to other sites, this factor may outweigh their importance in any typological study. The '500' cemetery at Tell Fara (South), excavated by Petrie's expedition in the late 1920's, represents tombs of this period of MBII. Despite the speed with which Petrie published, the accuracy and visual impact of his writing cannot compare with a more modern and fuller format. It is for this reason that I have collected the available data to reconstruct this MBII cemetery. Since its tombs are cut in the MBII, unlike the reused tombs elsewhere, the cemetery offers a considerable amount of discrete data. Further, it is unlikely in the modern financial climate that MBII cemeteries of this size and character will ever be excavated

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again. It is therefore important for the study of the MBII period that the Fara cemetery should be reappraised.

CHAPTER ONE

INTRODUCTION TO THE MIDDLE BRONZE AGE II

The Palestinian Middle Bronze Age has been variously styled by different scholars. Albright, Wright and American scholars in general, together with Israeli scholars, favour its total division into MBIIA, and then MBIIB and C, reserving the term MBI for the Intermediate Bronze Age.[1,2,3,4] Kenyon et al use the term EBMB for the Intermediate Bronze Age, MBI for MBIIA and MBII for an undivided MBIIB and C.[5,6,7] It is this latter system that will be used throughout, unless it is necessary to refer to the work of the former scholars. The reasons for this choice are firstly that since the MBII B/C division is based upon stratigraphic considerations at Tell Beit Mirsim and elsewhere, then such a division will not as readily apply to tomb chronology which is being considered here. Secondly, most of the references used here relate to Kenyon's work at Jericho, where naturally the single division MBII is used.

INTRODUCTION

The search for a chronology in the Middle Bronze II period has two aspects. The first is the attempt to attach absolute dates to the beginning and end of the period, at the same time making an assessment of the duration of that period. The second is the possibility that, by examining the evidence dated within the period as a whole, one might propose a sub-division of the period based upon relative typological considerations.

ABSOLUTE DATES

Method

Primarily, absolute dates during this period are contrived by a comparison of typology and stratigraphy of the Palestinian sites with Egypt and Syria, being the nearest and most influencial literate areas. The Egyptian dating method as a rule is a reasonable tool, but at this particular period it includes the ill-documented and confused IInd Intermediate Period with the notoriously obscure inter-regnum.

Petrie[8] was among the first to connect the Egyptian records to the archaeological evidence. In Egypt, the period is dominated historically firstly by the infiltration and later the takeover of the Delta area by the '<u>Heq Khastu</u>' 'The Hyksos'. From the histories and canons of the Hellenistic and Roman historians, Manetho, Eusebius, Josephus and others, king lists can be estimated for part if not all of the dark age of the Second Intermediate Period. Names of the Hyksos kings,

Khyan, Apophis, Shesha, Maa-ab-ra and many others give tantalising glimpses of the history of the age.[9] These king lists, together with names on 'Hyksos' scarabs, have shed shafts of light into the otherwise historical darkness of contemporary Palestine, so that a quasi-historical framework has been built up around the archaeological evidence in the reflection of the events in Egypt, interpolating as it were the political and social events as the archaeological evidence might suggest.

In Palestine, the archaeological evidence shows that a new era dawned at the beginning of the Middle Bronze Age. A new lease of urban development seems to have been promoted with the rebuilding of so many of the cities which had decayed at the end of the Third Millenium. New pottery appeared, new not only in shape but also in technology, being wholly wheel made. Later in the period, as part of the new urbanism, elaborate earthwork ramparts sprang up to defend every major city in the Levant, from North Syria down to Egypt. New burial customs were to be seen, both individual graves and communal or multiple burials.

These new features have been variously explained in the light of the contemporary and later external evidence. Kenyon would attribute the commencement of the period to the first appearance of the population known as the Canaanites as they moved from Syria into the coastlands of Phoenicia and Palestine possibly during the Twelfth Dynasty.[10] (De Vaux places this event 1000 years earlier.[11]) Other named groups are also invoked, the Hurrians[12] who moved into Syria to form the Mitannian kingdom, or the Hapiru, seemingly the vagabonds

of Western Asia at that time.[13] Whatever the truth of these theories, from Petrie's time onwards few scholars would contradict the arguement that the changes which took place in Palestine, certainly in the second half of the Middle Bronze Age, are to be associated, at least in part, with the Hyksos mentioned in the Egyptian records. Here the comparison ends, for the Hyksos, known by name and deed in Egypt, are unknown elsewhere. The term 'Heq Khastu' itself is unenlightening, being translated usually as 'rulers from foreign lands' or 'princes of the desert'. The vagueness of the title throws no real light upon the ethnic composition or the historical background of these people. The certain facts are that such a named group conquered the Delta in about 1720 B.C. at a time of Egyptian weakness. They set up their own albeit Egyptianised government at a new capital of Avaris, and there they ruled until expelled violently in about 1567 B.C. by Amosis I and his successors of the new Eighteenth Dynasty. Apart from the two events of their conquest and their expulsion, together with the Classical versions of their king lists, very little is known of these people, particularly in Palestine. It is therefore impossible to establish whether the MBII period in Palestine is to be bracketed only within the Hyksos period in Egypt. As will be seen, the end of the MBII may well coincide with the dateable expulsion of the Hyksos from Egypt, but its beginnings may well be before the Hyksos invasion of the Delta and so lie outside this quasi-historical evidence.

Results

There are currently two distinct views on the absolute dating of the MBII period, which may be described as the lower and the upper sequence.

The lower sequence has been advocated particularly by Albright and others. His basic system is:

MBII A	about	18th Century
MBII B	about	17th and early 16th Centuries
MBII C	about	1575 - 1500 B.C.[14]

The reasoning behind the end of his MBII C (MBII) is the dating of Amosis I not before ca.1530 B.C., instead of as high as 1580 or 1570 B.C.[15] Further, he states:

> "The destruction of Palestinian towns in the late MBII, before the spread of Bichrome Ware would have to be placed between about 1540 as the earliest reasonable date and about 1520 at the latest".[16]

(Here, however, he is inclined to give the dates of Amosis as 1557 - 1532 B.C.) At any event, it is this low chronology for the beginning of the 18th Dynasty which creates the low chronology of the preceeding periods. In this low dating of the reign of Amosis I, Albright is followed by Helck,[17] Nims,[18] Ehrich,[19] Wright[20] and others.

Once this low accessional date is accepted, then the beginning of the 18th Dynasty, the expulsion of the Hyksos and the end of MBII which all coincide are all placed here. For the beginning of the MBII period, Albright would place this

in the 18th Century. MBII B, the earlier half of the period, he would place as follows:

> "MBIIB (Tell Beit Mirsim Stratum E) would then date from the end of the 18th century to the early 16th century and MBIIC (Tell Beit Mirsim stratum D) might be dated c. 1575-1500 in Palestine."[21]

The reasoning here for the late start to MBII B comes from his demonstration that Royal Tomb IV at Byblos is that of Prince Yantin (Entin), a contemporary of Zimri Lim of Mari,[22] whose dates he gives as 1730 - 1697 B.C., and that the material from that tomb is analogous to that of the Palestinian MBI.[23] Thus MBII (MBIIB) cannot begin until the end of the 18th Century. The internal division, MBII B and C has little typological significance, but it is promoted by Albright to explain Tell Beit Mersim D which he dates 1575 - 1500 B.C., a late phase of MBII.

In adopting this late date for the commencement of MBII, Albright coincidentally gains the political division between MBI and MBII since the ca. 1720 B.C. date that he advocates is also that of the Hyksos invasion of Egypt,[24,25,26] based upon the firm evidence of the 400th anniversary of this event in ca. 1320 B.C. commemorated by Ramesses II in the 13th Century.[27]

The net result of this chronology then is to place the MBII in the two hundred year period, late 18th Century to late 16th Century B.C.

A somewhat higher chronology is perhaps the most accepted at the present moment being dependent particularly upon the accession date of Hammurabi of 1792 B.C. proposed by Smith[28] and followed by Rowton,[29] Saggs[30] and others. The accession of Amosis I in this system would be ca. 1567 B.C. These dates for the MBII period are adopted by Mazar and others, with the internal division of MBII being as follows:

MBII B	1800 - 1630	13th - 18th Dynasty[31]
MBII C	1630 - 1550	

Kenyon also proposes this chronology, but without the internal MBII B/C division, making it thus a homogeneous period between 1800 and the early 16th Century B.C.[32] though as Parr points out,[33] Kenyon would at one time have placed the beginning of MBII[34] as early as 1850 B.C., the date she took for the end of MBI and thus it would have been a three hundred year period instead of the two hundred and fifty year period to which she has latterly inclined, or the two hundred year period which she once suggested in an even earlier publication.[35]

There are a number of scholars who, whilst accepting the basic tenets of the higher chronology for MBII, vary idiosyncratically at certain points, both in initial and terminal dates and in the duration of the period. Tufnell,[36] on the evidence of the Jericho scarabs would place MBII (i.e. Kenyon's MBII Jericho tombs) considerably earlier in the Second Millennium than others. Her MBII would commence in the reign of Sesostris I (1971 - 28 B.C.), perhaps one hundred and fifty to two hundred years earlier than the normally accepted starting point. Equally the end of Jericho MBII she would place

about the reign of the Salitis/Sharek[37] whom she would equate with Mayebre Sheshi, founder of the 15th Dynasty ca. 1674 B.C.[38] This would give a period of two hundred and fifty to three hundred years for the MBII period as with Kenyon, but the overlap of dates is only about half that number of years.

Wright[39] accepts in general the lower chronology although his dates of "c.1750/1700" for the beginning of MBII (MBII B) and those of "1550/1500" for the end of MBII (MBII C) do seem rather ambivalent. This indecision is further manifest in his dating of the Jericho tombs with an amended upper limit of 1775/50 and a lower of 1600 B.C., thus compressing the period into only one hundred and fifty years.[40]

Yet another personal view is expressed by Lapp.[41] In reviewing Kenyon's Jericho I, he states:

> "A tentative absolute chronology of ca. 1850/00 - 1600/1560 is suggested for the MB groups. That all these belong within the period ca. 1750 - 1600 is indicated by the Tell Beit Mirsim parallels (late TBM stratum D characteristics are lacking) and evidence of the 1960 campaign at Balatah".

CHAPTER TWO

THE SEQUENCE DATING OF THE JERICHO TOMBS

Introduction.

The Jericho tombs were excavated by Kenyon from 1952 to 1958. They were published in the two Jericho volumes I and II in 1960 and 1964 respectively.

The richness and the fine state of preservation of the MBII tombs from the site prompted Kenyon to propose a system of internal chronological division of the MBII period, at least in relative terms, based upon the variability of the typology of the objects from the tombs. The division has gained wide acceptance and support by scholars, and subsequent interpretation of other sites has been attempted on this bases.

After general remarks on the meaning of such typological variation, the hypothesis which Kenyon has put forward will be examined, criticised and objectively tested, both as a study of these MBII tombs and of the strength of the evidence, but also as an exercise in the method of approaching data and an attempt to understand its true meaning and capabilities.

ON THE MEANING OF TYPOLOGICAL VARIATION.

It is considered to be a well established fact that typological variation may be used to understand chronological variation. It is based upon the truth of its opposite, namely the empirically established fact that over a course of time pottery types come into and go out of general use by a given group of people.[1] That is, that during a sufficiently long period, changes in the fashion of objects will be sufficient to be visible to a modern observer, and thus that very change becomes an indicator of chronological progression. If the fashion changes, then time must have passed. If the changes in fashion can be detected, then the passage of time in relative terms can be determined.

There can be no doubt that typological variation certainly is crucial to the creation of a time scale without which archaeology would have no skeleton to flesh out. It is equally manifestly true from stratigraphic excavation that fashion does change and hence is a reflection of a period by period alteration, not only in technology or use, but also in simple shape, design or decoration, things which are peripheral to utilitarian considerations and yet seem to change according to 'taste'. The question which arises, however, is how closely this change can be meaningfully observed. The typological variations may only be visible between two distinct periods, after some political, ecomic, domestic or technological upheaval. These major alterations one cannot question. With regard, however, to intervening epochs,

spanning as they often do some hundreds of years, it is in these periods that typological study may or may not be a tool for determining similar but smaller variations in fashion and hence for establishing chronological divisions within each epoch.

There are a number of riders to this type of interpretation of evidence which should be borne in mind if such analysis is to be accurately concluded. Firstly, more frequently than not, the objects or part objects from excavations are objects of little sophistication or artistry, simple household utensils, cooking pots etc., in which a changing style may not be sufficiently appreciable. Secondly, it is assumed that if change in fashion is evident then this change is based solely upon a concommitent change in date. In a complex urban society in which one conceives of taste dictating sequential changes in style, then this factor may also dictate contemporaneous variations which, if analyzed in isolation, might be mistaken for an indication of chronological difference.

Assuming that in a given period of time typological variation can be demonstrated to be a factor of the time change, one must then ask the question whether this change is a constant change, what Kirkbride[2] refers to as the regular rhythm of evolution and fashion. Is it a gradually varying change in which each moment is unique, or is it, on the other hand, a variation that takes place in bursts, as external events reach an impinging climax as with an invasion, or internal changes alter the source of the goods, as with the death of the potter? If the latter, then there may be long periods of fashionable inactivity.

If a typology is worked out on the basis of an assumed time lapse, another question to ask is whether every object in the variable repertoire is equally indicative of the change, or whether some objects mirror fashion more readily than others? It is possible that, for example, styles in artistic objects may illustrate much greater variance than utilitarian objects. Equally the reverse may be true, that in objects of great artistry conservatism is much more prevalent than in the continually changing domestic scene.

Yet another problem is whether or not the objects analysed truly represent the balance of available information, either in style or in numerical distribution. It is possible that specialized groups of evidence, among which tomb groups must be counted, may not reflect the true pattern of the taste change which is the indicator of chronology. It may show singular patterns of taste in form and distribution based upon class or tradition or local custom, or it may contain deliberately retrogressive elements not common to the material evidence of the period as a whole and thus be misleading.

Having arrived at the need for a typology at all, and assuming again that the taste/fashion/typology change is the indicator of a time change, it is necessary further to understand which criteria are to be used in trait analysis. Within a given object, which will have a large number of potentially variable qualities such as size, weight, shape, decoration, technology, many of these qualities themselves being divisible into many others, one has to try to understand those changes which indicate the time change, for certainly

these criteria will be only one aspect of variability. Fluctuations of size may not always mean the same thing, being a feature of chronological variance at one point, a local difference at another and a manufacturing difference at a third.

When considering all these potential variables and the different reasons for variability, then it is indeed a major assumption to make that the overriding factor of any discernable differences is a factor of chronology, an assumption in fact that denies, or at least relegates, any other reason for change. Also particular care should be exercised in matters of 'change', 'fashion' or 'taste' when expressed by a society of the modern day, where every opportunity is provided to vary the somewhat jaded modern taste, and where very rapid technological growth has automatically meant very rapid social changes and hence rapid typological variance. This 20th century mentality must not be implanted upon peoples whose social, political, economic and technological background may not visibly change for some 100-200 years and whose social order might well be based upon rigid conservatism than upon continual change, who might in fact oppose change at any level rather than promoting, demanding or accepting it. In that circumstance it must be extremely difficult to isolate the subtle unseen changes that must, one supposes, be taking place, having been robbed of the more obvious ones through social stability rather than social flux.

THE JERICHO CHRONOLOGICAL SYSTEM.

The aim of the Jericho tomb typology as visualized by Kenyon for the Middle Bronze II (MBII) period is implicitly more than a search for a sub-division or a grouping of the 51 tombs published. The actual process of typological selection from its very inception drives inexorably towards a chronologically based structure which, she believes, is the over-riding factor behind such typological variance as might be adduced. From the beginning of the process then, this search builds into the system a single-minded direction, together with its single interpretation of date.

a) The creation of the relative system.

The system adopted by Kenyon in the first instance would seem to be that of a preliminary sub-division of the tombs, made on the basis of one type of vessel which is an apparently accepted chronological indicator. This vessel might be described as the narrow necked juglet, found during the Middle Bronze Age in two forms, the piriform juglet and the cylindrical juglet. Morphologically, the piriform juglet appears in the Early Bronze III period (EBIII) and it is well attested that it is then then precursor of the piriform juglet which later dominated the Middle Bronze I period and then the Middle Bronze II.[3] Setting aside its numerical distribution, chronologically the form is transmitted through the pre-Middle Bronze period into that of the Middle Bronze Age. (The singular omission of the form in the EBMB repertoire and its subsequent re-emergence in MBI does not concern us here.)

The cylindrical juglet, which seems designed to perform the same function as the piriform, frequently being indistinguishable from it from the shoulder upwards, is known to be popular in MBII but continues into LBI when its vogue ends.[4] What Kenyon then implies as a fundamental basis for her typology is that if piriform juglets are pre-MBII and cylindrical juglets are post-MBII, and since both occur in the MBII proper, then since they perform the same function and must therefore be to an extent mutually exclusive, there must have been a transition from the one type to the other during the MBII period. Of the typological groups she says:-

> "This grouping emerged from the study of features of recognized chronological significance, such as the relative frequency of piriform and cylindrical juglets".[5]

One might express this concept crudely by proposing three chronological periods on the presence or absence of the piriform or cylindrical juglets as follows:-

i)	All tombs with piriform juglets only	=	EARLY
ii)	All tombs with piriform and cylindrical juglets together	=	MIDDLE
iii)	All tombs with cylindrical juglets only	=	LATE

When one examines the published typology for each group, this basis would seem to have been adhered to. Naturally, once the simple presence or absence has produced a threefold grouping, then the numerical distribution can be used further

to sudivide the created groups. The presence or absence for the juglets in the Jericho tombs as phased is as follows:-

Group	I	II	III	IV	V
Pirif.	21	128	132	20	2
Cyl.	1	3	29	43	47

The apparent disparity of the piriform juglets in Group I lies in the group's smallness, so that the ratio of distribution is correct even if the numbers do not quite tally. In those tombs which have both varieties, the numerical distribution will place those with a high proportion of piriform juglets to cylindrical juglets early in the scheme, and those with the opposite ratio late in the scheme.

This basic division having been made, Kenyon maintains that the other types of pottery seemed to confirm the division:-

> "There proved to be a very satisfactory agreement in the classification of the different vessels; tombs which were assigned to a group on the evidence of one type of vessel proved to have the same features in respect of other types of vessels".[6]

The groups now began to support the evidence which the juglet division had given and so stregthened the case for chronological subdivision. It is at this point, right at the root of the typology, however, that there might well have been a primary short circuit in the system which was overlooked. Once the juglets had been accepted as the initial regulator of typology and the necessary divisions were in

force, it becomes clear that the criteria which were then selected to assess the remainder, and by far the bulk of the vessels, were not only arbitrarily chosen to support the ready-made divisions, but were differentially chosen as the juglet division suggested that differences ought to occur. In short, the remainder of the vessels had already been divided before their typology was given to them.

> "The features governing the classification have been selected ad hoc for each object with regard to the points which seemed most likely to help in a chronological typology"[7]

The possibilities for error here are legion, having been built unconsciously into the very foundations of the system. If the features of the typology were thus chosen ad hoc for each object with due regard only to the points which seemed most likely to help in a typological division already created, then it would be virtually impossible for there not to have been

> "a very satisfactory agreement in the classification of the different vessels"[8]

since the classification was based upon the very need for agreement.

Nevertheless, despite this inbuilt circuit, the system has provided a clear range of typology, as expected, which gave an initial series of divisions to the MB II period.

At first, five divisions (I-V) were thought to be adequate to express the grouping of tombs, with Group I being the earliest, Group II the next and so on.[9] Later, with additional tombs published, the divisions could be made more subtle, with Group II being divided into three phases; Early, Middle and Late; Group III was divided into two main phases; Early and Main. The number of tombs involved in the process was 51, although two are not applicable, (K3 & B47), so that the actual total is 49, made up as follows:-

A 1, 12, 15, 34, 38, 46, 134, 136

B 3, 12, 35, 46, 48, 50, 51

D 6, 9, 13, 22

G 1, 33, 37, 46, 73, 82

H 6, 11, 13, 18, 22

J 1, 3, 7, 9, 12, 14, 19, 20, 37, 39, 42, 45, 54

M 11

P 1, 17, 19, 21, 23

Some of these tombs are further subdivided according to early (ancestral) and late (final) burials, and the whole sub-divided number were placed, in their best position one with another on the basis of typology, into the various groups.

With the tombs now in a rank order, or at least in groups which have a latent rank order, it will be obvious from the original premise regarding the comparative earliness of the piriform juglet and the comparative lateness of the cylindrical juglet which group is the earliest, and

which the latest. The typology has thus furnished a relative sequence for the majority of the Jericho MB II cemetery.

b) The External Application

More recently, Kenyon and others have used this relative typology in the interpretation of further sites and other groups of tombs. A comparison has been made between the typological groups of the Jericho phases and material from most of the major sites in Palestine in an attempt to fix the relative chronological position of these sites during the MB II period.

> "The contents characteristic of these (five) phases can be used as a yardstick for establishing the contemporaneity of levels on the site at Jericho and also for levels on other sites".[10]

At Tell Duweir (Lachish) the ramparts are dated to Jerichoan phases,[11] at Tell el Far'ah (N) a tomb equated with Jericho phase III is used to date the town wall, whilst at Shechem a burial, construed as phase II helps to date the stratigraphy of the MB II temple.[12] A comparison is made between the MB II tombs at Gezer and phases II-IV at Jericho[13] whilst at Tell Ajjul none of the burials are thought to pre-date Jericho phase V.[14] Similarly at Tell Far'ah (South) 58 of its 60 MB II tombs are equated with the last phase at Jericho, phase V.[15] The most explicit use of the phase system at Jericho for the

reinterpretation of a site is the complex reappraisal of Megiddo[16] where strata XX to XIV inclusive are reinterpreted piecemeal. Here an eight phase pottery typology is assessed and utilized to order 51 tombs of the MB II period. The architectural problems of the site are then explained and the buildings rephased accordingly, despite frequent lack of the original stratigraphic correlation of the tombs with these strata.

Kenyon is not alone in applying the Jericho typology in other contexts. Tufnell attempts to give the system an absolute meaning when she suggests that a dateable scarab in Group V at Jericho would imply a date for the "end of the cemeteries" which is somewhat earlier than the conventional one, a tacit acceptance that phase V at Jericho is correctly placed as the final chronological group at Jericho.[17]

More explicitly, Parr, in his discussion on the MB II defensive systems invokes the Jericho groups to date particular systems.[18] He compares the pottery associated with the defenses at Megiddo, with the pottery of Jericho Group III.

Perhaps the most extensive use of the Jericho typology is the work of Pritchard at El Jib, where he has classified the pottery and interpreted his tombs there with direct reference to Miss Kenyon's groups.

> "The MB II age pottery (at El Jib) has been classified according to the scheme developed by K. Kenyon".[19]

In the publication of these tombs, the pottery is compared piece by piece with the Jericho tomb material and a Group interpretation thus aduced, e.g.:

> "The carinated bowl (Fig. 16.1) belongs to Type B.3.c which appears at Jericho only in Group IV. Fig. 16.2.6 shows dipper juglets of Type B.1.b which appear in Groups III and V".[20]

This 'verbatim' use of the Jericho Group typology at El Jib occasionally produces confusions such as:-

> "If the bowl shown in Fig. 17.1 had a base, it has parallels in the Jericho tombs; JI Fig.120:14 - GROUP II and Fig.140:18 - GROUP III). The pedestal vase in Fig. 17.3 is of the C.2.a type which appears in GROUPS IV-V".[21]

But for an example of the reduction of this comparative method to its conclusions, Pritchard says of T.13:-

> "The carinated bowl with flat base shown in Fig. 18.1 belongs to Type B.2.e, which appears in GROUPS I and III at Jericho. The storage jars in Fig. 18:2,3 belong to a well-documented MB II type, A.2.a (GROUPS II, IV-V at Jericho)" his brackets.[22]

Not unnaturally he believes it is clear that the tomb was used in all three major periods of the cemetery's use.

This re-interpretation of other sites in Palestine in the light of the Jericho typology naturally adds credibility and strength to the original structure. A system which has such wide ranging capabilities and which seems to form such a coherent picture is difficult to refute. Yet even at this wide level of application the short circuits continue. It might be said that the pottery of tombs placed in a rank order according to an already established rank order of other tombs, the order of which is based upon a similar assemblage of pottery, is by very nature bound to support the correctness of the original order. In short, if groups are assessed on the basis of previously ordered groups, then a similarity must be exhibited in the final appearance of the two sets of groups. But it must be made quite clear that such a re-interpretation of these sites does not therefore lend overwhelming support to the Jericho system of ordering and typology, it merely conforms to it whenever that system is applied. The apparent ease with which these sites and tombs fit together by a comparison of their group typology may well occlude the inherent weakness of the system which is being used to evaluate them, and thus the confidence brought about by the realization that the system can be applied with success elsewhere may be the false confidence of the man with the powder to keep away tigers where no tigers exist, yet who vigorously acclaims its efficiency.

c) From Relative to Absolute Chronology.

Finally, Kenyon repeatedly points out that the phases at Jericho are not absolutely dateable phases since the dating is only relative.[23, 24, 25] What the phases at Jericho do produce, according to her chronologically based typology, is a relative rank of order of tombs within the cemetery at Jericho, that is that some tombs are earlier or later than other tombs in the same site. If this is so, then there can be little question of their relative order suggesting an absolute system, i.e. how much earlier or later. The arguments against being drawn into such an interpretation are self-evident, yet the temptation to visualize the tombs, or the groups at least, covering the total MB II is all too obvious in the application of the method. There are perhaps two aspects of the problem; one is the length of time that each period might last, and hence the distance in time between any one group and its immediate successor or predecessor. The other aspect is that of the linking of specific groups, or even parts of a group, into the wider absolute chronology of the surrounding literate civilizations.

The length of time each period might last of course cannot be decided with any more certainty than pure conjecture. Even if such a chronological order can be assessed for the groups, there is no guarantee that each period is of equal duration; nor yet finally that if the groups do represent a span of the MB II period, that the whole period is represented by the tombs; or even if it is, that each stage of that period is represented by each change in group.

Scarabs.

The direct connection between the typologically assessed relative chronology and any absolute chronology has been suggested by the appearance in the tombs of a number of named scarabs which accompanied the dead.[26] There are two scarabs used initially by Kirkbride with this absolute aim in mind.

i) One was discovered in tomb B35[27] and bears no royal titles, but carries the name Khahotepre, the prenomen of Sebekhotpe V or VI[28]. It comes from a Group III tomb and if allowed to, it might suggest a date for that group of somewhere at the end of the 18th Century.

ii) The second scarab in question was found in tomb H.13.[29] It is one of the 'Sons of Re Sheshi' class, although its spelling is variant. It was found in Layer 1 of H.13, a final burial ascribed to Group V.

The inherent and overwhelming weakness of this type of evidence has not been overlooked by Kirkbride:-

> "The unreliability of attempting to date by scarabs is evident".[30]

i) In the case of the first example, one can summarize the problem in four parts. Firstly, it is not clear which particular king is intended by the scarab, whether Sebekhotpe V or VI. Secondly in this confused historical period, the

considered dating for kings varies considerably.[31, 32] Thirdly, it seems that it is not possible to attribute the scarab in question to any particular phase within B.35, which is a multiple successive burial, since the object may have slipped down among the bones after decay.[33] The scarab is in fact found among the ancestral burials of B.35, but one consolation is that all the burials, ancestral and final, from B.35 are said to belong to Group III.[34]

Fourthly, it is mere supposition on Kirkbride's part that the date of interment in any way approximates the date of manufacture. It is equally a supposition that the date of manufacture is close to the date of the reign in question. She believes, however, that because this particular king was relatively unknown and short lived, then the chances are that the scarab was made either during that king's reign or directly after it. Another view of the scarabs of this period, however, would be that they were so frequently copied for their 'lucky charm' value that little understanding was shown for the original, which might in this case account for "the signs being rough"[35] and hence the time lapse between the reign, the manufacture and the burial might well be long rather than short.

That the date of interment of this Khahotepre scarab was probably later than the reign of the king in question is, of course, more likely. The rider which Kirkbride places upon her estimated tentative date for Khahotepre of 1716, that the interment was perhaps considerably after this time,[36] rightly expresses her earlier doubts. One cannot draw very much more from this evidence, then, than that phase III must in part at least date from a post ca. 1716 period, and may

be the whole of phase III is to be placed later than that time, particularly since the provenance of the scarab, if correct, would make it ancestral phase III. If, further, a "considerable" lapse of time is allowed, then phase III could be well in the 17th Century or even later.

ii) The 'Son of Re Sheshi' class of scarab in Tomb H.13 is equally beset with problems. The same weaknesses are present in the interpretation here as with the previous example, namely that it is first debated which king is mentioned on the seal. Hayes[37] speaks of the scarabs of one Mayebre Sheshi being both numerous and widely distributed, and would allot to him the dates of between 1674-1654 approximately. Gardiner[38] thinks of Sheshi as a rather more spurious unlisted king before the true appearance of the Hyksos. On the stratigraphic evidence, according to Kenyon, although the whole tomb is phase V it is not possible to associate this scarab with a true final burial. The only certainty, even if the dates are correct, must be that this period cannot be earlier than the commencement of the 15th Dynasty and the accession of the Hyksos (1720), nor patently can it be later than the fall of Avaris (1567) which once more allows ample laditude for chronological manoeuvre. (c. 150 years).

The scepticism with which Kirkbride discusses the capability of the scarab evidence is now more than justified. Nor is she the only researcher to be highly sceptical of the results. Kenyon is particularly definite in her refusal to be persuaded into anything other than <u>termini post</u> from these scarabs.

> "The Middle Bronze Age tombs provide no internal dating evidence of absolute chronology. The number of inscribed Eqyptian scarabs found is very small; even if it were possible to date them on their merits with much precision, it would only be possible to use them as a termini post."[39]

Having voiced the difficulties of absolute dating, and having accepted that it is in fact not possible to achieve, Kirkbride, in her conclusion to the discussion on scarabs, attempts to conjecture the dates for the groups.[40] For the beginning of the whole period, she invokes a scarab from Garstang's excavation of Tomb 30 at Jericho,[41] a scarab purporting to be of the reign of Hetepibre, the prenomen of Sihornedjheryotef the Asiatic. Some scholars argue that this king is 12th or 13th Dynasty, that would be early in the MB I/MB IIA. For the end of the period, the 'Son of Re Sheshi' scarab is used to give a date in the 16th Century, whilst the beginning of Group III is tied to the Khahotepre scarab.

The latter two scarabs have already been discussed. Their Group provenance is uncertain, their interpretation is in dispute and any connection between some absolute date that they might suggest and the absolute date of any tomb group from Jericho has the reliance of pure guesswork. As for the 'early' scarab from Garstang's excavations, (a critique of which appears later) in order to deny its value it ought to be enough simply to quote Kenyon's own opinion of this evidence when she states that Garstang's deductions cannot be relied upon.[42] However, the impossibility in using this

scarab for dating the early part of the Jericho grouping is suggested by Kirkbride herself when she has to admit:-

> "It was hoped that the pottery (which accompanied this scarab) might fall into one of the first two groups, but this was not the case, so the scarab must have been an heirloom."[43]

One would anticipate that such an observation would evoke a rather different interpretation to the one that follows:-

> "Nevertheless, the presence of this scarab at all does strengthen the slender evidence that the time range covered by the tomb lies within the 2nd Intermediate period".[44]

Having begun upon this course of discussion, Kirkbride continues by setting the dates of the 2nd Intermediate period from 1786 to 1567, which are certainly not a matter for debate here. But then, setting aside her previous caution, she conjectures:-

> "These two dates, 1786 and 1567 are divided by 219 years, and if all five groups of tombs be contemporary with the 2nd Intermediate period then about 44 years should contain the span of a single group."[45]

She admits that this cannot be proved. Nevertheless, she then insists:-

> "A tentative chronology can be suggested for Groups III - V based on the Khahotepre and Son of Re Sheshi scarabs."[46]

Although she has already strenuously researched this possibility and found it to be fraught with difficulty, and although scepticism and uncertainty have tempered her discussion up to this point, her final conclusion is the opposite of cautiousness.

> "Taking about 1716 B.C. for the starting point for Group III, some 150 years should comprise the total for the three groups; about 50 years for each. Assuming a regular rhythm and time span for each group, then a further century should be deducted for the first two groups, thus arriving at about 1816 for the beginning of Group I."[47]

d) <u>Acceptance of Absolute Chronology</u>.

There can be no doubt that these conclusions are spurious. Once suggested, however, these now 'absolute dates' have tended to be used by various scholars as though genuine. Kenyon, despite an initial caution which is well founded, accepts the dating system and applies it with the intention of suggesting a more definite absolute date than the evidence permits.

> "...a date late in the nineteenth century can be suggested for the beginning of phase 1, of c. 1716 BC for the beginning of phase III, and the end of phase V coinciding with the end of the Second Intermediate c. 1567 BC"[48]

Parr also, having expressed caution, states:-

> "Taking everything into consideration, it seems likely that Group III is to be dated c.1725-1675"[49]

but further, in a discussion of Kenyon's dating for M.B.II

> "Presumably on the basis of the date of c.1725 established by Miss Kirkbride for the beginning of the M.B.II phase III pottery ....."[50]

Wright also accepts the originally unacceptable in his review of Jericho II.

> "Miss Kirkbride's suggestion regarding the spread of groups III - V seems sound, hence a date of c. 1775/5- - 1600 seems sufficient for all the groups."[51]

The extreme scepticism of Kirkbride's original statements has passed through the cautionary stage and in the search for absolute dating has been unfairly transposed from the indefinite to the definite, and in the one case a date of "c. 1725" is quoted for the beginning of phase III.

Once the errors of accepting absolute dates of this order have crept into the argument, and the centre of the typologically divided system has been 'dated', then the following step of considering the earlier phases I and II and the later phases IV and V as filling the whole of the MB II period in their respective position is only too easy to make. Little regard is now paid to the original scepticism which would allow "no absolute dating", or that scarabs were very "unreliable" as a dating method.

Kenyon having clearly stated her lack of trust in the absolute dating capability of the tomb material nevertheless implies in several of her later publications that she visualizes the groups as extending through the whole range of MB II as she conceives it (see above). For the earlier groups she states:-

> "MB II vessels are included in the First Semitic Group (at Gezer), but mainly come from the Second Semitic Group. A good group belonging to an <u>early stage of MB II</u> is published from tomb 1, which is probably contemporary with Jericho phase II".[52]

The early stage of MB II equated here with Jericho phase II must naturally allow for an even earlier stage of MB II for phase I.

Similarly, for the last part of the MB II period she states:-

> "At the South end (at Tell Far'ah s.) there was a gateway which the pottery shows to be dated to the end of MB II (Jericho phase V)".[53]

Explicitly, this view that the Jericho cemetery covers the whole range of the MB II period is confirmed in 'Amorites and Canaanites', where Kenyon states that the MB II succession:-

> "....is well shown at Jericho, where it has been possible to establish a sequence of pottery assemblages covering a period from c.1800 to the early 16th century."[54]

At this stage, the phases become open to dating and interpretation according to the requirements of the individual scholar. Wright, for example, would compress phases I and II into "only a few decades"[55, 56] to accord with his concept of the lower chronology of MB II. Having accepted the dating of phase III as the end of the 18th century, the date at which he would see the commencement of MB II, he is bound then to visualize phases I and II as MB I (his MB IIA), but compressed for the close comparison with MB II (his MB IIB).

> "Groups I and II seem to me to be late MB IIA (Kenyon's MB I) and transitional MB IIA and IIB.... hence a date c.1775/50 - 1600 for all the groups ....."[57]

Looking in more detail at Parr's dating of the Megiddo defences, he compares pottery from Jericho phase II for his argument, maintaining that pottery in T2125[38] supports an early date for the glacis:-

> "The bag shaped juglet with basket handle .... at Jericho occurs only in phase II. The implication is that the defences had originated well before the beginning of the 17th century."[59]

Despite his earlier caution, here is the exact equation of phases with dates, internal relative chronology with external absolute chronology. The transmission of the error is completed.

(There is incidentally a further probable malfunction of the system in this particular use of the Jericho typology, for the writer has accepted the parallel of the two pots, the examples at Megiddo and Jericho, as proof of chronological similarity. What was omitted from the statement, however, is that the bag shaped basket handled vessel is so rare at Jericho that only one occurs, the one in Group II tomb G.37.[60] On the other hand, another similar though slightly carinated singleton occurs in tomb J.3 which is ascribed to Group I,[61] and further, a handle and rim of a third unknown shaped singleton appear in B.35 Group III,[62] which statistically puts a different complexion upon the evidence.)

e) Summary

In retracing the steps of the argument, it appears

1. Typological variance is initially accepted as able to be interpreted in chronological terms.
2. Preliminary grouping of the tombs then took place on the basis of changes in chronologically significant

vessels, particularly piriform juglets and cylindrical juglets, changes, that is, in relative distribution.

3. Other objects were then typed into the original grouping with the variable criteria that would best support the grouping itself.
4. This typology now having been adduced as a relative chronology, other sites are fitted into the scheme, which adds confidence to the method.
5. Through a series of weak and inconclusive arguments, this relative chronology is fixed into an absolute dating system and its remainder distributed evenly through the unfixed interim.
6. Other sites in Palestine, tomb and tell sites, are interpreted, dated and compared one with another on the basis of this finally assessed time-fixed typology.

The weakness of each stage has been stressed to illustrate the way in which the method implies an unconscious acceptance of the unacceptable - the short-circuiting of the group typology, the false confidence of the external application, the acceptance of absolute chronology against the evidence, and the final application of the proven system. All these stages, hypothetical enough in themselves, are built upon two fundamental assumptions which are at the centre of the problem. They are that

1) it is a correct initial assumption that typological variance is here to be interpreted solely as a function of linear (continuous) chronology, and that therefore any assessment based upon that assumption is correct.

2) That the juglets, which are one of the main bases of the grouping, are chronologically significant in their relative distribution and occurrence, not only outside MB II but particularly inside that period.

These two assumptions will now be questioned, not so much utterly to refute them, but rather to broaden the number of interpretive possibilities in each case.

THE CRITICISM

The primary basis of the chronological division of Kenyon's Jericho tombs, the progenitor and supporter of the typology which describes it, is that the grouping:-

> "... emerged from the study of features of recognised chronological significance, such as the relative frequency of piriform and cylindrical juglets" (see above Ref. 5)

In any criticism of the system, it will be necessary to examine what is meant by the term 'of recognised chronological significance', that is the background which enabled Kenyon to accept certain facts as already proven.

a) <u>The background.</u>

The concept that piriform juglets tended to occur more frequently in the early part of MBII and that cylindrical juglets conversely tended to occur more frequently in the later part of the MB II was first proposed by Garstang in his publication of eight of the MB II tombs he had excavated at Jericho in the early 1930's.[63] His eight tombs, numbered, 9, 12, 22; 19, 31, 13, 4 and 5 contain similar material to those excavated by Kenyon; his two most important are Tomb 9 and Tomb 5. Six of the tombs, which he describes as 'grotto' tombs, can be recognised as the same type of multiple successive shaft and chamber burials common in Kenyon's publication, and to the other two, 5 and

19 he gives the dubious title of 'graves'.

As interpreted by Garstang, a number of tombs contain 'layers' (9, 19, 13 and 5) allowing the possibility of dividing the pottery found within them into relatively timed groups, that is some material which might be construed as early, and some as late. Other tombs, he felt, could be dated into the early or late context by means of scarabs (31 and 4) and thus a comparison of the groups could indicate which types were 'late' and which were 'early'. The remaining two tombs he diagnosed on the basis of the other six. From his distribution of the objects in the two groups, early and late, and from the 'stratigraphy' which he has ascertained, the piriform/cylindrical juglet distribution is clearly defined.

To tomb 5 he ascribed seven layers: the last three, g, f and e he maintained were MB II. In his object occurrence chart for these layers:[64]

g - (the lowest and hence the earliest)	Piriform : 59	Cylindrical : 1
f - (the middle MB II layer)	Piriform : 20	Cylindrical : 4
e - (the uppermost MB II layer)	Piriform : 6	Cylindrical : 11

Similarly with Tomb 13:

c - (the lowest layer)	Piriform : 8	Cylindrical : 2
b - (the next lowest)	Piriform:: 3	Cylindrical : 6

In both cases the early layers contain more piriform juglets than cylindrical, and the later layers are

the reverse of this. Quoting Garstang as authority for this idea, Tufnell follows with the Lachish material:-

> "The charts of the tomb deposits at Jericho make it quite clear that on the whole piriform juglets have an earlier range than cylindrical forms."[65]

Garstang adds to the 'stratified' picture tombs such as Tomb 31, which he maintains is very late in the MB II period owing to the appearance of a scarab among the debris which he possibly is able to ascribe to the last Pharaoh of the Seventeenth Dynasty, Kames (Kamose) and thus to the 16th Century. In this group there were four piriform juglets but ten cylindrical juglets.

Garstang makes a number of other observations on early and late pottery forms which follow on from these basic stratigraphic conclusions. For example, several features concerning the bowls in the tombs seem to fit into the picture. In the bowl profiles, carination at the keel or the shoulder has always been a feature of the Middle Bronze Age. This general feature he refined to distinguish early and late groups. Angular profiles are seen by Garstang as early, being common in MB I where they are said both by him, and later by Tufnell, to be copies of metal prototypes of the XIIth Dynasty.[66, 67, 68].

As time passes and the origins of these bowls recede, their angularity is said to decrease, giving way to a rounder profile in the late MB II. This theme is taken up on several occasions by Garstang. In tomb 12 for example,

the pottery of which is compared by him with the upper 'stratified' layer (i.e. the late layer) of tomb 9 and therefore by inference itself late, he observes that the bowls "lack the sharpness of their metal prototypes".[69] Carinated forms are also absent from the dateably 'late' Tomb 31.

The gradual rounding of the bowl profile is seen by Kenyon also to be of chronological significance, as in her assessment of the relative frequencies of different versions of her B type carinated bowls from Jericho. Types B1-5 are what she describes as "sharply angular" whereas B6 and 7 are "angle rounded". The rounded angle bowls (B6-7) she points out are "still rare" in Group III (B6),[70] "not yet found" in Group IV (B7) (a curious sequence of events) and finally are "present" in Group V, the last group of which also sees the angular carinated bowls, (B1-5) "no longer present".

Returning to Garstang's typology, he notes that bowls with internal ridges on the inside of the base are, like the rounded profile bowls, a late feature, for example, those in Tomb 31, one of his 'dateably late' tombs. Further, he quotes in support of this conclusion:-

> "Mr. Starkey, now excavating Tell Duweir regards this feature (the internal ring) as typical of the end of the Hyksos period"[71]

Kenyon again makes this same point in her analysis, using the feature as diagnostic of her later groups. Her bowls with recessed centres, D2c, 3c, 4a, 4b etc., are

"not yet found" in early Group II.[72] By Group II mid., these bowls, D type with recessed centre, are "present but still rare". Group III sees the D type bowls "present", and by Group IV they are "common". Again, the D type bowls with recessed centre are "present" in Group V.[73]

Again returning to Garstang's typology, the pedestal vase (Garstang's 'Goblet') occurs in both early and late phases of Garstang's MB II, but the addition of the cordon (Garstang's 'Collar') at the neck and the base is seen as a feature of lateness, as with Tomb 12,[74] or with 'late tomb' 31 etc.

This point emerges very strongly also in Kenyon's search for chronologically diagnostic forms, in that the cordoned pedestal vases are considered the 'developed' type of the vase. So strongly does Kenyon consider the validity of this somewhat trifling change that the presence or absence of this feature on vases in the tombs is used time and again as the main indicator of lateness or earliness of each tomb, (e.g. G 82, P 19, P 21 etc.)[75]. Also, in her tables of diagnostic forms, the "early" non-cordoned vases (Type A) are "common" in Group II[76] and III[77] but they become "less common" in Group IV and "rare" in Group V, whereas the 'later' cordoned vases are "not found" in Group II mid., they are still "rare" in late II,[78] but by Group IV they are "common".

To a large extent then, the conclusions which Garstang deduced from his understanding of the 'stratigraphy' of his tombs, particularly 9 and 5, as to which features were early and which were late in the typology of the

MB II pottery, seem largely to be supported by Kenyon's own observations on the division of her mainly unstratified tomb material from her Jericho tombs. The juglets, bowls and pedestal vases have been mentioned, but one might also compare the frequencies of lamps and other objects and find equally comparable views.[79]

In fact, although it is not acknowledged, the choice of the ad hoc features which Kenyon has made which distinguish one group of pottery from another are so close to those observed by Garstang, to the virtual omission of any new features, that one is forced to speculate that Garstang must consciously or unconsciously have influenced Kenyon's later choice of her features of chronological significance, those, that is, that were already "recognized". The apparent coincidence of these features in the work of her predecessor, and also at the root of the typological analysis at Lachish, must, it seems, be the meaning of that phrase of Kenyon's:-

> "...features of RECOGNIZED chronological Significance"

Such recognition most certainly begun with Garstang, was perpetuated by Tufnell and here is accepted and enhanced by Kenyon.

b) Reliability

If the progression of the idea above is in any way true, then one must take a closer look at the validity of the original ideas, based surely upon the validity of the original division of the material which resulted in these chronological features becoming 'recognized' in the first place. The question to ask then is: how reliable is Garstang's stratigraphy upon which his early and late divisions of MB II are based, for Kenyon herself certainly advises extreme caution on any stratigraphic evidence from her own tombs.[80] Even so, of Tomb 13 Garstang states that the layers contain:-

> "Characteristic examples (of pots) from the earliest to the latest phase of MB II and though the specimens found are not numerous, they accord with a broad sub-division of that period into two phases, MB II a and MB II b".[81]

Nevertheless, his evidence for the span of these two periods, or of their relative closeness, or their exact position in the MB II is of course only speculatory. Further, the basis of the scheme naturally depends for its virtue upon internal tomb stratigraphy alone, which is stratigraphy in a vacuum, having no connection with any other stratigraphic or chronological system beyond the broadest context of MB II. Over and above that, however, the validity of these so called stratigraphic divisions is by no means clear as the eventual diagnosis of the pottery might lead

one to believe. Just as with Kenyon's tombs, Garstang's material is as a rule badly disturbed. Of the five vital layers of Tomb 9 with its early and late levels Garstang acknowledges:-

> "It was not until the 4th or 5th layers (d and e) that the contents could be regarded as stratified in something like their original sequence".[82]

In Tomb 12, the contents were "badly disturbed".[83] In tomb 22,

> "The contents had been disturbed.... the record ... tells the same story of numerous desiccated burials which had been turned over more than once, so that they reveal no trace of their original position. Nor can it be claimed that the find spots of the three layers indicate the position of the objects".[84]

In Tomb 13, where two main layers were discovered,

> "The ... two layers b and c were so close together that they were hardly separated as archaeological strata".[85]

Garstang himself is only too well aware of the ambivalent nature of the evidence when he qualifies a diagnosis by saying:-

> "....if there is any reality in the distinction we have drawn between the upper and the lower

layers of Tomb 9".[86]

In actuality, of course, his 'stratigraphic' divisions are highly unreliable since they seem to be little more than sporadically assessed dead levels arbitrarily taken through the complex and disturbed deposits, as here typically:-

> "The remaining 30 cms of depth were cleared in two arbitrary layers, lettered b and c."[87]

Later, however, he relies upon these arbitrary layers for his analysis of his 'early' and 'late' forms.

The uncertainty of accepting Garstang's original conclusions has not escaped Kenyon, who states of Garstang:-

> "His deductions from layers by centimetres above floor level cannot be relied upon".[88]

And she continues by warning that the stratigraphy of such tombs cannot be used in the formulation of relative chronologies:-

> "Any evidence available from association or super-imposition has been analysed, but it is not to be relied upon for establishing relative chronology of the objects found".[89]

Returning finally to Garstang's Tomb 5, he feels that unlike the others of his tombs, this tomb:-

> "Contained no fewer than 536 objects, packed together in well-stratified layers which

> together provide a very full and continuous series from the early MB age to well into LB 1."[90]

The strata bear out his conclusions, which might well have proved the efficacy of his conclusions were it not for the fact that, as Kenyon points out in a footnote, so unreliable is Garstang's understanding of the stratigraphy of his tomb that:-

> "This has led to erroneous conclusions as to the contemporaneity of MB and LB II types of pottery."[91, 92]

In proper consideration of this situation, it is clear that in the total scheme of Kenyon's tombs at Jericho, she has used "features of recognized chronological significance" to create the basis of her five group division. The recognition of such chronological features would seem naturally to revert in origin via workers like Tufnell et al to the evidence adduced by Garstang, evidence of which he himself was unsure, upon which Kenyon is reluctant directly to rely and which by modern demands of stratigraphic analysis cannot but be rejected as unsound.

c) Validity of Cylindrical Juglets as a dating criterion.

In a final examination of the seemingly accepted variant distribution of the piriform and cylindrical juglet, much has been made by Garstang, Tufnell and Kenyon of the early and late forms of this narrow-necked juglet. In

fact, as has been pointed out, it is the relative frequency of this vessel that lies behind the group division of Kenyon's tombs. It is as well then to scrutinize the validity of the conclusions regarding this vessel which are here so clearly relied upon.

In broadest terms, the piriform juglet is seen to be the earlier of the two variants as it first appears in EB III before the end of the third millennium and its use continues into MB II. The cylindrical juglet is construed as the later variant of the two since being found in MB II it also continues into the LB I period. It is possible to propose then that the cylindrical juglet gradually ousted the popularity of the piriform juglet during the MB II period. The idea of the increase in the popularity of the cylindrical juglet being to the detriment of that of the piriform juglet would be suggested by the evidence of Garstang's tombs, remembering, however, the difficulty in accepting this evidence. As has been mentioned, the idea was taken up by Tufnell and is also supported by Kenyon's reorganisation of the MB II tombs from Megiddo.[93] The cylindrical juglets clearly occur only late in her eight divisions of MB II at this site, in fact not until the fifth Group E: conversely the early groups are completely dominated by the piriform juglets to the exclusion of the other variety. The late growth of the popularity of the cylindrical juglets ousts the piriform juglets totally by the seventh period, Group G.[94]

If one is trying to understand the chronological progression of typology in the MB II period on the basis

that piriform juglets are an early MB II form because they are a legacy of the EB III and MB I periods, and also that cylindrical juglets occur late in the MB II period because they occur in the LB I, and being concerned with the overlapping of these two forms in the MB II, it is important to realise that cylindrical juglets do not make their first appearance in the MB II period. They have already occurred in the preceeding MB I period.

> "The cylindrical juglet with its pyxis-like body is common in MBIIb (Early MBII) and appears already in MB IIa (MB I)."[95]

Several examples of an MB I occurence are to be found at Megiddo.[96, 97] Regarding the phenomenon, Kenyon comments:-

> "Cylindrical juglets are certainly mainly later than piriform, and eventually supercede them both in these groups and at Jericho, but at both sites there are curious sporadic earlier occurrences."[98]

These early occurrences in MB I she describes as "proto-types". It is now difficult to avoid the inconsistency of saying that cylindrical juglets occur in MB I and at the same time saying that "no examples occur in MB II Groups A to D", half of her eight MB II Megiddo groups. She remarks upon the curiosity of this anomally, but in the very first instance the groups were divided by Kenyon not by any external criteria but "from the evidence of the pottery".[99]

The ultimate weakness of the whole typological system is exposed here in these 'observations' since they bear witness to the disquieting process of an autogenic hypothesis transforming itself into empiric fact to prove the hypothesis upon which, as a fact, it relies for its very existence.

It is clear that the cylindrical juglet has already made its appearance before MB II begins and that therefore it should be accepted as a possible variant form from the beginning of that period; any sorting of the material must allow for this to happen. That no examples occur in Groups A - D at Megiddo is used by Kenyon to prove the integrity of the system, but it rather points to its obvious weakness. The ultimate conclusion must be then that if tomb groups without cylindrical juglets are made to be early MB II groups, then by that token early MB II groups will not contain cylindrical juglets. "The tombs (which) fall nicely into ten phases",[100] (two extra to include MB I) are bound to reflect the phases into which they have been placed.

d) Internal typology.

In a further attempt to refine the occurrence of this type of juglet, Kenyon has studied more closely the exact forms of each of these juglets which occur in the Jericho tombs. Garstang had already noted that he felt that flat-bottomed cylindrical juglets were more common in the later part of the MB II whereas earlier ones had

slightly rounded bottoms.[101] Kenyon has, however, concentrated her attention on the bases of the piriform juglets, showing that examples with ring bases seem to be markedly earlier than those with button (or solid) bases:-

> "In phases I and II, the predominant type (of piriform juglet) has a ring base. This type of juglet is not found in the later phases. It is to be expected that this type of juglet is earlier than those with button or other types of bases."[102]

She cites the Megiddo tombs of the MB I period as further evidence of this.[103] The button base piriform juglet then is seen by Kenyon as a later form among the early phases of MB II; they are for example "extremely rare" in Group I at Jericho.[104]

That the ring base is seen as an early feature of the piriform juglet and the solid or button base as a later feature paradoxically does not accord with the true situation. There are, of course, examples of the button based piriform juglets, the later of the two forms in MB II, in the MB I period, for example at Ajjul.[105] Particularly odd in this context is the fact that if the ring base is early and the button base late as Kenyon has suggested, then the progression is the reverse order to that of her bowls which she says acquire ring bases instead of solid bases as a late feature of the MB II period. The point is queried by Tufnell:-

> "If a ring base is indeed an early detail (of piriform juglets) it is curious to find the development moving in inverse order to the progression of a ring base on the bowls which became more pronounced as time went on."[106]

The piriform sequence observed at Jericho then is the reverse of the expected order, that is from ring to button and not the expected button to ring, as is the case of the Jericho A type bowls for example.

e) External Stratigraphy.

It is clear that the tomb evidence alone is frustrating where such fine divisions of typology need to be assured, since all conclusions based alone upon that evidence will simply be a truism. In order in any way to validate the theory, one would have to turn to stratified material in a proper tell context, to act as an external guide. Site stratigraphy within the MB II period is relatively rare, compared for example to the number of tells which were occupied during this time, but if one turns to one of the very few tells which does have an internal division, Tell Beit Mirsim, an examination of the two phases of MB II here only deepens the uncertainty of the sequence of juglets. In his discussion of that pottery, Albright states of Stratum E, MB IIb (early MB II) that the cylindrical juglet is very common and that its flat bottom differentiates

> "... the jugs which have it from other jugs with the same upper part, but with a piriform lower part, provided with the characteristic button base (sic). THERE SEEMS TO BE NO CHRONOLOGICAL DIFFERENCE BETWEEN THE TWO TYPES."[107]

Albright's Stratum D is the later of the two MB II layers. He finds that the pottery of E was very difficult to distinguish from D.[108] However, he does note that the piriform juglet fades out at the end of MB II for he states:-

> "The piriform juglet was passing out of use, if we may judge from its rarity, at the end of period D".[109]

It should be pointed out, however, that 'the end of period D' involves certain quantities of imported Cypriot ware,[110] a predominently LB type, so that Tell Beit Mirsim proves only that the piriform juglet continues throughout the MB II period and then its occurrence stops.

Naturally, the most obvious comparison to make between the tomb typology and tell material would be between the Jericho tombs and the Jericho tell stratigraphy. Indeed hopes were high that this correlation would take place.[111] The tell material at the time of writing has not been published from Jericho, but a preliminary statement has been made upon this subject by Tufnell:-

> "Dr. Kenyon tells me the pottery from the relevant tell levels (at Jericho) yielded few diagnostic sherds, apart from a range of cooking pots which rarely appear in the Jericho tomb deposits, so that after all it is the tombs which provide the best material for the chronological progression".[112]

With that hope gone, and with the proven uncertainty of the tomb stratigraphy to reflect in any way a latent typological/chronological progression, then if, as Tufnell states, the piriform and cylindrical juglets are often together and share the same details and if also the cylindrical juglet is found in MB I, and the piriform juglet right at the end of MB II, the foundation for dividing non-stratified material from tombs upon the idiosyncratic appearance of either of these forms into early or late groups is no longer trustworthy.[113]

In the conclusion of this discussion, it would seem that the idea of the earliness of the piriform juglet in distinction to the lateness of the cylindrical juglet, together with the associated forms, is beset with difficulties. There is the problem of the unsound stratigraphic evidence in the tombs both of Garstang and Kenyon; there is the perpetual short-circuiting of the acceptance of diagnosis, basing a theory upon it, and using the result to prove the original and add strength to the whole argument. Also, there is the problem of the appearance of the cylindrical juglets and the piriform juglets at times which contradict the results of the enforced divisions, throwing doubt upon the validity

of the opposed differential distribution of the two forms; there is the problem of the lack of any site-stratified correlation for the typology which has been induced in the data; and finally there are the problems of the anomalies in the expected and observed position of some of the details of the features. With these problems in mind, the concept of 'features of recognized chronological significance' which, as has been said, lies behind the whole system of Kenyon's subdivision of the MB II period must be severely limited in its application and any resultant conclusions themselves must be approached with the most extreme caution.

To the obvious question, why do the Jericho groups seem so right when indeed they now look so weak, the answer is that the features chosen to describe the division are those which reflect the division already made, and those divisions, once made, and once described by those features, are necessarily taken to be chronologically significant divisions. If other criteria were used and other possibilities allowed, then other groups would be formed, but to chose typological criteria because the groups are already constructed is to demand that those criteria reflect the divisions created; it would be an unjust world if this were not the case.

f) Statistical Viability

In the overall discussion of the validity of diagnostic types as indicators of each of Kenyon's Groups, she draws up charts of the description of vessels current in each of the groups, and often comments upon the degree

of 'currentness'. Much play is therefore made of the terms 'rare' or 'common'. The intention no doubt is to support the view that the distribution of these vessels occurs in a lenticular manner, that is, that vessels come into fashion, are fashionable and then fade from common use. This type of distribution has already been commented upon and referenced,[114, 115] and it is believed to be fundamental to chronologically changing typology. Kenyon expresses this curve of popularity by the terms "not yet found", "becoming common", "common", "becoming rare", and "no longer present".

In order that these terms can be properly understood, such as "rare" or "common", it is imperative to understand them in a numerical and percentile context, to see how many vessels can constitute either term. In the brief observations below, the same type catalogues that have been previously used are again the source of the figures.

In considering the potential occurrence of objects in the five groups under discussion, the total distribution of vessels (pottery only) within the groups is:-

I - 78, II - 511, III - 604, IV - 242, V - 209

It will be at once clear that with only 78 vessels all told in Group I, the possibility of vessels occurring in this group, even if they are available, is considerably less than the possibility of their being present in Groups II or III. Similarly, Groups IV and V in general have a lesser chance of reflecting the full distribution of the period than II and III. The average number or vessels per tomb per group

also would bear this out, using the broad tomb divisions which are used in the publications. They are:-

I - 19.5, II - 42.5, III - 40.5, IV - 48.2, V - 23.2

that is, dividing the number of pots by the number of tombs of that group. If then the possibility of a single occurrence in Group I is lessened because that Group has only 73 vessels, all told, that possibility is lessened even more in that the tombs within Group I have on an average less than half the number of vessels per tomb of Groups II, III and IV. It might have been instructive if these averages could be tied into the average number of bodies per tomb per group, but the skull-counts are so unreliable that the exercise is probably meaningless. One general comment then on the smallness of Group I is that vessels which do not appear in that group may be said to be "not yet found", but such a statement would have little meaning as a factor in the distribution of the vessel.

In the case of the pedestal vase Ala, its 'history' is as follows:-

I and Early II	Not yet found
Mid. II	Present but still rare
Late II	Common
Early III	Common
Main III	Common
IV	Becoming less common
V	Present but becoming rare.[116]

There are 62 Ala pedestal vases in all. The terms "becoming less common" in Group IV and "becoming rare" in V

are interesting, since there are 5 examples in both Groups, and as a percentage of the total number of vessels in those groups the distribution actually increases from 2.0% to 2.4% from Group IV to V.

Another example of this kind of misrepresentation, would be the history of the pedestal vase A4.[117] It is said to be "rare" in Early II, "common" by Mid II and "becoming less common" in Late II. By Early III it is "becoming rare". Since in the whole of the Jericho tombs there is only one example of an A4 pedestal vase, in Tomb B.48, then one wonders why it has been included in the typological diagnosis, unless it is meant to be taken with the form A3, but the coupling of the two would be misleading.

Yet another example would be the pedestal vase Type A1c, an "early" type.[118] It is "rare" in Early II, "common" in Mid II, "becoming less common" in Late II, and "present but becoming rare" in Early III. In fact, numerically only two are found at Jericho, one in B48 and one in B50, both classed as Mid II tombs. Thus, although it is coupled with A1b which has a marginally better performance, the use of the type here is misleading.

With regard to the distribution of piriform and cylindrical juglets, as has already been shown elsewhere the figures are indisputable, as one might expect. In minutae, however, there are some strange uses of the figures. One of the forms mentioned in the first Jericho publication

as having a diagnostic history is the piriform juglet with button base. As already discussed they are said to be later than the ring-based types. Hence the E type piriform juglets, described as 'button based' are said to be "extremely rare" in Group I,[119] but "very common" in Group II.[120] By Group IV they are "becoming rare". The distribution is I - 7, II - 12, III - 10, IV - 2, V - 0. The figure of 7 E types in Group I represents a distribution of 9% of all the pottery of that Group, a feat only equalled among the piriform juglets by the 49 F types in Group II. "Extremely rare" would seem then to be reverse of the real situation. The error presumably has arisen because the tombs have been published in two volumes and that such misleading statements were not corrected.

The really misleading use of the diagnosis of the groups most frequently appears in the discussions about the chronological position of a particular tomb. In the discussion in support of an early date for tomb B48, for example, a statement is made to substantiate the placing of that tomb in either Group I or II.

> "There are no examples (in this tomb) of piriform juglets with a pronounced button base, type G, which just appears in Group II and only becomes common in Group III".[121]

In comparing the terms "just appears" and "only becomes common", one should be aware that in Group II as a whole there are 16 G type piriform juglets, the same number

exactly as there are in Group III. To carry the discussion to its pedantic conclusion, since there are more vessels in total in Group III, far from showing an increase in distribution, the G type juglets actually decrease in percentage occurrence, from 3.2% to 2.6%. One assumes that the error once again arose upon interpreting a Volume II tomb on the incomplete diagnosis of Volume I.

Perhaps another item which is sometimes quoted as chronologically significant is the toggle pin. It is certain that with a distribution numerically of 5, 30, 52, 34 and 39 in the 5 groups there is a rise in the occurrence rate of the pins in the 'later' groups, particularly in view of the much smaller size of the last two groups. Two limiting factors should be mentioned, however, in the occurrences of these pins. Firstly, as Kenyon points out,[122] the pins can easily slip through the decayed skeleton, become lodged in the floor debris and hence be overlooked in any clearance so that they will tend to concentrate among final burials. Also, of course, roof falls have so frequently broken the pins that it is not at all clear how many there really are.

Secondly, any difference in distribution based upon the earlier appearance of undecorated shaft pins is unconvincing, relying as it does upon only three of four additional undecorated shaft pins in Group II, which hardly constitutes an 'early' trend. Decorated shaft pins already occur in MB I,[123] and they certainly occur throughout MB II.[124]

THE OBJECTIVE TESTING OF THE JERICHO ORDERING.

INTRODUCTION

So far, having described the creation of the argument for the chronological division of the Jericho tombs and having demonstrated some of the fundamental problems attached to accepting that argument, the discussion has centred upon a subjective, or nearly subjective, approach. One might say that from a conscious "common sense" point of view, when some of the inconsistencies are brought out, then the ordering of the tombs may not seem as acceptable.

However, much of Kenyon's manipulation of the information about the Jericho tombs will have involved intuative and even unconscious selection of those facts which later become significant. With the introduction of computer science to archaeology, there are now methods available of conducting objective tests upon conclusions drawn from such complicated and varied information. Such tests should never be allowed to oust the intuative processes which are so vital to any ordering of information, but they may serve as a tool to verify or highlight some of the strengths and weaknesses of these proceedures.

This section describes the development of statistical methods designed and modified to search and to test the Jericho data. There are two advantages to be gained by this study; the one is the obvious interpretation of the results and a comparison with the already established system.

The other, less obvious, is that in the preparation of the Jericho data, one is constrained to consider and to quantify the singular nature and the problems which are inherent in these tombs.

a) Introduction to Seriation.

i) History

As long ago as the turn of the century, Flinders Petrie was predicting a more mathematical approach to the problem of comparing objects and groups of objects.

> "It is needful to resort to various statistical modes of sorting".[125]

This approach he adopted and illustrated in his work on sequence dating[126] which he used to great effect when ordering selected sealed tombs from Naqada, Ballas, Abadiyeh and Hu.[127] The realization that, if a series of groups of pottery which are not separated by any long time are compared together there will always be found some relationship between the forms in different groups,[128] led him to propose that typological variation on a time basis could place the groups, and hence the tombs, in a relative order which reflected this time basis. The result of this was 'sequence dating',[129] a series of relatively placed points in time which could be expressed by the changing typology of the pottery.

Petrie created the sequence dates as a series of relatively associated blocks of time of arbitrary or unknown duration. Were the tombs to be placed within these blocks of time, then he felt that the blocks would reflect changes in pottery typology. From 4,000 possible tombs Petrie selected 900, and within those 900 he identified 804 possible varieties

of objects, constructing the typology for those objects within the tombs. The "objects" in fact are mainly pottery. He then sequenced the 900 graves into 50 successive groups of 18 graves each; the groups he hoped would reflect an original chronological progression. Confusingly, yet characteristically, he numbered the 50 groups successively from 31 - 80 SD (Sequence date) thus allowing for even earlier groups to be added to the system after subsequent research. The group numbers became the sequence dates, but although they were relative, they had the added advantage of reflecting the sequence date range of a particular variety, from say 35 - 46 SD, thus further reflecting the gradual appearance and disappearance of types as they come into and go out of common use within the total assemblage, the two extreme SD occurences of a particular vessel would be the beginning and the end of its range of use.

The phenomenon of typological variation upon which time divisions are based has been investigated more closely in recent years in an attempt to understand its precise nature and its possible drawbacks, and also to improve the sorting techniques which give the final order from the original data. Robinson[130] and Brainerd[131] proposed a system of sorting by using matrix analysis, the matrix being made up of "coefficients of agreement" between various deposits such as tombs; that is, that by examining the similarities of object occurrence between each tomb and every other, a numerical index of agreement would be

obtained whereby tombs with a high coincidence of objects would have a high index of similarity, and those with a low coincidence of objects a low index of similarity. On the assumption that deposits which are close together in time will have a percentage distribution of types which are very similar whilst deposits with a considerable time span between them will have dissimilar percentage distribution, then the numerical indexes are a measure of how close together temporally all possible pairs of deposits are; that a pair with a high index will be close together in date because of the high similarity in the distribution of objects, and that a pair with a low index will be far apart in date because of the low similarity in the distribution of objects. Such indexes can be easily achieved.

The problem really begins in searching for a method which can be used to order the deposits according to the similarity indexes which have been produced. Robinson suggests that a matrix, a chart with two axes which list the values of the similarity indexes somewhat like a comparative mileage chart, can be made to reflect the true order in which the deposits ought to be placed by moving and changing the order until a given numerical structure is reached. This then he believes can contribute to the ordering process. The rationale behind this idea is that the pattern of similarity indexes, if properly ordered, must display a definite structure. To illustrate this, he creates "pure" data and places them in such a matrix (Fig.1.a) and the phenomenon is noted that as any row is read from left to right the indexes will grow progressively larger up to the diagonal and decrease following the diagonal. Similarly, reading from top to bottom along

any column produces the same configuration. Thus in a perfectly ordered series of deposits, a matrix would show high similarity values clustered about the diagonal and Robinson goes on to suggest ways of sorting unordered matrices to emulate this perfect position and thus arrive at the required chronological order.

The "Robinson - Brainerd" method has received considerable attention since its publication, e.g. Mathews[132] Dempsey and Baumhoff,[133] and others. The advantage of the method is that it quantifies the factors governing comparison:-

> "In chronologies based upon expert judgement it is likely that artifacts are differentially weighted but there is no way of determining what the weights are or how consistently they are used. The objective method of Brainerd and Robinson assigns weight according to specific rule."[134]

However, whilst this is true, the problem that is persistently discussed is not the theory of producing the similarity indexes which are the keys to illustrating a time-based similarity or dissimilarity, but rather the methods used to order the deposits once the indexes have been created. More modern suggestions of method may be grouped under the heading 'Seriation'.

ii) Definition

By the term 'Seriation' is meant what Petrie called 'Sequence Dating'.[135] It is simply a method of ordering deposits in a systematic fashion.[136] Furthermore, it is one of the few quantitative methods of analysis used in archaeology which can be said to have been developed by archaeologists within their own field for strictly archaeological application, though extant procedures from other disciplines are often invoked and modified for the purpose.[137]

The definition of seriation is perhaps described adequately by Michels in the following stages:-

i If a series of components (traits/objects) derive from a culture that changes through time, their relative placement on an axis of time is a function of their similarity.

ii Components representing cultural phases that are temporally close will have relative artefact type frequencies that are very similar, and vice versa.

iii If the above is true, a seriation (ordering) of the components can be made in which if time were the causative agent (and not such factors as irregularities in cultural change, spatial variation, social and functional variation, mixture or change) the results would represent the temporal placing of the components.

iv In general terms the, the term seriation means the placing of items in a series so that the position of each best reflects the degree of similarity between that item and all other items in the data set.[138]

The important point to grasp here, however, is that seriation is not a chronology; it is the best order produced given those groups and that typology and comparative method, whatever those factors of comparison might mean. Chronologies then are inferred from seriations,[139] which in itself implies the acceptance of the two imponderables, that chronological variations exist in the groups under study, and that seriation has truly reflected the differences which are related to the chronological variations thus distinguishing those variations.

iii) Development

The process of arriving at a chronological conclusion must then comprise the following steps:-

i The construction of a method of describing a group, (say a tomb) namely by typological analysis, assessing the weight that is to be given to the various factors that make up the diverse collections under study.

ii The production of some form of notation of comparison between one group of objects and any other, in type and in number, a measure of similarity or dissimilarity.

iii The chosing of a system for placing the comparison notations in their correct order, of seriating them.

iv Finally, the implying of certain chronological facts from the created seriation.

i Under normal circumstances, the construction of a typology should allow as much objectivity as possible in the analysis of the different traits of the components. The description of objects, for example pottery, would include such accounts as ware, rim shape, profile, base type, finish, decoration, height, width and perhaps many other criteria. Of these criteria, however, perhaps only a few may change on a time basis, whilst others may change for many other reasons. The assumption is that in general terms the variation described by the adopted criteria will express the underlying chronological variation believed to be present. In the case of the Jericho tombs, this typology has already been fixed, and the intention is to test the validity of the conclusions drawn from that fixed typology as given, to attempt to see whether the typology reflects objectively the chronological divisions which have been drawn from it. For this reason, the typology upon which Kenyon's fivefold division of the MB II period has been based will be submitted, with slight but necessary alteration, as the apparently ideal construction which defines the groups.

It should be pointed out in parentheses that the methods of weighting criteria of comparison and of scoring similarity are fraught with problems.

Firstly, type definition should be devised in such a way that it does not produce inbuilt correlations between several classes of artefacts to the exclusion of

other classes, as this will inevitably increase the weight of the classes concerned.[140] As an example, decoration is a criteria which can be present and is thus a comparable factor between decorated vessels but such a comparison is not applicable between decorated and undecorated vessels, nor do the undecorated vessels themselves have the same scoring potential between themselves.[141] Thus in scoring, all decorated vessels will have extra scoring criteria.

Secondly, certain objects may always tend to occur in pairs or not at all, such as cup and saucer, so that a false double similarity score will be given when in fact the objects are to be understood as one and the same.[142] Certainly at Jericho there is a tendency for dipper juglets to occur as part of storage jar equipment so that when they both occur, theoretically they might be construed as one.[143]

Thirdly, tomb contents may be limited to a certain fixed number, so that large contributions from one variety may tend to be associated with a smaller contribution from other varieties. If, for example, a certain set number of juglets are required to hold a specific number of commodities, it may be that the immediate availability of one form is directly related to the paucity of occurrence of another.[144]

Fourthly, there is within the classification of pottery what Kendall calls "a hierarchial character", that is that one may construe an overall classification of group as 'bowls', including all bowls within all tombs. Within the group 'bowls' there will be different types, for example, 'carinated bowls', as opposed to non-carinated ones. Then within that type, there will be varieties, varieties say of carinated bowls, for example those with ring bases, disc

bases or flat bases, etc. In general, the group and type comparisons which may in themselves reflect the changing chronological information sought, are ignored in the hope that:-

> "...graves sharing many varieties must be close together in order, graves sharing few varieties but many types need not be quite so close."[145]

Fifthly, there is always the problem of differential "richness" of deposits, at least in relative terms. If two contemporary tombs differ in the number of objects associated with the burials, the one having many, the other having few, then every potentially available variety of pottery from which the tomb furniture selection is made will enjoy better chances of being represented in the 'rich' tomb than the 'poor' one.

ii Having considered the typing procedure to be as fair as possible, or as with Jericho to take for granted its fairness in order to test its conclusions, the next stage is to produce some measure of comparison between each tomb and every other by using the variety comparisons assigned.

The essence of the objective system of comparing tombs is to produce a numerical value of comparison, the SIMILARITY INDEX, (Robinson's Agreement Coefficient).[146] The method adopted for the experiment under discussion is the INCIDENCE MATRIX[147] discussed among others by Kendall. Kendall describes the matrix as a table of double entry in which each row represents a grave and each column a variety (of pottery, jewellery or whatever) and in which the

(ij)th cell (that in which row i and column j meet) contain:-

1 if the jth variety is present in the ith tomb

0 if it is not present.

(Where i is any tomb and j is any variety).[148] That is, 1 is scored for the presence of an object in a tomb, and 0 if it is absent, hence the matrix contains a count of the incidence (presence or absence) of the agreed varieties and is not concerned at this stage with the numbers of those varieties should particular ones occur more than once in a deposit. The table thus created will be the basis of comparison.

It may be felt to be unfair to exclude the numerical count of the varieties and therefore it requires discussion. In the original concept of changing pottery types as conceived by Robinson[149] he proposed that types come into and go out of fashion in such a way that they may be plotted by their degree of popularity against time, giving a lenticular graph of percentage occurrence. (Fig.1.b)

The simplicity and the validity of this has been challenged[150] but basically the implication is accepted that at the zenith of its popularity any pottery type will be expected to be present with greater frequency than at the nadir of its beginning and ending. It may be then that numerical distribution is significant in a time scale, for which the simple incidence matrix proposed does not account. On the other hand, it is by no means clear what the numerical count of type occurrence really means, whether different availability, deposition, preservation, number of bodies,

richness, cultural difference, custom contents, etc., or even individual popularity. Since the significance of five type X jars in one tomb as opposed to four type X in another is thus imperfectly understood, when compared to the rather clearer understanding of the overall pattern of artefacts appearing at one point in time and not at others, then the precise number of vessels of a given variety in a given tomb has not generally been considered. The presence/absence score, though cruder perhaps in defining the time/change scale, should if there are enough variety differences provide a roughly equivalent picture of the passage of time, but it is acknowledged that some potentially important information is being lost. (Kendall's Abundance Matrix might be tried at some future date, either scoring actual numbers of occurrences of types in a deposit, or simply their proportion of that deposit).[151]

iii Having arrived at a means of comparison, a score which describes each tomb, then the next step will be to compare each tomb with every other and compile a SIMILARITY MATRIX, i.e. tombs against tombs, so that the values of the indexes can be entered tomb y against tomb x (as in Fig.1.a.). The similarity index initially will be a count of the number of coincident varieties the two tombs enjoy. If, for example, one tomb would have 15 varieties of artefact, and another 18 varieties, but together they held only 6 varieties in common, then the first count of similarity will be 6 (this may be modified later to compensate for imbalanced groups). It follows then that if similarity

between types/varieties is a function of chronology, then the similarity index will be high when tombs are more or less contemporary and low when they are far separated in time[152] Since thus there is a value relating every tomb to every other, then there is the criterion necessary to order the tombs by their comparative similarity or dissimilarity and from that order infer a chronology.

In order to express the relationship of tombs one to another using these ascribed similarity indexes, it is proposed to place the tombs in an equivalent topographic and visual relationship to one another, the degree of nearness or farness being determined by the value of the similarity index. A pair of tombs which have a high similarity index will be placed physically close together, and a pair with a low similarity index will be placed relatively far apart.

Suppose that three tombs, A, B and C are in their correct relationship to one another, a relationship which, let us say, is a time-based one, then such a relationship may be expressed:-

A B C

Let B be equally far apart in distance from A the earliest tomb and C the latest tomb, so that in an ideal world the ration of similarity indexes will be:-

A - B 2, A - C 1, C - B 2, C - A 1, etc.

The emergent pattern illustrates that the distance between the points increases inversely as the similarity indexes decrease and so provide the order. The chronological relationship between these three tombs has thus been expressed through the similarity indexes in a one-dimentional straight line topography, as points placed along an axis which might be said to be the time axis. (That time is the only axis is only implied at this stage).

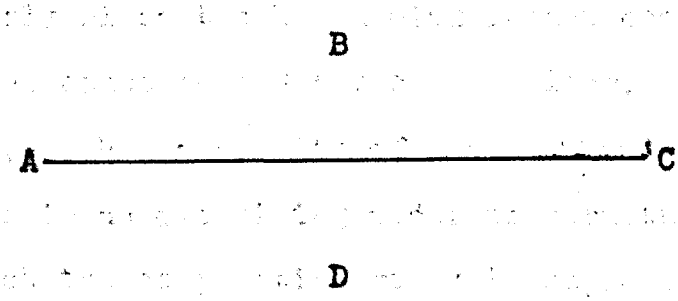
Naturally, an equally suitable expression of the distances inversely obtained by the similarity indexes would have been:-

C B A

which mirror image indicates that the system is only a relative one; it is to be hoped that if a group of tombs be arrayed in a topographic sense as points along a straight line, then by examination of the gross differences of either end of that straight line it should be possible to see which way round chronologically the order is to be read.

The perfect expression of data in a one-dimentional array assumes that the data are perfectly structured in that one dimension and that there are no other considerations governing the distances between comparable tombs, that the similarity indexes express a relative distance based upon only the one factor of, say, time. Within the same example of the three tombs A, B and C equally spaced in time, one can imagine a fourth tomb D which is contemporary with B and

thus chronologically equally far from A and C as is B. But D is not identical to B through cultural, custom or class differences, and therefore it must be placed equally far from A and from C but also a certain distance from B thus:-



The horizontal line will still represent the one-dimensional axis of time, but a second dimension must be added to cope with the two-dimensional structure of the comparative similarity indexes of the four tombs.

It will take little to imagine the presence of a fifth and further tomb E, once again contemporary with both D and B and thus equidistant from A and C, but with another facet of difference from D and B based upon perhaps locality or availability of tomb material. Its presence will necessitate a third dimension a position in suspension above the previous two contemporaries. The kinds of differences, as they increase, continue into the realms of the purely mathematical multi-dimensional expressions.

It will follow from the above that if the difference between tombs, that is the number of variant kinds of difference, are many, then one will require many dimensions to express any relationship between these tombs with any

degree of accuracy, for even if the one dimension of time is the most important, other dimensions will be needed to cope with the other possible differences which are not time based. The problem is, however, that if a large number of dimensions are required to express the relationship between the tombs, then the array will be unreadable, particularly since the human mind cannot conceive of multi-dimensional space beyond three dimensions, More important than that, such a necessity of many dimensions will imply that there is no overriding order or structure behind the tombs which the comparative study is supposed to have ascertained, but rather a mass of equally important variables.

The implication in any study of the type considered here is that there is, behind the imperfections and the varieties of the data, an over-riding structure (let us say chronological variability) and that his structure can be diagnosed in the changing varieties of objects which have been previously examined. Such a structure must be capable of expression in one dimension, in a straight line, and other reasons for difference either should not be noticed or they ought to be so slight as to be almost non-effective in the comparing procedure.

It is to this possibility of approximating the correct array by forcing a one-dimensional structure upon the data that statisticians and archaeologists have addressed themselves in the production of the Sheperd/Kruskall computer procedure known as MULTI DIMENSIONAL SCALING (MDSCAL).[153, 154] This method has now been refined and reused by a number of workers.[155, 156] Kruskall describes MDSCAL as meaning:-

> "... the reconstructing of a configuration of points from information about the distances between them".[157]

He illustrates its use with a time diagram and a number of comparative time 'distances'.

Celts plunder Rome	390 BC
Hengist & Horsa in Britain	450 AD
William conquers England	1066 AD
Columbus discovers New World	1492 AD

The time distances between each of these events and every other can be described in a table or matrix of the number of years between each event and every other event:-

	Columbus	H & H	W.C.E.	Celts
Columbus	0	1042	426	1882
H & H	1042	0	616	840
W.C.E.	426	616	0	1456
Celts	1882	840	1456	0

This matrix of values of comparison will surely lead to a one-dimensional design as follows:-

Celts	H & H	W.C.E.	Columbus
390 BC	450 AD	1066 AD	1492 AD

It is this structure which MDSCAL attempts to provide in data whose believed structure is a similar one-dimensional structure, not forgetting, of course, that time may not be

the only reason for such a straight line "ladder".

'The general procedure behind MDSCAL is that 'a digital computer is programmed to generate a random configuration of points in a prescribed number of dimensions and then iteratively to rearrange the points until a configuration which best suits the data is obtained'.[158] Since the material being dealt with is imperfect and variable criteria differentiate one tomb from another, then unless the concluding number of dimensions is large, it will be impossible to satisfy all the desired inequalities in the data, and thus the requirement of placing the tombs in their exact relationship to one another can only roughly be fulfilled The Sheperd Kruskal programme computes the error in achieving this task, shifting the points to attempt to reduce the error, observing the consequences and shifting again and so on.[159] The slight movement and observation, beginning from a random start, will thus progressively improve the position of the points until their positions best approximate the real structure. This approximation can be attempted in any number of dimensions, though plainly the arrays that will be the most useful and hence those aimed at are those in two or one dimension. In furtherance of this, an approximation can be attempted in say three dimensions and then progressively reduced from that as the structure begins to take shape.

iv The position of the points arrived at after the optimum number of iterations is given as a series of graph co-ordinates. Together with these the programme computes a 'strain' value, which is a measure of the goodness of

fit of any configuration as an approximation of a structure. (Sheperd's 'Delta')[160] That configuration with the least 'strain' is the most valuable.[161] The 'strain' value then is a measure of the degree of discrepancy between the ideal and the actual configuration, a discrepancy which will automatically arise if points are being 'forced' down into two or one dimensional structures when they truly represent a structure of more than that number. To take the earlier example of the four tombs A, B, C and D where D was synchronous with but anomalous to B. The strain value would be in part an expression of how far points B and D would have to be 'forced' to express this essentially two-dimensional array in one dimension.

Naturally, when 'strain' values are high, then the degree of discrepancy means that the resulting array is atypical of any real comparison between tombs. When it is relatively low, then a modicum of confidence may be placed in the resultant ordering. It should be pointed out that it is as well to attempt several random starts and several dimensional results before any conclusions can be drawn, since there are occasions when individual points as they move from the random start become 'stuck' in their mirror image position, still agreeing with many points but grossly misplaced for others. A new random start frequently clears this misrepresentation.

The approximation of order which MDSCAL achieves overcomes the problem of attempting unwieldy and often infinite arrangements and re-arrangements of groups of material

in their best order. (The number of possible re-arrangements, and hence orders, of 10 tombs would be several million, a number which increases dramatically above 10). It is now realized that in many different circumstances it has been found empirically that when some sort of metric model lies in a rather vague sense behind the data, then MDSCAL at a suitable number of dimensions will tend to bring out that model. The direct application to the problem under discussion then is that since with the archaeological data from the Jericho tombs it is believed that there may be a chronological order behind the data, and that the similarity indexes which will be arrived at through comparing the typology contains information bearing upon that order, then this chronological information will tend to over-power any other reasons for similarity or dissimilarity and thus reveal that order.

Before the experiments can begin, it will be necessary to consider the character of the data from the Jericho tombs and to select those data from the tombs which best reflect the order to be tested and which at the same time are locationally reliable.

b) The Special Problems Presented by the Jericho Tombs

In comparative analysis the Jericho tombs provide an irregular selection of deposits. Ideally one would seek groups of similar quality, similar distribution and similar number of objects. Owing to the singular character of these tombs, however, each unit is idiosyncratic, combining as it may complex data which are deposited and redeposited in peculiar circumstances, with the added differentials of survival, preservation and distribution of the basic traits. In such circumstances sorting and ordering may be of little value if the proper nature of these peculiarities cannot be understood. The search for what must be discrete units of material, time-encapsulated groups of objects, turns upon the ability of the observer to prove that the deposit is firstly buried at one and the same time, and secondly that the objects within that unit themselves truly represent forms typical of the moment of interment, without any unseen, uncontrolled contamination of older or unusual objects being included.

i) Disturbance

A consideration of the discreteness or otherwise of the 51 tombs must include the careful consideration of four factors which would tend to deny that discreteness, namely the addition, subtraction, displacement or variation of material within the group.

The common habit of producing "multiple successive"

burials which is found in the Jericho cemetery, the habit of interring varying numbers of bodies with variable goods at various times and with variable care in the same tomb, militates against reposing confidence in the integrity of any fraction of the total deposit, the vital element which is needed to make any ordering viable.

The factor of addition, as mentioned above, is manifest in nearly all the tombs. Unlike earlier tombs of the EBMB period where a group of objects could be demonstrably associated with a particular burial, the MB II burials which frequently re-use these tombs themselves suffer from even later re-uses in the same period. In all but one tomb, J.3, which is a single burial, there is a multiplicity of bodies in an MB II context. Even if, as in some tombs (J14, P17, P19 for example), there seems to be only one period of burial represented, nevertheless a number of bodies are found in these deposits and whilst the probability of contemporaneity may be high, it is still conjectural that the interments are in fact simultaneous. In the majority of the remainder of the tombs, the habit of successive and periodic interment of bodies and objects is only too obvious. Skeletons lie among one another in various states of disarray. If the tombs are small, as with tombs A.46, G.46, J.19, J.45, and others, then the bodies and objects hopelessly overlie one another and whilst stratification can sometimes be determined, it often has little relevance to chronological separation of groups. If the tomb chamber area is large, then some attempt will often have been made to clear to one side the burials of previous

interments, resulting in the accumulation of piles of earlier material around the edges of the chamber. These piles are hardly to be considered as synchronous units, since it is possible that the piles represent several phases of burials cleared away at one time. Also, the clearance is not always as thorough as it might be, resulting particularly in small objects, scarabs, pins and the like, being left behind and becoming mixed up with the later groups. In the general admixture and the sheer volume of bones, pots, personal belongings and furniture it seems often difficult to separate one group from another, though knowing that probably they are separate in date.

A second factor of disturbance is that of subtraction. Many back-filled shafts show evidence of the 'cleaning out' of deposits, for example B3, B35, D13, D22, H6, H18, H22, J9, J37 etc.; MB II sherds and vessels in these shafts testify to the habit of separating objects from their original context, of dividing or destroying their initial grouping. Similarly, many chambers where clearances have taken place now contain many more skulls than long bones and other parts to complete the skeletons once buried there. This again would testify to the practice not only of clearing material aside, but also of throwing away bulky objects or those most conveniently placed near the shaft, yet leaving the remainder. To what extent such subtraction may have taken place in seemingly synchronous groups is a further unknown.

A further problem with these clearances which lessens the confidence one might repose in the material is the apparent carelessness with which they are conducted. Kenyon frequently speaks of the violence of these clearances.

Perhaps one might suggest that such carelessness would not have been so unexpected in the foul and distasteful airs that the partially decaying corpses must have generated. The unpleasant task of clearing semi-decomposed bodies and their scattered accoutrements, which seems to have taken place in a number of instances - A46, A136, G46, G73, H18, J9, J19, J39, P23 etc. - cannot in such a confined space have engendered a careful attitude. This could account for the evidence of the smashed skulls, missing bones and broken pottery which is so frequently witnessed in the tombs. The unceremonious nature of these clearances could hardly be conducive to maintaining the integrity of earlier groups and so most of these must be rejected immediately in analysis.

A third factor of disturbance is that of <u>displacement</u>. Even when groups seem to have been potentially intact, many tombs show evidence of the displacement of objects The greatest single element here is falls of rock from the roof, which on many occasions have smashed and partially or wholly obliterated the groups concerned, as in B51, D6, D9, G82, H13, J1, J12, J20, J37, J42, J45 etc.. The attribution of objects to groups of skeletons in such cases is often impossible to achieve.

A great deal of emphasis is placed upon the analysis of final burials, in the belief that the contamination and the displacement is minimal. However, even when the chamber has been cleared for the final burial, in the confinement of the tomb some of the objects lie in ambivalent positions <u>viz a viz</u> the earlier debris which has been moved aside, perhaps having been placed against a

cleared pile or even mixed in with it. With all the burials, even final, the carelessness of deposition has been commented upon. Bodies seem to have been laid to rest with the minimum of ceremony. In such cases it is difficult to visualize any greater care being exercised in the distribution of objects with these bodies. Perhaps in their once pristine condition they might have been sufficiently different from their surroundings to be noticeable and hence an acceptable unit, but now in the total decay of the bodies and the uniform appearance of the objects this original difference may be lost to the observer. The collapse of tables, the toppling over of vessels and the falling apart of skeletal remains during decay would all assist in the combining together of these crowded groups, and while the final burials may be located and counted due to their articulated condition, the pots and other objects buried with them have no way of being so readily identified from the earlier material.

Finally, in the appraisal of the integrity of chronologically similar groups of objects, there is the factor of deliberate interference. Kenyon comments upon the apparent meanness or dishonesty which seems to have been a feature of the burial practice.[162] Apparently, broken or defective pottery had been interred with the deceased, even with final burials of some distinction - H18, H22, G82, P19, J42, G73, etc.. If this deliberate variation is possible, one must ask how often earlier extant objects in the chamber were re-used to enhance a later burial, or at least they had not been cleared away, neither of which aspects augur well for contemporaniety or

typicalness. Further, in the breakage or deliberate interment of broken sherds, which patently take the place numerically of whole ones, a secondary problem is introduced of the differential capacity to diagnose their correct typology. The validity of any typology based upon sherds must naturally be suspect in such an otherwise concise and specific typology based upon variable morphology. Even more problematic then will be the distribution count of such broken vessels.

ii) Variability

Preservation. One feature of the tombs which is archaeologically is the extraordinary preservation of organic material which has taken place. Woodwork in the form of tables, stools and beds, bowls, basketwork, textiles and other objects are often recognizably retrievable and hence are both diagnostic of style and also of comparative wealth or custom. On the other hand, this preservative factor is typologically problematic, in that the preservation is variable. The style and quantity of totally decayed material cannot of course be judged. Insomuch as pottery does not decay, it remains a fixed quantity, but it is difficult to conceive of using differentially preserved organic material as a diagnostic feature. Its absence then may be meaningless.

Wealth. It is clear that some tombs are better endowed than others. The richness of a particular burial may be marginal in real terms, but different assemblages of household objects may in themselves depict social status or variant custom. The meaning of this richness or

impoverishment of tombs then adds a further unknown to the analysis. It may indeed depend upon many other factors; availability of the requisite objects, thrift, personal taste or vessel usage in the tomb ceremony. Neither the size of the assembalge, nor the repertoire it includes in style and number, need truly reflect the overall contemporary scene. Even if at one moment it did so, such reflection need not be consistent through time.

Sex. Another factor of the variability of objects within a group is likely to be the sex and the relative distribution of sexes in a group. It would be hard not to imagine among such a rich and diverse collection of household objects a correlated variability in the objects buried with the gender of the incumbent. Unfortunately, only in a very few cases, for example P19, is the sex of the various skeletons given so that a potentially crucial factor which may govern typological variety might be properly evaluated.

Number. In the group burials which are so common at Jericho, there seems to have been a tendency, particularly with larger vessels, to put a reduced number in the tomb 'for the general use of the group', giving thus a further problem of numerical variability when compared to the more personal ornaments such as scarabs, pins etc.. There is no reason to suppose that this variability is anything other than periodically haphazard.

Custom. Finally, in the assessment of the contemporaniety or the typicalness of the groups concerned, one has to bear in mind that since their provenances are tombs, then two associated problems occur in attempting

to use any information on trait distribution outside this context. Firstly, the custom of burial may demand an ultra-conservative line, which may well produce a relative sequence of groups, but it will hardly apply to other non-tomb material. Secondly, there may always have been a tendency to use special tomb types for burials, in contrast to the everyday materials, so that although the objects seem to be household vessels, they may be typologically different in the main from the vessels in contemporary everyday use.

c) The Selection of Tombs for Seriation

The following tombs were thought to be unsuitable for experimentation:-

A1. JTI 302-306 Group I

A tomb which once contained 8-9 burials, but has suffered from wadi erosion; also many of the pots were fragmented either through secondary deposition, or more probably as a result of secondary disturbance.

A34. JTI 352-368 Group III

Owing to a misadventure in the finding of the tomb, together with disturbance caused by earth filtering into the tomb, "the distinction between the different levels is not always clear, particularly where phase IV, (the last phase) directly overlay the similar buff fill of phase II.

A38. JTI 342-351 Group III

"The plan of this tomb has unfortunately been mislaid, and therefore the annotation of the finds according to layers is not complete." It is therefore not possible to ascribe objects to burials or phases.

A46. JTI 407-410 Group III

The tomb being so small, and having fourteen burials, there is a certain amount of disturbance, but particularly the final burial is credited with only two objects.

A134. JTII 368-372 Group III

The skulls would indicate thirteen burials, but erosion and the apparent clearance for a final burial that never materialized meant that not only was the plan "uninformative", but presumably no objects could be attributed to any phase of burial.

A136. JTII 465-473 Group V

Twenty-six burials placed in the tomb during the MB II period have suggested to Kenyon that successive burials must have followed each other at short intervals, for in each case most of the immediately preceding burials were not decomposed when clearance was made for the next burial. While the finds in successive layers represent the objects associated with successive burial phases, they "do not represent the complete grave goods of the various stages."[163]

B51. JTII 332-357 Group III

A multiple successive burial with a skull count of 37: The objects are recorded in layers, but probably their significance is minimal owing to complete disturbance and dislocation. The final burial similarly was not discreet since it had suffered a heavy roof fall.

D6. JTII 274-276 Group II

Heavy erosion and denudation caused the remains to be completely crushed and decayed. The plan was uninformative and was not published. Very few suggestions as to the allocation of finds can be made.

D9. JTII 276-286

The total collapse of the roof, together with the cutting of a Roman tomb into the original has meant that very little could be ascertained of the details of the MB II burials. Multiple successive burials in the tomb might number 10, but owing to the excessive disturbance, deductions from the contents of the various layers and groups cannot be very certain.

G37. JTI 315-330 Group II

The tomb consists of multiple successive burials. Although the catalogue giving numbers to objects by layer of recovery might suggest sealed units, Kenyon points out that 'in the continuous process of casting bodies and offerings on one side an irregular mounding resulted, and it would be hazardous to assign the finds to any sequence'.

G46 JTI 330-342 Group II

The tomb has burials representing the standard practice of multiple successive burials, but since the tomb area was so small, it prevented the usual clearance of previous burials and has resulted in confused piling of deposits. 'The finds are recorded in layers as found, but it would not be possible to say that all vessels found in a layer belong together.'

G82. JYII 382-388 Group III

Although it is possible that this tomb was cut in the MB II period, there are piles of early burials placed around the tomb. The crushing effect of a roof fall has made numerical estimation impossible, and it is likewise impossible to subdivide the finds among the different stages of use of the tomb.

H11 JTI 470-479 Group V

The burials in the chamber gave evidence of one period of use, a mass simultaneous burial, but from the stratigraphy of the shaft, there had apparently been two openings made in the MB II period. A certain number of objects could be associated with particular bodies, but some lay unassociated aroumd the walls of the chamber.

H13 JTI 479-486 Group V

There are several phases of burial represented in the tomb. Whilst there is a final burial in the centre of the tomb, it has been obliterated by a heavy roof fall at that point. Many of the objects shown on the plan as having been in this uppermost layer therefore seem to belong to the ancestral pile, but owing to the roof fall the picture is not sufficiently clear to disentangle them.

J1 JTI 425-438 Group IV

The chamber contains the remains of 28 burials on the evidence of the skulls. The piling of the multiple successive burials over one another has added to the confusion caused by a roof fall, and even with the final burial, 'the objects associated with the burial are for the most part not clearly defined.'

J7 JTI 438-442 Group V

The smallness of the tomb has meant that the total of 13 burials placed in the chamber have been superimposed upon one another, though not without considerable disturbance. It is obvious that the pottery in the tomb does not give the complete picture, since only small vessels remain, whilst in the shaft there were sherds of storage vessels and large bowls.

J12 JTI 418-425 Group IV

The skull count would put the number of burials at 13. The tomb was too small to make a clear space for each successive burial. This has led to considerable disarrangement of bodies. The final burial was apparently placed on top of the pile to the right of the door, but only the lower limbs are in position, the rest of the body probably having been disturbed by a roof fall. Four vessels may belong to this burial, but it is not sufficiently certain to be differentiated from the rest of the objects in that layer.

J19 JTII 372-382 Group III

The smallness of the chamber meant that burials were piled one on top of another, and although the superficial appearance is of a number of successive intact burials, the analysis of the plans shows that there are some six phases. 'It is not possible to assign vessels to each of the phases'.

J20 JTII 410-420 Group III

Two final burials and sixteen skulls make up the apparent MB II complement of the tomb. Though the early burials are placed around the wall, a roof fall had badly damaged the final burials, and it is not possible to distinguish with certainty between offerings associated with the early and final use.

J37 JTII 269-273 Group II

The roof of the chamber had completely collapsed and therefore only the shaft was excavated. The pottery from the shaft shows that the tomb itself must have been reused on a number of occasions.

J39 JTII 473-478 Group V

The MB burials were multiple and the skulls numbered 17. There is a considerable dismemberment of the burials because of attempts to clear the tomb, particularly for a final burial which never materialized owing to a roof fall. Group division would therefore be impossible.

J42 JTII 420-424 Group III and V

There could be two periods of use of this tomb. A roof fall has filled the chamber so that it is only possible to suggest the two separate periods. Further the number of diagnostic vessels is too small to differentiate between them with certainty.

J45 JTII 438-446 Group IV

On the evidence of skulls, there were 26 burials in the small chamber which therefore overlay one another with no evidence of piling of grave goods. Although the five observed layers are thought to have some chronological significance, the final burial was badly crushed by a roof fall.'

M11 JTII 226-242 Group II

The burials of the period were very clearly in two phases with probably six burials in the earlier phase and seven in the later. Despite the clear division of the final burial, 'unfortunately the grave goods of phase 2 do not stand out very clearly from those of phase 1.'

P1 JTII 295-303 Group III

The reuse of the chamber was for 24 multiple burials in the MB. Though the burials constituted a single layer with the final burial probably represented by the ten bodies in the centre of the tomb, 'it does not seem possible to associate the grave goods with the burial groups.' There

are hardly any objects certainly associated with bodies.

Some of the burials from the following nineteen tombs have been selected for seriation processing:

B 3 (layer D), 35 (layer D), 48 (layer II Right), 50.

D 13, 22.

G 1 (final), 73 (final)

H 6 (final), 18 (final), 22 (final).

J 3 (single), 9 (final), 14 (final), 54 (final).

P 17, 19, 21, 23.

B3 JTI 393-406 Group III

The tomb may have been cut in the MB II period. If so, its design is a copy of the reused EMMB tombs round about. From the skull count, at least 25 bodies had been interred in the chamber, but over a period of time, as there was ample evidence of the multiple successive burial pattern being used. There are a number of layers within the chamber which represent the build up of debris from preceding burials. 'Though the objects are recorded in layers, it is probable that too much significance should not be placed upon this.' The process of disturbance and displacement was probably a continuous one.

The final burial is burial M in layer D. Though partially broken by a roof fall, this burial is intact. Preceding burials had been pushed aside to make room for it; 'round it were a number of objects which can with high probability be associated with it. The body lay on its back with its legs splayed, possibly once raised.'

The shaft of the tomb had evidently been opened

several times, but the lowest layer in the shaft contained a number of pots and an intact ostrich shell which leads Kenyon to construe this group with the final burial rather than a previous clean-out. From the section, it is evident that access into the tomb could in fact have been effected without the disturbance of this layer, since the door blocking has been done with two boulders one upon another; furthermore, there are some bones in the deposit in question, though neither complete nor articulated parts of a skeleton. This would be much more suggestive of a cleaning out than a deliberate deposit. The shaft group therefore was ignored.

All four layers have been annotated in the catalogue, and all those objects marked Layer D were submitted as a discrete group.

B35 JTI 368-393 Group III

The tomb may be an example of a tomb cut in the MB II period. Although the fill of the tomb suggests only one filling, the contents of the tomb, with the sherd fragments in the shaft fill, suggest that as with all the tombs this tomb has been opened and reopened on several occasions for the interment of multiple successive burials.

The final burials are clearly distinguishable and apart from a roof fall they are intact. The burials concerned are two adults A and R and possibly the child burial O, all in Layer D. Both of the adults had been laid on their backs with their knees raised. Round these burials of the

last stage lie the accompanying offerings. Beneath the layer are the remains of the earlier burials, often an intricate mass of jumbled bones and objects.

The catalogue is annotated with each layer; those marked D have been included in the experiment, though the sample itself is not as good as it might have been, for two reasons. Firstly, in a few instances it seems that objects were omitted from the plans and therefore have no layer letter ascribed to them. Secondly, at least twelve of the thirty-six or so objects placed on the Layer D plan are too fragmentary to be alloted a type number, so that they cannot be included as diagnostic. Kenyon remarks upon this, saying that it was noticeable in a number of cases that broken sherds were used as dishes and other sherds were used as lamps.

B48 JTII 206-226 Group II

This tomb was probably cut during the MBII period. It is unusual in that the internal stratigraphy can be ascertained with some confidence owing to a collapse and subsequent reuse of an additional EBMB tomb B48a. The final burial is single; there were eight skulls in the earlier deposits, and a further three apparently placed in B48a from B48 after a seperating wall had collapsed.

The deposit which has been selected from the tomb is B48 Layer II Right, said to be the earliest in the tomb. It was chosen for two reasons; firstly it is one of the few semi-discreet units of an early Kenyon phase, Group I. Secondly, it had been covered by a roof fall.

Several aspects, however, place some doubt upon the originality and completeness of the group, partly because the second period of use is construed as the use of the EBMB tomb where a number of skulls were found, implying a degree of disturbance in the initial deposit. Also it is noted that a number of MB II sherds were turned up in the shaft fill, presumably the result of earlier clearance. Due notice has been taken of these problems.

B50 JTII 303-312 Group II

The tomb is said to be a reused EBMB tomb although no remains of that period were found.

The MBII remains show the characteristic evidence of multiple successive burials, with a skull-count in the tomb as a whole of thirteen.

The MBII burials are clearly in two periods; the earlier group has five skulls along with dismembered bones and a pile of broken objects. Apparently they had suffered a violent clearance before the second period of interment. The later period exhibits eight skulls, but comparatively little grave goods. These eight were probably successive burials rather than simultaneous.

Owing to the paucity of objects in the second later phase, and also owing to the problem of definately dividing the material of the phases, one phase from another, the two phases have been taken together for the experiment; this exceptional step could only have been taken because both phases are said by Kenyon to belong to Group II.

The very few objects of the second phase, she says, could possibly be very early Group III, but she favours the two phases really as Group II.

D13 JTII 424-428 Group III

The tomb is a reused EBMB tomb. The MB finds were not numerous, which has suggested to Kenyon that the tomb probably was short lived in MB use. A large roof fall has obscured any degree of analysis of the bodies.

The tomb has been selected as a control on the typological method because the finds were not plentiful and tended to be 'undiagnostic', and yet represented types that were unique both to early and late phases. Thereby it should be possible to place this within the sequence if the method is sufficiently efficacious.

Though there are said to be two uses of the tomb during the MB II period, illustrated by the MB sherds in the shaft fill, the tomb has on Kenyon's evidence been taken as one group.

D22 JTII 242-260 Early Group II

A reused EBMB tomb, D 22 has been much affected by roof falls, although it does not exhibit the usual multiple successive burials which are common elsewhere. Evidently the shaft was opened more than once during the MB II period since a considerable number of broken MB II sherds were found in the fill. Nevertheless, Kenyon maintains that 'all the objects belong to a period prior to the final

opening, since only one skeleton was found, there being no additional fragments which is the usual symptom of reuse.' Although then there are a great number of objects, it is felt that they all belong to one period of interment.

GI JTI 443-453 Group V

An original EBMB tomb, GI shows clear evidence of the usual multiple successive use in the MB II period. Two phases are represented, the first being of probably fifteen persons, and the final burial being of one group of seven.

The final burials had been placed in the tomb only after extensive cleaning of the tomb of previous burials. Bodies A-E with F and R had all been placed on their backs in an extended position, and there was evidence in the case of A that the knees had been drawn up somewhat.

It is the initial clearance of the earlier burials which gives the tomb a certain discretion in the final burials. All seven have been taken as one group since it is difficult to visualize a further secondary interment of these bodies without the disturbance of the other five. They have been annotated all as final burials. It is noted that the tomb, despite very good organic preservation, displays none of the usual furnishings, and is thought by the excavators to be poor.

G73 JTII 447-465 Group IV

Whilst the form of this tomb is of the EBMB period, it clearly exhibits the multiple successive mode of burial of the MBII period at Jericho. Upwards of thirty-two burials are identified, in some cases with the sequence of events known, but rarely with objects associated with the different phases.

The final burials of G73, said by Kenyon to be at least the sixth phase of use, are of two bodies, A and B in layer 1. Both bodies had been laid out on their backs with their knees apparently raised. A was a young person, B an older one. Although both lay partly over the remains of earlier burials, particularly over the remains of a table (27), nevertheless it is said that the grave goods associated with these final burials are reasonably certain. The earlier material lay behind these burials in the main, but as an excavated layer. Layer 1 itself contained earlier material than the final burials so that the group is taken from the annotation "Layer 1 Final".

The final burials are well supplied with furnishings and other commodities, and the state of preservation is good in comparison to other tombs.

H6 JTI 453-469 Group V

Following evidence of EBMB use of the tomb, H6 represents the tradition of MB II multiple successive burials. There are two basic periods of use, which Kenyon would place some distance in time apart, the earlier being assigned to Group II and the latter to Group V. The shaft contained MB sherds throughout.

The final burials consist of four individuals. Burial A dominates the tomb, having been treated specially by placing it upon a 'bed' of eight mud bricks, with a mud brick pillow. One would have to query the interpretation of this as treatment due to 'a person of importance', since although this is a rare practice, the mud brick is hardly a quality item. Alongside the head were two other burials, B and C, and the body of an infant, D lay at the rear of the tomb. All the bodies had their legs splayed, evidence probably of the knees having been raised upon burial.

The tomb is rich, and sufficient confidence seems to be present from the evidence that the final group has been published separately. The remains of the earlier had been piled in two groups and were mainly distinguishable from the later burials.

H18 JTI 486-500 Group V

The tomb seems first to have been cut during the EBMB period. THE MB II period indicates the usual use of the tomb for multiple successive burials. The shaft contained debris of the MB II period, including fragments of a wooden bowl.

The final burials are said to consist of thirteen individuals, two adults and eleven children. The main burial, A, was placed upon a wooden bed on the West side of the chamber, and the other burials were spaced variously around the tomb. In burial A, the knees show evidence of having been raised at burial.

The earlier burials had been swept into a pile 30 cms high at the rear of the chamber to make room for the final group. Presumably some of the remains of these early burials also found their way into the shaft and even beyond, since in the skull count, five extra mandibles were noted, implying a considerable bone loss.

The final burials were well appointed, both in furnishings and with pottery. Kenyon has published the whole group separately from the earlier burials, alloting objects to persons where possible, and otherwise placing them as part of the general supply. The group has been taken as one discrete unit.

H22 JTI 500-513 Group V

The tomb was cut in the EBMB period. Although there is full evidence of only one period of use in the MB II period, nevertheless, traces of earlier MB II burials are not lacking. At the base of the shaft was a quantity of MB II pottery, which in the absence of any clearly earlier material within the chamber implies that the tomb had been completely cleared out before the final interment. This is unlike the more usual habit of sweeping the previous bodies to one side in the tomb, or of piling them up at the rear. It augurs well for the final group being a discrete chronological group.

The final burials consisted of twelve individuals, four adults and eight children. Though it is possible to say from the overlapping of the limbs and so on that certain bodies were put in after others, there can be little doubt that the whole represents a mass simultaneous burial. As such, it is well-appointed, and objects have been catalogued both as they pertain to particular individuals or as part of the general store of burial equipment. It is to be noted that the state of preservation within the chamber was exceptional.

J3 JTI 306-314 Group I

The tomb had scant evidence of use in the EBMB period. Its use in the MB II period is unique among those found at Jericho in that it contained a single burial only. The burial, that of a young man, obviously provides one

of the best sealed deposits in the cemetery. Although mention is made of the shaft fill, and of the equid remains found there, no mention is made of the usual appearance of MB II sherds within the shaft which point to several periods of MB II use. The assumption then is that the whole deposit can be said to be interred at one moment.

Whilst the assemblage is sealed, a problem arises in noting that the body interred with the goods seems to have been singled out for special treatment. Not only is this the only individual burial, but the grave goods include anomalous forms of pottery and also of metalwork. A ram's head goblet appears among the bowls of the tomb but is typologically unique. The metalwork consisted of a bronze belt, battle axe and dagger, all of which can be paralleled at Tell el Far'ah (N) but which are incomparable at Jericho and must therefore be omitted from the experiment.

J9 JTI 410-418 Group IV

There was no sign in J9 of previous EBMB use. The MB II use indicated clearly the standard practice of multiple successive burial, in at least three detectable layers, with a skull count of twenty-two. The shaft similarly was filled with MB II sherds illustrating that the tomb had been opened several times in the MB II period, and that some material had been displaced from the tomb.

The final burials are two in number, which may have been put in simultaneously. The bodies are extended on their backs, with the knees bent and leaning over to the right. They are J and K in Layer C, later called Layer 1 in

the catalogue. The pottery and the other objects around these bodies have been considered to be the latest objects in the tomb and have been differentiated in the tomb catalogue as Layer 1 Final to distinguish them from the layer 1 penultimate, which are taken to be a separate group and somewhat earlier.

The previous uses of the tomb were as always indicated by the piles of debris and the superimposition of bodies. The uses of the tomb are ambivalently described as being as late as group ,III,, and may be as late as group V, but published as group IV.

J14 JTII 312-332 Group IV

The tomb preserved evidence in the shaft of its EBMB origin. The chamber shows that it was used on several occasions for multiple burials. Kenyon identifies two main phases, i the earlier and ii the later, though there is no guarantee that the burials in each phase are absolutely simultaneous.

The final burials seem to be represented by five skeletons, C, F, K, L and P. P and F are shown in association with a mud brick dais, similar to that in H18, although judging from the bizarre angle of F, something in the burial is not all it ought to be. Since unbroken mud brick appears in the fill of the shaft, Kenyon conjectures with some force that the burials associated with the dais must be the final ones, and since the other three skeletons 'fit around' the dais, they too are included. The earlier burials have been relegated to the rear of the

chamber, though it is pointed out that in the cleaning operation, it is possible that some of the small objects may have been left behind and are now mixed with the later objects.

Whilst Phases i and ii are defined with sufficient certainty to be published separately, owing to error, 5 bowls, 1 pedestal vase, 2 piriform, 1 cylindrical and 2 dipper juglets, 1 lamp, 1 alabaster and 1 belt fastener are of uncertain position and have not therefore been published with either phase.

J54 JTII 260-269 Group II

No evidence of the earlier EBMB burials is found in the tomb. The MB II period can be seen in two very distinct phases, the final burial of a single individual A, and the remains of several earlier burials. The distinction is so marked because the centre of the tomb had been swept clear before burial A was placed in the open space. The clearance seems to have taken place with considerable violence. Further the previous occupants had completely decayed before the reuse, but there is no way of knowing what time span these earlier burials cover.

There is some doubt about one or two of the vessels and their attribution to the final stage, for example in the case of a storage jar propped up against the earlier remains but thought to be final, but in the main the group belonging to A has been isolated and published as a final group.

P17 JT II 358-368 Group III

Parts of an EBMB jar found in the fill of the shaft would suggest that this was originally cut in that period. The MB II use was very clear indeed, since there were 18 intact skeletons filling the whole area of the floor of the chamber, with no sign of disturbance at all. The implication therefore is that if these are not absolutely simultaneous, at least they have been placed within the tomb in a short space of time.

Although it could be said that if the tomb was being used as a charnel house then the opened period might have been quite long, or that even subsequent burials with good planning need not disturb earlier ones, nevertheless the burials are taken to be simultaneous and the grave goods are said to form one group. There is a certain amount of doubt into which chronological period to place the group, however, and although most of the vessels would indicate Group II, on the evidence of a bowl and three jugs which occur in Group III it is to this period that the typology is ascribed.

P19 JTII 388-410 Group III

The EBMB use of the tomb is indicated by the presence of sherds of that period in the chamber. The MB II use is singular in character, with seven burials in all and relatively undisturbed. The three young males and three young females are said to be the grave robbers of the older female whose disturbed skeleton they flank.

The interpretation seems reasonable, since the robbing of the body would produce on a well decayed body the results which skeleton E, the older woman, displays.

Two problems arise in accepting the group as a unit. Firstly, there is evidence to support the theory that some time has elapsed before the disturbance and subsequent burials could have taken place, hence the disarticulation. That length of time cannot be known. Secondly, the burial is said to be a rich one in origin, yet the 'robbers' would, it is thought, have been buried poorly, so that it is not possible truly to evaluate the internal division of the objects, if there is one.

On the basis that in every other tomb, bodies are frequently shown as being unceremoniously cast aside, even those of similar 'date', it seems likely that if the 'robber' theory is correct, that the time lapse cannot have been great, and therefore the group has been accepted as a unit.

P21 JTII 428-438 Group III

After probable use in the EBMB period, this tomb has a curious history in the MB II period. It is one of the three tombs to incorporate a mud brick dais in the chamber, upon which is placed burial A. On the floor of the chamber to the right of A are two more bodies, B and C. The three appear to be in co-location and the bones of each are substantially complete. All three burials have been badly disturbed, however, not by the reinterment of more bodies as usually happens, but for no immediate apparent reason. The theory is that the disturbance is the work of

contemporary tomb robbers, who broke into the chamber and disturbed in particular burial A on the dais. If this is the case, however, then it would account for the absence of scarabs, possibly the disappearance of other unknown objects, and the general disarray of the remainder.

The group has been taken together, despite possible omissions, but according to Kenyon, it is not easy to fix its 'chronological' position because of a lack of diagnostic material (piriform/cylindrical juglets). The platters are Group II to IV and V. Other tombs in the area are of Groups II and III and all in all Kenyon favours Group III as the date of the tomb.

P23 JTII 286-295 Group III

No remains of the EBMB period remained. The tomb was used in the MB II period for nine bodies, eight adults and one child, which filled the floor of the chamber in a single layer. Seven of the bodies were in substantial articulation, whilst the eigth adult and the child were somewhat disturbed. It is concluded from this that the bodies were not put into the chamber at the same time, though from an examination of the nature of the dis-articulation it is felt that the time interval between the initial burials and the later ones is probably quite slight. As a result, the objects are taken as a single group, since Kenyon implies that they are typologically of the same period.

d) Discussion of Kenyon's typology to be used in the Experiment.

The objects which make up the assemblages of each tomb group and upon which the typological variations are based comprise mainly pottery, with a certain amount of woodwork, bronzework, and other bric a brac such as alabaster, faience, basketry, bonework, beads, scarabs, and decorated eggshells. By far the majority of objects of the assemblages, however, are pots.

1) Pottery

The Jericho pottery falls into seven broadly defined categories, mainly divided on the basis of apparent use; the categories include bowls, vases, jugs, narrow-necked juglets[164] (piriform and cylindrical), dipper juglets, lamps and storage jars. Each of these categories is further subdivided by ad hoc criteria,[165] sometimes profile, sometimes size, rim, base form etc. These are used in different orders of precedence best to reflect the chronological divisions which are implied in the data. In whatever order the various criteria are used in the dividing process, the criteria are always morphological, that is they are subdivisions by shape. Other possibilities such as those concerned with technology - levigation, tempering, slipping, burnishing, firing, etc., are not considered, although these facts are adequately described in the individual tomb catalogues against each vessel.

In considering the typology as it stands in the Jericho publications, it will be necessary to quote numerical frequency, group size, etc. The figures to be used are those in Kenyon's typology catalogues.[166] In one or two instances, there are discrepancies between the numbers quoted in this typology catalogue and those numbers in the individual tomb catalogues. These discrepancies have been ignored, e.g. for the omission of incomplete or undiagnostic pieces.

Bowls

There is a total of 560 vessels classified as 'bowls' in the tombs. They are divided into ten categories, primarily according to profile. Further subdivisions are made according to base or rim type.

A Type Bowls:	The platter type of wide plate-like bowl seemingly used for joints of meat.[167]	139 examples
B Type Bowls:	Carinated bowls of varying sizes, and continuing perhaps the MB I tradition.	104 examples
C Type Bowls:	A very small group of carinated bowls similar to the Type B bowls, but much wider (twice as wide as high)	9 examples

D Type Bowls: "Flaring" carinated bowls, with great variation of size appearance. Possibly an MB II form. 76 examples

E Type Bowls: A very small group of deep bowls with curving (i.e. non-carinated) walls. 4 examples

F Type Bowls: Similarly non-carinated as E, but wider than high with upright walls. 34 examples

G Type Bowls: Deep bowls with globular body - occasionally with spouts. 31 examples

H Type Bowls: Carinated bowls or curved profile bowls with a pronounced neck. This group of 76 is often difficult to distinguish from B or J type bowls, and particularly from Pedestal vases, especially type A vases. 76 examples

J Type Bowls: Small globular bowls, similar to G but distinguished on the basis of size. Also similar to B and H type bowls, from which it is frequently indistinguishable. 58 examples

K Type Bowls: A clearly definable set of saucer-like bowls. 29 examples

On a purely utilitarian basis, perhaps there might be only four groups present, the platters, the wide bowls, deep bowls and saucers. The divisions and subdivisions are maintained, however, for the experiment.

Pedestal vases

Pedestal vases, numbering 173 in all, are thought to be the drinking vessels of the community, though their very wide shoulder and flaring neck would frequently render them inefficient for this purpose.[168] In continuance of the ad hoc choice of criteria, the basic division of the vases is made on the basis of the presence or absence of a cordon around the neck and base. Morphologically this division does not stand up to close scrutiny, since the shapes of the vessels differ considerably within each of the four groups. Nevertheless, the 'cordoned' groups are said to be later than the non-cordoned ones.

A Type Vases: All without cordons, but varying greatly according to the sharpness of the shoulder. Most subdivisions could fit happily into the 'necked bowls' class (H). 105 examples

B Type Vases: Cordon at neck and base, and varying at the shoulder. 22 examples

C Type Vases: Cordon at the neck only. Allowing for variations in wideness and shoulder angle, rather reminiscent of necked bowls. 45 examples

D Type Vases: A single example of a vase with a cordon only at the base.

There would seem to be no reason for the inclusion of the cordons unless perhaps it is to enhance the rim and base joint. Perhaps if a metal proto-type is envisaged, frequently lying behind such sharply angled vessels, then the cordon could be a seam, in which case it would if here vestigial tend to be earlier than later.

Jugs

There are four categories for the total number of 78 jugs, curiously labelled A, B, D and E. The criteria of the basic divisions were:-

A Type Jugs: Round mouthed jugs of all shapes and sizes further divided into 10 groups according to body shape or handle or base 32 examples

B Type Jugs:	Trefoil mouthed jugs sub-divided into two according to handle and body.	5 examples
D Type Jugs:	Ovoid bodied jugs with different shapes of mouth resembling large dipper juglets.	39 examples
E Type Jugs:	Pinched mouth jugs.	2 examples

It is noticeable that with the shift in basic criteria from one form to another that some difficulty was experienced in making any sense of the jug typology. The degree of idiosyncracy is high here.

Narrow necked juglets

These comprise two forms, the piriform juglet and the cylindrical juglet. This combination of the two is followed by Garstang and Tufnell.[169] To all intents and purposes, these two forms are interchangeable in use, both sharing identical narrow necks with a funnelling device in the inside of the rim. Both have the same wide shoulder and the same range of variable handles, single or twin coil with or without button. It is only below the shoulder that the vessels differ, being either pointed based or flat. Stress has been laid upon the variance between those juglets with a button on the handle, and those without; it is seen as a mark of lateness. It is also paradoxically seen as a residual rivet displaying the metallic origins of the device.

a) Piriform Juglets.

The 303 piriform juglets are divided into 9 categories, 7 on the basis of base shape, and 2 on the basis of decoration. The 9 categories provide a total of 50 subdivisions according to the variety of shapes per category.

A Type Piriform:	Ring base juglet, subdivided by angle of shoulder and position of handle.	51 examples
B Type Piriform:	Vestigial ring base, where as a rule the base is not as marked. Again subdivided.	36 examples
C Type Piriform:	Small flat base. As with the previous two, overall size is not considered.	9 examples
D Type Piriform:	Pointed base, the nearest form comparable with the EB II piriform juglets.	9 examples
E Type Piriform:	Slight button base, with a variety of body shapes. It is not always easy to distinguish this form from the C type small flat based juglets.	31 examples

F Type Piriform:	Small button base.	98 examples
G Type Piriform:	Marked button base, with a variety of body shapes, and also different degrees of 'buttonness'.	48 examples
H Type Piriform:	Tell el Yahudiyeh type, with a pricked decoration filled with a white chalk. The decoration here has been taken as the primary and secondary feature of division, but many juglets very in the base shape.	21 examples
J.Type Piriform:	'Imitation' Tell el Yahudiyeh juglets, with the pricked design emulated in paint.	2 examples

In that the base is taken as the primary dividing factor in the piriform juglet typology, it is manifest that Kenyon would see a morphological change in base types during the 'span' of the groups. The validity of this assumption is criticised elsewhere.

b) Cylindrical juglets.

There are fewer cylindrical juglets than piriform, being 123 in number. The flat base is the basic feature distinguishing this juglet from the piriform. Subdivisions are made on the basis of how flat the base is, and how angular the shoulder. Finally, the type of handle is considered.

A Type Cylindrical:	Rounded base with varying shoulders and handles.	17 examples
B Type Cylindrical:	Slightly rounded base, with various shoulders and handles.	98 examples
C Type Cylindrical:	Flat base.	6 examples
D and E Type Cylindrical:	Disc and ring base respectively, one example of each.	

As is mentioned elsewhere, these are considered by Kenyon to be late in the MB II, one of its most definite chronologically significant features. It does, however, appear in MB I on several occasions.

Dipper juglets

159 dipper juglets occur in all. From the numerous examples found in the mouths of storage jars, it seems that these juglets have been manufactured in this slim manner to be used for decanting liquids from the jars in question. Although there are considerably more of these dippers than there are storage jars, nevertheless, they perhaps should frequently be construed as a pair rather than two separately occurring vessels.

As a rule, the dipper juglets are roughly made and their morphology tends to be rather non-specific. There are nine divisions in Kenyon's typology, though one feels they have been reached with difficulty and that their diagnostic value is practically nil. Subdivisions of these nine, which are based upon body shape albeit vaguely, are made by handle position and base type, these latter two being particularly fickle.

A Type Dipper:	Plump round body.	9 examples
B Type Dipper:	Slightly round body, slightly angular shoulder.	86 examples
C Type Dipper:	Parallel sides, with slightly rounded shoulder.	12 examples
D Type Dipper:	Tapering body with slightly rounded shoulder.	30 examples
E Type Dipper:	Wide angular shoulder, slightly tapering sides.	10 examples

F Type Dipper:	Angular shoulder, parallel sides.	1 example
G Type Dipper:	Angular shoulder with tapering sides.	7 examples
H Type Dipper:	Angular shoulder with parallel sides and a wide neck.	2 examples
J Type Dipper:	Bag shaped body.	2 examples

It is clear that the categories mentioned are ambiguous. "Slightly" when applied to the profile of a pot, is a most vague term, particularly when it refers to angularity or taperingness.

Lamps

There are 167 complete lamps, 107 sherds showing evidence of having been used as lamps, and 6 further miscellaneous. Those lamps that are purpose-made are divided into 9 groups according to base type, then subdivided by profile and further subdivided by the extent of the folding at the nozzle.

A Type Lamps:	Round base and circular rim.	17 examples
B Type Lamps:	Round base, with the sides slightly flattened towards the nozzle.	63 examples

C Type Lamps:	Round base with marked flattening towards the nozzle.	18 examples
D Type Lamps:	Round base, front folded approaching squarely.	1 example
E Type Lamps:	Flat base with circular rim.	13 examples
F Type Lamps:	Flat base with sides slightly flattened towards nozzle.	10 examples
G Type Lamps:	Slight disk base with circular rim.	31 examples.
H Type Lamps:	Slight disk base with front folded and approaching squarely.	2 examples
J Type Lamps:	Pronounced disk base with circular rim.	12 examples

In general it would seem that the lamps which are purpose-made fit into Kenyon's later periods, whilst the earlier periods have only sherd lamps. It must be pointed out that there may be many sherd lamps which have either not been recognised or that now cease to exist. Even at present, one third of all recognized lamps are of the sherd type which necessarily throws some doubt upon the usefulness of any distribution pattern of lamps in general.

Storage jars

The 81 jars recovered from the tombs are divided into three groups on the basis of the length of the neck, then subdivided according to rim shape and finally the number of handles.

A Type Jars:	High necked jars all with double handles and different types of rim.	50 examples
B Type Jars:	Low neck with either two or four handles.	27 examples
C Type Jars:	Medium outcurved neck	4 examples

The frequency of these jars is not really in proportion to the number of burials concerned, and the possibility is that their distribution is complicated by 'communal' use.

The pottery, then, from Jericho, is found in the following numbers:-

Bowls	560
Pedestal Vases	173
Piriform Juglets	303
Cylindrical Juglets	123
Storage Jars	81
Jugs	78
Lamps	167
Dipper Juglets	159
	1,644 pieces

In addition to the pottery, there are a number of other objects which might reveal typologically some distinction.

II) Alabaster

119 alabaster vessels are found in the tombs. The alabaster, carved or otherwise, is said to originate in Egypt, and indeed some of the forms can be parallelled in Egypt. The shapes are very diverse.

A Type Alabaster:	Bag-shaped	55 examples
B Type Alabaster:	Handleless vase angular with a rounded base, either squat or fairly high-sided.	5 examples
C Type Alabaster:	Handleless vase, flat at the base with curved sides.	7 examples
D Type Alabaster:	Alabaster juglet with a variety of shapes.	41 examples
E Type Alabaster:	Alabaster bowl with a variety of different base shapes.	7 examples
F Type Alabaster:	Alabaster cup.	3 examples
G Type Alabaster:	Alabaster bottle.	1 example

III) Faience

There are 18 pieces of faience, all considered to be late and of Egyptian origin.

A Type Faience:	Bag-shaped vessels	15 examples
B Type Faience:	Lenticular flask	3 examples

IV) Bronze

Toggle pins.

There are at least 139 bronze toggle pins if the count is taken from the small object discussion JII pp.569-570, although only 99 have been typed and appear in the typological indexes. They are divided into 7 groups basically on the strength of the differences between decorated and non-decorated upper shafts for the pins.

A Type Pins:	Plain upper shaft.	30 examples
B Type Pins:	Plain upper shaft with disk head.	25 examples
C Type Pins:	Plain upper shaft with bulbous head.	4 examples
D Type Pins:	Ball head.	4 examples
E Type Pins:	Disk and ball or multiple disk head.	13 examples

F Type Pins: Grooved upper shaft. 5 examples

G Type Pins: Upper shaft with rounded moulding. 18 examples

It is assumed that the discrepancy in the numbers arises from the large number of pins which have decayed beyond recognition.

Daggers.

There are very few bronze daggers, a total of only 16, of which 10 come from only four tombs, M 11, D 9, D 22, and J 3. They are divided into four groups, but thirteen of the daggers occur in only one of the groups, leaving only one example in each of the other three.

A Type Daggers: Short, square shouldered and tanged. 13 examples

B Type Daggers: Short wide shouldered with a concave sided hilt plate. 1 example

C Type Daggers: Short, wide shouldered without tang. 1 example

D Type Daggers: Short, wide shouldered without tang with sides concave. 1 example

For comparative purposes, only group 1 has any relevance, since there are no comparable numbers in the other three groups.

V) Woodwork

The woodwork is divided into 6 groups; combs, plates and bowls, boxes, tables, stools and beds. Only the combs and bowls have been typed by Kenyon, but it is always to be remembered that differential preservation which is clearly present in the tombs is bound seriously to affect any conclusions regarding the distribution of these objects. An illustration of this would be the combs, of which 67 are found, 53 of these in the two tombs G 73 and H 22 which have 23 and 30 combs respectively.

The same would apply to any of the woodwork, except perhaps in the case of the boxes which are frequently inlaid with bone inlay which, although easily dislodged or mislaid, can at least be used for a presence/absence analysis of such an article.

Other articles which have not really been considered sufficiently common and variable to merit much discussion are the baskets, to which the same degree of uncertainty is to be attached as to the woodowrk, and also decorated ostrich eggs.

THE SERIATION EXPERIMENTS

Introduction

The following series of experiments was conducted in order to test, as objectively as possible, the value of Kenyon's hypothesis that in the MB II period at Jericho typological variation is a function of time-change, or at least that through the analysis of typological variation the data should assume a structure which is predominantly linear and thus would be interpreted as time-based. The objective method which will be applied is that of seriation by means of the creation of an Incidence Matrix which will be finally ordered by the method of Multi-Dimensional Scaling previously described.

There are four stages in the proceedure as mentioned above:

i) The preparation of the chosen data to describe each group typologically.

ii) The comparison of these data tomb by tomb to produce a similarity matrix. (The programme title for this is AAT)

iii) The submision of the similarity matrix to a programme of Multi-Dimensional Scaling. (The programme title is ANSIM)

iv) The interpretation and comparison of the results. (The tombs and the typology have already been decided in the previous two sections.)

a) Preparation of data.

Using Kenyon's typology as described in the previous section, a table was constructed indicating the presence or absence of every type for every category of object which occurred in the chosen 19 tombs. Naturally not all the types from Jericho were represented - those that were amounted to 90. No attempt was made to distinguish multiple occurrences of any one type in a single tomb - its presence was scored as 1 or its absence 0.

This table was examined and found to contain many units which occurred only the once - that is that a particular object was found to be present in only one of the tombs. As a singleton for the purpose of presence/absence, it clearly could not be compared to any other example in another tomb and it would therefore register no score. These 'rare' objects, though they might be idiosyncratically diagnostic, could not in themselves have any meaning. An attempt was made to regroup suitable singletons to provide a unit occurrence of more than one. Those objects which could not be adequately regrouped were rejected. (Similarly, had there been units which had had occurrences in every tomb, these too would have been of no value and either subdivided or rejected.)

The reassessment of typological units was done to give the experiment the best chance of success. The resulting number of units was 60. (see Fig.2)

This gave a matrix of 19 tombs x 60 objects. (see Fig.3)

The tombs, it will be noted, have been placed in a random cryptic order in an attempt to prevent any unconscious interpretation.

b) The experiments.

i) AAT/T2

The data from the tombs was first produced in the form of a similarity matrix according to the typological criteria previously agreed. The preordained typological traits of each tomb were compared with those in all other tombs of the nineteen selected and upon the coincidence of occurence, a comparison of presence or absence, a matrix or grid of similarity indexes was prepared. (Fig.4)

ii) ANSIM JERICHO

The data so treated was submitted to the multi-dimensional scaling method (MDSCAL) mentioned above. The aim of the experiment was to order the tombs according to the similarity indexes, to place those with high indexes close together, those with low indexes comparatively far apart. The actual programme used was the Hodson ANSIM programme derived from the Doran/Kendall modification of the original Sheperd/Kruskal 1964 MDSCAL programme.

Two trials beginning with a random placement of the points representing the tombs were completed, both in two and one dimensions each, and allowing for 25 iterative movements per dimension per trial. The result of this experiment was quite clear (Fig. 5). In two dimensions, the ordering clearly grouped some of the tombs

in a nucleus, whilst others appeared as 'satellites'. The one dimensional result, derived from a projection of the 25th iteration of the two dimensional order tells a similar story (Fig.6) of some tombs crowded together in the centre of the line, whilst others lie far away on either side of this group. It should be pointed out that in the case of the one dimensional array, the strain value rose constantly after the first iteration, illustrating that far from improving the array, the programme was unable to achieve any progress at all.

There would seem to be a basic error lying behind the results of this first experiment, a bias which has outweighed the considerations of ordering in favour of those of size. Those tombs in the nucleus of the array are the tombs with the highest number of objects whilst those in the diseminated satellite positions are those with the smallest number. (Fig.7 reproduces the array but gives the number of object occurrences per tomb instead of the tomb number; this clearly shows the grouping of the larger tombs.) This factor of size similarity has outridden, it seems, other possible factors of comparison which may be inate in the data. As has already been mentioned, large or "rich" deposits will always have a greater potential for higher similarity indexes than smaller deposits. One might ask why this problem has not arisen in previous uses of the programme. In previous uses the units of the experiment were not necessarily tombs but objects, say brooches,[170] which have a set number of facets to their character, eg. pin length, angle, decoration etc. Since each object had the

same number of criteria then the same total number of presence or absence scores were recorded for each object, making them equally sized 'deposits'. On occasions where tombs were investigated, the investigation was hypothetical, and also the tomb groups were all relatively of the same size.[171] The Jericho tombs, however, have deposits of widely differing size and hence one is comparing units with differing numbers of criteria which do not accord with the programme as it at present stands.

The essence of the error is that the similarity index expresses similarity as a direct numerical comparison and not as a proportion of the tomb contents. (The programme having pointed this out, it may incidentally be that such an error has non-mathematical implications when ordering is done intuitively, if such disparity passes unnoticed.) If a tomb i contains five objects, and a tomb j contains twenty, there may be a total correlation of i with j if all i's five are found in j. The resulting similarity index will be 5. 5 represents a 100% correlation i-j, but the same figure means only a 25% correlation j-i. Similarly, if a tomb k with 20 objects has ten in common with j's 20 objects, then a 50% correlation j-k or k-j will be expressed by a similarity index of 10. This disparity of meaning in the similarity indexes must be corrected.

If the experiment is to continue, a means of 'equalizing' the size of the tombs must be found, or rather of expressing the similarity index of tombs as a ratio of their contents. A correction was created which deals simply with this problem:-

$$\text{Corrected Sim.Ind } i/j = \frac{\text{old Sim } i/j}{\sqrt{\text{Simmii}\,\text{Simjj}}}$$

That is the corrected similarity index for the ijth cell, i.e. any cell of the similarity matrix, is to be expressed as a fraction, the old original presence/absence similarity index of the number of objects held in common over the square root of the multiple of the number of objects in the ith tomb with the number in the jth. (Objects here of course means varieties, not the absolute number of objects). If this is illustrated with the example used before:- three tombs i, j and k having 5, 20 and 20 varieties respectively, and if the Similarity indexes are:- ij 5 kj 10. By the correction:-

$$\text{Corr.Sim Index ij} \quad \frac{5}{\sqrt{5 \times 20}} = \frac{5}{10} = \frac{1}{2}$$

$$\text{Corr.Sim Index jk} \quad \frac{10}{\sqrt{20 \times 20}} = \frac{10}{20} = \frac{1}{2}$$

An 'equality' has thus been effected whereby every similarity index is expressed as a fraction of the total comparable material; size of tomb or rather number of varieties should then no longer affect the multi-dimensional placement. The name given to this routine is 'Normalization' (NORM).

In order to test the newly constructed normalized matrix, a set of 'perfect' data was created to see how it would behave when computed. The set comprised 9 units (tombs)

each with 9 possible traits (varieties of objects). Unit 1 contained traits 1 and 2, Unit 2 traits 1, 2 and 3, Unit 3 traits 2, 3 and 4 and so on so that each unit except 1 and 9 overlapped units on either side of it by two traits. This data must be capable of expression in one dimension - a straight line with the units evenly and correctly spaced along it.

iii) JERICHO NORMTEST 1

The aim of the test was to examine how a one dimensional structure behaved after the data had been 'normalized' and then subjected to the ANSIM programme. Three trials were completed in two and one dimensions.

The two dimensional trials were all successful in producing rapidly a 'perfect' order for the nine units where the strain fell to 0.00000. When this was plotted however, a strange phenomenon was observed. (Fig.8) Since the ideal representation of the data ought to be a straight line, it is at first sight perplexing to see the units arranged in a sort of half elipse. This phenomenon has been observed before with certain types of data and is known as "Horse-shoe" for obvious reasons.[172] The effect is understandable when it is realized that the number of direct correlations between the units involved is relatively small. If the similarity indexes of unit 1 are noted with the other eight units of the test, they are as follows:-

1-2 = 2. 1-3 = 1. 1-4 = 0. 1-5 = 0. 1-6 = 0.
1-7 = 0. 1-8 = 0. 1-9 = 0.

There are thus only two measurable distances between unit 1 and the remainder, namely the distances between 1-2 and 1-3. With 1-4, 5, 6, 7, 8, 9 the indexes are all 0. If then these indexes are all 0, then the distances between 1 and 4-9 are all the same, and to express this the straight line of the one dimensional array bends around as best it can to effect a comparison. The data then had a genuinely one dimensional origin, but has suffered by this zero distancing in the processing. While the error as seen here at this stage is not sufficient totally to destroy the sensibility of the result, in less well sorted data it might prove to be a sufficient error to render the result incomprehensible.

The real test of the programme must be in the one dimensional results, for it is here that the answer to the real problem will eventually be sought. In both trials, the one dimensional representations were badly distorted (Fig.9) Although pairs of units seem to have been placed in the correct order, the pairs themselves do not constitute the original picture. The reason for the error now becomes apparent, for the one dimensional representations are downward 'projections' of the two dimensional final iterations in each trial. (Fig.10) Once then this horse-shoe error had been incorporated in the two dimensional array, it necessarily became reflected in the projected one dimensional array, where it is difficult to erase. In Trial 1 (T11 D1) for example, units 8 and 9 have been projected to the wrong

end of the line and have thus become 'blocked' there in a mirror image of their correct positions. This disarray has meant that they could not move freely. Although the one dimensional plots were representations of the more understandable two dimensional ones, they were so erroneously.

If a one dimensional arrangement of the Jericho tombs is to be valid, this horse-shoe effect must either be overcome or minimized. Even in two dimensions, if the data was less emenable than the perfect data used in the test, the horseshoe might well be most inconvenient since with enough units (tombs) with an O correlation the horseshoe would form a complete circle which would mean having to decide where the gap in the horseshoe was to be placed, that is which end of the bent straight line was which, so bringing subjective intervention into the objective experiment. Also, and more importantly, as has been demonstrated the horseshoe presents a two dimensional picture from which a meaningful one dimentional seriation seemingly cannot be achieved.

> "There is everything to be said for trying by one means or another to unbend the horse-shoe. Admirers of Mr. Sherlock Holmes will recall an incident in April 1883, when Dr. Grimesby Roylett 'stepped swiftly forward, seized the poker, and bent it into a curve with his huge brown hands. 'See that you keep yourself out of my grip,' he snarled, and hurling the twisted poker into the fireplace, he strode out of the room.' Holmes, however, 'picked up the steel poker, and with

> a sudden effort straightened it out again'. That is what we must do with the 'twisted one dimensional object' with which the similarity indexes and MDSCAL have presented us."[173]

The basic reason why the horseshoe occurs is undoubtedly a function of the type of data used, which might be called 'narrow margin' data. Narrow margin data arises when units (tombs) have very few of the available traits (varieties) but where the range of potentially available traits is very large. In such a situation, any particular unit will only overlap with and have similarity indexes with a few of the other units, while with the remainder the score will always be 0. If on the other hand units (tombs) contained many of the available traits (varieties), there is a possibility that all units, even those most distant, would have some sort of non zero similarity index, these indexes becoming higher and higher the nearer the units were together in the real situation. This one might term 'wide margin' data. This definate relative scoring that takes place even between the extremities of a seriation would enable those extremities to be properly structured instead of bending round into a horseshoe. Any mathematical procedure which will promote this wide margin condition must now be invoked to minimize the horseshoe effect and to prevent the real data following the same error.

Matrix Multiplication

There is a method which can be used to reduce the narrow margin effect by the multiplication of the Similarity indexes matrix, The multiplication of two matrixes can be effected here by multiplying

the original Similarity matrix by its transpose. (A matrix transposed has its rows (horizontal) and columns (vertical) interchanged, thus:-

a	b			a'	c'
		transposed would be			
c	d			b'	d'

The process of multiplication is such that the figure produced in any cell of the new multiplied matrix is made up by adding the multiples of each cell of a row in the one matrix and each cell in the corresponding column of the other.

> "The element in row i col j in the product is obtained by multiplying the elements of row i of the left factor by the corresponding elements of column j from the right factor and adding the results".[174]

so, the result is:-

a	b		a'	c'		aa'	bb'	ac'	bd
		x			=				
c	d		b'	d'		ca'	db'	cc'	dd'

The effect of the matrix multiplication is to produce figures in cells that previously were 0, as well as greatly to increase the value of figures that were present in the cells beforehand. Since the multiplication is done cell by cell, the particular order of the tombs in the matrix plays no part in the production of the figures; there would be

no variation in the multiplied Similarity indexes no matter in what order the tombs were originally placed. If then values can be given to cells which previously had been set at 0, then one has only to multiply the matrix a certain number of times to involve values in all possible cells, the prerequisite of the wide-margin data.

Whilst this new matrix, multiplied the necessary number of times, might be seen as part of the mathematical trickery of matrix algebra, there is nevertheless a sound archaeological principle behind the procedure. The multiplication process adds to the similarity indexes the suggestion of the indirect relationship between deposits. If in tomb A, for example, there are a number of objects which are held in common with tomb B, but in tomb B there are further non-A objects which B holds in common with C, then there is an indirect connection between A and C which can be scored secondarily by multiplying the matrix. This process can then be continued over and over again until the 0s are eliminated. No damage is incurred regarding the truly direct similarities, since these become outrageously increased as the multiplication continues and will be assured of success in the final ordering since the indirect values are comparatively lower and lower the more indirect those indexes are. (In actuality, this multiplication of matrix was present in the original AAT programme for the formation of the matrix of similarity indexes, called there SIMSQ. At this point however, it has been incorporated three times to ensure that the horseshoe will be minimized. Kendall's procedure for effecting essentially the same result he calls CIRCLEUP.[175]

iv) JERICHO NORMTEST 2

This is the second test of the ANSIM programme with the perfect data 9 units (tombs) and nine possible traits (varieties) but each actually only containing three varieties, or two in the case of 1 and 9. The data was placed as a series of similarity indexes in a matrix and the matrix was multiplied three times and 'normalized'. It was then submitted to the ANSIM Multi-Dimensional Scaling programme. The resulting array of the test units was considerably more satisfactory than the former distorted test. In two dimensions (TII30D2 Fig.11) the buckling effect of the horseshoe, whilst not entirely removed, was considerably lessened so that there was no problem experienced in sensing the linearity of the array. The test however was to see whether or not this two dimensional array could provide a satisfactory one dimensional result from this position.

As the 'unbending' seems to have been sufficient, the one dimensional result was the requisite straight line with the tombs arrayed in their correct order (Fig.12). It is to be noticed that units 1 and 9 are slightly closer to their nearest neighbours than the others are to one another. This is because all the contents of 1 and 9 are found in 2 and 8 respectively giving 100% correlation, whilst the maximum correlation between the remainder is two thirds. Nevertheless the 'normalizing' correction has prevented 1 and 9 becoming synchronous with 2 and 8.

In that the test has illustrated the validity of the programme once the data has been properly 'treated'

one can now return to the original Jericho data and using the triple multiplied, corrected AAT similarity matrix, submit the 19 previously chosen Jericho tombs to the ANSIM (MDSCAL) programme in place of the test data.

v) JERICHO REALRUN 1

Three trials were attempted, each beginning with a random start. Each trial was run for a limit of thirty iterations per dimension, reducing from first three dimensions, to two and finally one dimension; each change of dimension was based upon the thirtieth iteration of the previous one, thus altogether the last iteration of a trial will have passed through three dimensions and ninety iterations.

a) Trial 1 (JRR1/T1/D2/15).

The two dimensional array (Fig.13) shows a form of wide horseshoe if the points are connected according to the order of the subsequent one dimensional array (Fig.14). Four points are widely spaced from the one extremity of the curve around the perimeter, and the remaining fifteen points are tightly bunched at the opposite extremity. The one dimensional array (JRR1/T1/D1/130 See Fig. 15) illustrates a similar situation. The outlying tombs are J3, J54F, D22F and B48 Layer 2R, J3 being the first. By period, they represent I, II, Early II and I-II respectively. Since the tombs are at the extremity of the array, they do thus seem to confirm Kenyon's order.

The remaining fifteen of the nineteen tombs are tightly bunched. It should be pointed out that the

interpretation at this stage depends upon the search for structure in the arrangement. The seriation arrays the tombs by position alone and it does not use variation in metric distance between tomb positions as an expression of the degree of similarity or disimilarity.[176] The fact that these tombs are outliers to the remaining fifteen tombs which are tightly bunched does not imply a vast spread of time into which the outliers fit.

If one examines now the tightly bunched group at the other 'extremity' of the horseshoe (Figs. 13 & 14), the two dimensional array suggests that structurally the bunch may be divided into two parts. The smaller part contains one tomb of Group II, three tombs of Group III and two tombs of Group V. The larger (and apparently later) group contains four Group III tombs, three Group IV tombs and two Group V tombs. In each case, no further structure is visible, and all fifteen tombs seem to have formed a sort of nucleus.

b) Trial 2 (JRR1/T2/D2/15).

A similar picture emerges in this second trial as with Trial 1. In two dimensions, the linkage describes three outliers and a very tightly bunched array forming a nucleus (Fig.16) which the one dimensional array confirms. The nucleated group is relatively amorphous when compared to the horseshoe of which it probably forms one extremity.

In order to assist in the interpretation, models were made of the three dimensional results. The structure

of the data as already outlined is even more evident in the three dimensional arrays.

As read, the results seem to have indicated two things:-

i) The 'early' tombs form an order similar to that assessed by Kenyon.

ii) Tombs of Groups III, IV and V have in each trial and each dimension formed a closely packed nucleus suggesting that they are insufficiently distinguishable to be meaningfully separated. Each part of the nucleus has representatives of each Group.

The possible interpretation of this feature is that whereas the 'early' tombs are readily distinguishable, the majority of tombs, by the same token, have insufficient idiosyncracies to enable them to be separated into any recognisable structure.

vi) JERICHO REALRUN 2

In the belief that the outliers of the previous trial may have obscured possible structure in the remainder, a new series of arrays were produced omitting the three main outliers. The three dimensional model and the two and one dimensional arrays (Figs. [illegible] show a similar situation to the amorphous nucleation of JERICHO REALRUN 1.

There are several points that should perhaps be borne in mind in the interpretations of the above experiments.

i) The ordering system REALRUN was developed and designed specifically for the Jericho data. It had been tested with perfect, created data to prove that it was capable of reflecting a structure of the type sought if that structure existed.

ii) It has already been said by Kenyon that the typological criteria which she chose, and with which the experiments were conducted, had been chosen by her as those which stood the best chance of reflecting the grouping she had assessed, since the sought-for structure had already been implied in their very choice.

The fact that the results were partially successful points to a number of interesting conclusions:-

i) The method and the typology which has been used does in broad terms confirm Kenyon's order of Groups, at least as far as the early ones are concerned. One would anticipate that this would be so, as Dempsey and Baumhoff point out:-

> "If the definition (of a series of units/ tombs) is largely intuitive so that it is based at least in part upon the conscious or unconscious recognition of co-occurrence

> in closely related site components, then there is bound to be some feed-back in the process of chronological ordering."[177]

They would actually go further in saying:-

> "If we base typological definition on the similarity of site components, then we obviously cannot base chronological ordering upon similarity of type inventory."

What happened to the tombs of Groups I and II was what one would expect to happen given the data as selected; at least this illustrates the efficacy of the method.

ii) The bunching of the other three Groups into a nucleus in which by far the largest number of tombs lie in an astructural array suggests that even with Dempsey & Baumhoff's "feed-back" of the selection of the typology, no real order or division can be made - the tombs are so alike that they cannot be meaningfully separated. There is always the possibility that the methods and the definitions used in the experiments are not sufficiently refined to pick out the minute changes which distinguish the momently passage of time, a subtlety which is given to the intuition, subjective though it might be, of the experienced and the skilled observer such as Kenyon. Nevertheless, it is to be noted that whilst part of the experiment was successful,

the majority lacked the hoped-for confirmation, despite using the same data.

If the REALRUN 1 results from the only nineteen deposits that may with any confidence be considered as sealed have produced an acceptable result, must the interpretation of that result have any chronological implications? If so, then perhaps the tombs share a basic commonality of date, with one or two achronic exceptions from earlier periods.

On the other hand, the interpretation might rather revolve around culture, class or credal differences which are largely held in common amoung the Jerichoans but a few are eccentric.

Conclusion

The Jericho typological system has been closely examined both from a rational and a statistical standpoint. The examinations have not confirmed the overwhelming validity of the divisions which Kenyon has created. From the point of simple rationale, it would seem impossible that one should accept easily Kenyon's division of MB II on these typological criteria, yet that view should be tempered with the firm belief that intuitive processes are always present in any analysis of the kind which Kenyon has attempted. Such intuitive processes, an indisputable and often a sound method, cannot be measured or described in the ways that have been tried here. It must be said that whilst Kenyon's structure does not stand close scrutiny, in the broader view it may well have truth in it, that is, according to the typology she chose to describe that structure.

Having thus criticised the Jericho system internally, it would be as well to consider it in relation to another site of comparable style, that by such a comparison other points may emerge. One of the points in the Jericho cemetery is that it is richer, more extensive and very much better published than any comparable set of tombs, which by its supremacy has imprinted its character on other less well represented sites.

CHAPTER THREE

MIDDLE BRONZE AGE II TOMBS AT TELL FARA

Introduction

Having examined in some detail the material from the MBII tombs at Jericho, it is proposed to look closely at another site in a different area to Jericho. The choice of Tell Fara was made for the following reasons:-

i) The site lies in the Western Negev, a totally different economic area to that of Jericho

ii) Since the cemeteries date only from the MBII period onwards, there could be no reuse of earlier tombs, so that it should be possible to observe the burial customs of the MBII period more fully.

iii) The number of MBII tombs discovered at Fara was considerable, most of the tombs lying in a well defined cemetery area.

iv) The majority of the material from these tombs is currently housed at the Institute of Archaeology, University of London, and it is readily available for study.

A full publication and discussion of the tombs of the period excavated in 1928 season is intended to give a sample of the type of burials made at this site. Because of the amount of missing material, statistical analysis will not be possible.

MBII TOMBS TELL FARA

It was in 1928 and 1929 that Petrie and his staff excavated Tell Fara (South) together with its cemeteries. As was usual with Petrie's method, blocks of a hundred numbers were allotted to different grave areas as they appeared, based not upon similarity of date or of burial custom but only upon location. There are two main sequences of numbers which refer to tombs of the MBII period, those of the 1928 season 500 cemetery, some 45 in number, and those of the 1929 season 1000 cemetery, a further 25: the total number of MBII tombs therefore is 70.

The tombs with which this survey will be mainly concerned belong to the 500 cemetery. The 25 tombs of the 1000 cemetery are not being fully analized for several reasons;

i) The topographic position of this group has never been given, and hence the exact relationship between this group and the known position of the 500 group has been lost - no plan of the cemetery was ever published.

ii) The material still extant from these tombs is not as great as that of the 500 tombs, but it is very much more diffuse in its present location.

iii) One discrete group of tombs will be enough to illustrate the style of the MBII at Tell Fara. The 1000 tombs will be mentioned only if the interpretation of the MBII burial style varies here, or can throw some additional light on problems.

The '500' Cemetery, MBII Period.

The block of numbers beginning 500 was given by Petrie to an area North West of the Tell along a ridge of regressional sand dunes which form the substratum of the Negev in this area. The cemetery thus is on the right bank of the Wadi Guzzeh about 300 metres NW of the tell. (Pt:M bearing 310° at 293 metres; Pt:I bearing 314° at 355 metres from the current bench mark on the Tell of 121 metres.)

The cemetery is divided into three differently located parts. The extreme north-west area (nos. 530's and 540's) is covered with a number of Philistine tombs. There is a group of Late Bronze/Iron Age graves in the Northern area, (nos. 500-520's). Finally, seperate from both of these two, the largest area in the South and East of the cemetery is taken up with the 'Hyksos' tombs of the MBII period.[1]

The tombs were found sporadically, "by removing a few feet of blown sand and then trenching the marl surface to find the softer places where the soil had fallen in".[2] As a result of this method, the exact enumeration of the tombs of any particular age or style tends to be neither consecutive nor continuous. Nevertheless the strictly numerical order of the tombs will be the one adhered to in the following discussion so that evidence may be located more easily.

It is proposed then to deal with the area of the 500 cemetery which is seperated as defined and is specifically a cemetery of the MBII period. This will omit

two MBII tombs F529 and F537 from the discussion since they lie among the Philistine and Iron Age tombs in the other areas of the group. Also, two tombs which contaminate the MBII area, F589 and F592, are of the Late Bronze Age and are therefore ignored. In all four cases the position and the alignment of the tombs omitted do not accord with the seperate cemetery which is being considered.[3]

According to Petrie's own dating for the MBII period, Dyn XV and XVI, which he uses in the two catalogues of his publication of these tombs there are altogether forty-three tombs of this period in the area described:-[4]

545	550	560	570	581	590
547	551	561	571	582	591
548	554	563	572	583	593
549	555	564	574	584	594
	556	565	575	586	595
	557	566	576	587	596
	558	567	577	588	
	559	568	578		
		569	579		

Post-excavational History.

After excavation, which, as will be seen, entailed a selection of material from each group, the objects were allocated to different museums and collections, tomb by tomb. Occasionally, objects were even divided within one tomb group. The excavation records show that the material from the tombs was supposed to have been sent to such museums as:

Bolton, Cambridge, Glasgow, Heidelberg, Hull, Jerusalem,

Leicester, Manchester, Reading, Rochdale and the Wellcome Museum, with the bulk of the material to be kept at the Edwards Collection at University College, London. In more recent years this material in University College was transferred to the Institute of Archaeology, London, but not before a number of small finds from these groups had already been loaned to the British Museum, thus further subdividing the groups. Finally, in 1948, three of the now divided groups at the Institute were given to a 'Mrs. Wloch, Poland.'

In an attempt to retrieve what extant material still would be available for study, the first problem is to decide what proportion of the material that was excavated was ever removed and brought back; then it will be necessary to trace those parts of that material which may still be housed in the collections to which they were sent.

The division of the material as excavated into objects left behind and objects removed will be discussed for each individual tomb (see below). As far as the present locations are concerned, Heidelberg and Leicester can be ignored as possibilities, since the groups that were said to have been sent there are housed in the Institute of Archaeology. It is safe to assume that no material was ever sent to these museums from this cemetery. The one tomb that was supposedly sent to Bolton is catalogued as being in the Fitzwilliam Museum Cambridge. Bolton too can be ignored as a possible terminus.

The forty-three tombs are distributed among the remaining collections. Eight tombs are currently missing.

i) F547 The tomb contained three vessels and a scarab. One cylindrical juglet is presently in Rochdale Museum, but being totally fragmented, it is considered lost.

ii) F548 While the excavation records suggest Heidelberg for this tomb, the Institute of Archaeology maintains an accession title E.v.14/ . No trace of the material remains.

iii) F549 According to the excavation records, this tomb group which contained two bowls, a lamp, two pins, two scarabs and a faience pot, was taken to University College. At present, none of the material is catalogued anywhere.

iv) F560 This group was sent to the Wellcome Museum, London. It was recently returned to University College with a vast collection of Egyptian material. That material is still unpacked and uncatalogued and therefore is not available.

v) F568 This large group is marked 'Glasgow', but correspondence with that Museum reveals that it never arrived. It has not appeared amongst other collections.

vi) F572 The records mark the tomb as 'Hull'; in all probability it was sent there, but the Hull collections were destroyed in the War.

vii) F588 This tomb was sent to Reading and at one time was accessed there. It seems that in 1951 the Museum sold "certain superfluous Egyptian objects."[5] A note on the accession card reads 'B'Ham Feb. 1952'. It is possible that The City Museum and Art Gallery of Birmingham now have this group. Protracted enquiries continue.

viii) F591 The tomb once contained a jug, two rings and a pin.

The jug was not removed from the excavation, and since there is no provenance for the bronze, it is considered lost.

Having eliminated these eight tombs, the remainder is thirty-five. FOR THE PURPOSE OF THE PRESENT STUDY, ONLY THESE TOMBS WILL BE INVESTIGATED IN DETAIL:-

545	550	561	570	581	590
	551	563	571	582	593
	554	564	574	583	594
	555	565	575	584	595
	556	566	576	586	596
	557	567	577	587	
	558	569	578		
	559		579		

WRITTEN SOURCES

In the reconstitution of the tomb groups, there are several sources of information which can be collated and compared; the original Tomb Cards, The Beth Pelet I publication; the various Collection Catalogues; incertain cases, the marks on the objects themselves.

Tomb Cards

These cards are presently held at the Institute of Archaeology, London. As the tombs were excavated, the inform--ation was recorded on individual pre-printed field cards. The printed headings for the material were:- 'Pottery', 'Stone', 'Metal', 'Scarabs', and 'Amulets & Beads'.

The skeletal remains and the tomb dimensions were to be entered under seperate headings; 'Disturbed', 'Head to...' 'Face to...', 'Attitude', 'Clothing', 'Sex', 'Coffin', 'Chamber', and then entries for the various dimensions of the chamber and the shaft. A bearing and distance were given from the mouth of the tomb to a fixed survey point in the cemetary, and finally a bearing was taken from the mouth of the tomb into the chamber along its axis. A sketch plan and section, with measurements, were frequently drawn on the reverse of the card. As it was excavated, each pot was given a consecutive letter on the card and its type noted from the Corpus of Palestinian Pottery[6]. The system seems to have operated very efficiently, recording all the necessary information quickly and with few omissions.

There are a few obvious errors incorporated into the tomb cards:

1) One problem was that the typological notation of the Corpus was, at the time of excavation, in an embryonic state, the Corpus itself being published in 1930, the same year as the BPI publication. This has meant that the type series, when published, had minor changes in its notation, particularly in the sub-types of storage jars. Secondly, the type series itself was perhaps not as familiar to the recorder as it has subsequently become and so minor slips of enumeration have been made. (e.g. F551, dipper juglets general type 51 being written as

general type 59 which are patently incorrect, being Iron Age forms). Although these slips are small in themselves, the effect as evidenced can be potentially catastrophic. If this has happened to vessels which for one reason or another are no longer available for study, it could cause considerable confusion in the dating of the use of the tomb. In fact, errors of this type are so gross in time that such misunderstandings can be easily rectified. (They tend not to occur in the 1000 cemetery cards).

ii) The entries on the cards are written in pencil and in the case of large tomb groups the entries can be somewhat crowded together. In some cases the Corpus typology of the vessels has been altered in ink, possibly an updating of the type numbers when the Corpus was produced.

On the whole, the Tomb Cards provide the most reliable guide to the original contents of the tombs, although in certain instances small objects, particularly scarabs, may be seen to be preserved in the collections but they were never entered on the Tomb Card, a most difficult situation to reconcile.

Corpus

Duncan's Corpus of Palestinian Pottery was partially constructed around the pottery from these tombs at Tell Fara. The entries give a basic profile of the type by illustration and they also, in most cases, cite the tomb

groups where this type of vessel may be found. This provides a very useful cross-reference to the tomb card entries provided that the relevant tomb has been cited on that occasion. Problems are:

i) There are examples of illustrations which omit some of the possible citings for that particular type, thereby creating a weakness in the cross-referencing.

ii) Certain type numbers mentioned on the Tomb Card were not used in the formation of the Corpus and they have therefore become obselete; these forms are renumbered and listed under their new types in the Corpus, but one can never be sure that the citings in the Corpus deal with all the renumbered types.

The dynastic dates which Petrie ascribed to the Fara pottery are frequently entered on the drawing of each type in the Corpus, but since the system by which he arrived at these dates by scarab dating will be called in question, the dates have been omitted for the purpose of the present study.

Beth Pelet I. (Tell Fara S.)

The Beth Pelet I report appeared in 1930, the same year as the Corpus, and some two years after the excavation of these tombs. The publication was necessarily a hurried one, with a scant text - the MBII 500 tombs receive three pages, which is quite extensive coverage.

The bulk of the information about the tombs is not in the text, but in the catalogues and the illustrations. Those tombs which Petrie thought were dateable he placed in a tentative order[7]. The remainder are catalogued seperately in numerical order.[8] These catalogues are usefully supported by the illustrations of the small objects[9] and also by a selection of the tomb plans[10]. With such little space it is remarkable how much information Petrie was able to convey; theoretically all the evidence of each of the tombs has been published in one form or another. The scarabs, the bronze work, the faience and the bone inlay are all drawn; the plans are either reproduced or the measurements of the simpler ones are given. The pottery is described by giving a list of the Corpus numbers of the pieces found in each of the tombs. One can only marvel at the system Petrie had developed to achieve this maximum coverage in the minimum space and time.

There are a number of important points that should be borne in mind when using the publication:-

i) The speed of publication and the method of entry by hand sometimes leave a lot to be desired, particularly with the catalogues of pottery. No account is taken in the tombs of the number of any one type within a group - one entry might stand for one or more vessels so that not only is any quantative analysis from these catalogues impossible, but also if after excavation the type number of a vessel has been changed by Petrie to that of another already occurrent vessel, no record

of this change will be kept and the vessel in question will seem to disappear.

ii) Petrie must have compiled the catalogues from notes, not from the original material. Errors are noticeable where one type number which on the Tomb Card had caused some difficulty and had had to be corrected now appears in the BPI catalogue with both the original error and the correction as two seperate types. (See F551 or F557 Catalogue anomalies).

iii) There are errors of simple omission where a number of objects are left out of the catalogue completely for no apparent reason. (eg F569A see Catalogue anomalies).

iv) Owing to the hand-written unruled format of the catalogue, pieces have drifted from one tomb into another by mistake (eg The flints ascribed in the BP catalogue to tomb 565 in fact belong to F596, the tomb above it[11]. See Catalogue anomalies).

The Beth Pelet report does give a useful secondary source, but it is not as reliable as the Corpus or particularly the Tomb Cards, since it has obviously been produced at a certain remove from the material.

Museum Catalogues

The standard of cataloguing does vary from one museum to another. The material in Jerusalem is well

catalogued and described, each object being given a unique accession number which can point out any loss immediately. The Manchester material similarly is catalogued with a series of unique accession numbers, but the whole system is presently being remade. The Fitzwilliam and the British Museum are also very soundly based.

The catalogues of the bulk of the material at the Institute of Archaeology are very much a curate's egg. They do contain a number of weaknesses which make analysis of the groups difficult.

i) Only the pottery, the scarabs and the daggers have been accessed at the Institute. The remaining material which is housed there, the small objects like pins, inlay work, faience, beads and occasionally plain scarabs, is not accessed at all. The tracing of any missing pieces is impossible in these cases since the small finds were largely unregistered.

ii) There are a number of pieces in the collection, besides the small finds mentioned above, that have never been catalogued. Fortunately they nearly all bear the original tomb registration marks and can be restored to their rightful group.

iii) A number of pieces, perhaps three or four, have been catalogued under the wrong tomb. The original designation on the vessels is often readable and after cross-referencing these pieces with the Tomb Card they have been restored to

their rightful group.

iv) The numbering system used for those pieces catalogued is such that errors can more easily occur than originally. The original tomb numbers have been changed to accord with a global accession system in the Institute. All the tombs from Fara are given the designation 'E.v....' followed by a number. (F550 becomes E.v.1). The thinking behind this notation was that 'E' was the area-designation for Palestine, and 'v' was the MBII period. The following number was the particular group in question. A second number would then be added to the above designation to catalogue the individual objects. This System would give each object a unique position in world and time at a glance. In many cases however, more than one object was entered under the same group number (F550 has two bowls catalogued as E.v.1/5). The numbers then are not unique to an object. Also, the numbers were not allotted consecutively to the consecutive numbers of the tombs within the cemetery. (F550 is E.v.1. F551 is E.v.2. but F554 is E.v.28.)

The overall result of this system has meant that an object may have as many as sixteen digits in its registration number, a situation which invites error. (e.g. the lamp in F550 has the following numbers:- F550AA 91A4 E.v.1/13b).

On the whole, however, the Institute catalogue does cover the pottery and the scarabs very well, giving full descriptions of the object concerned. In the case of the scarabs, a drawing is made on the catalogue card and a cross-reference given to the Beth Pelet publication. With the pottery, a further number is given following the description which refers to an Institute corpus of pottery. These last numbers have been ignored in the present study because the numbers of Duncan's Corpus are thought to cover all eventualities.

Object Numbers

The tomb number and the appropriate entry letter on the Tomb Card are written first in pencil and then in ink on every vessel excavated. The Corpus type number is also added to the vessel. These numbers were certainly inked before 1930, probably at the moment of excavation, since the vessels frequently preserve the numbers which had already become obsolete in 1930; for example the storage jar in F578. In almost every case the markings survive and they further reinforce the identity of suspect vessels. The carved scarabs did not fare so well, but since they were all published, their identity can no longer be in dispute - in many cases the tomb number was written in ink on the back of the scarab. The plain scarabs however are usually unmarked, and also unpublished, although as with the beads and occasionally the pins, they may have labels tied onto them bearing the tomb number, but these labelled objects would be in the minority.

The compilation of these sources has given a fairly clear picture of the size and the variety of each of the tomb groups. The Tomb Cards must be regarded as the primary source, and the other catalogues are then used for comparison and collaboration and the resolving of anomalies.

One observation may be inserted here. When examining the confusion and conflation of written sources which have produced the errors in the information about the groups, the real fault would seem to lie in the apportioning of numbers and letters to the typological variants in the groups. These numbers and letters, once created, soon loose their original meaning. In the sequence of copying and recopying manuscripts in which all the information has been thus coded, the numbers and letters are easily mistaken, altered and even omitted, which may give a totally different meaning when translated back into the terms of the vessels themselves. There can therefore be no substitute for publishing all the objects available from original drawings of those particular objects. To this end, the observations below show how the written and the material evidence has been recently combined with modern drawings of the objects to create as clearly as possible the appearance, at least in remnant, of the tombs.

CONTENTS OF THE TOMBS

The contents of the tombs are discussed in the same order that they appear in the catalogue.

PLANS AND SECTIONS

The plans and sections for these tombs are wherever possible included with the tomb description. The evidence for these plans and sections comes from a number of sources:

a) In cases of simple graves, a northern and eastern measurement is given on the Tomb Card, and can be cross-referenced in the BPI catalogue.

b) More complicated plans are sketched on the back of the Tomb Card and the relevant measurements given on the plan.

c) Of the tombs considered, twelve of the most complicated plans are published[12]. In most of these cases no drawing appears on the reverse of the Tomb Card, but a note refers to a seperate plan which is no longer available.

By drawing up the Tomb Card sketches and rescaling the 1/60th drawings of BPI it has been possible to recover all the plans to the same scale of 1/50.

The sections similarly have been created from the measurements and the sketches given with the plans. In most cases since the roofs have collapsed, the heights of the chambers are conjectural.

The plans of objects within tombs are hardly ever available due to disturbance and robbing.

SKELETAL REMAINS

Very few of the tombs preserve skeletal remains, perhaps only two or three. Quite why this is so is not easily determined. The soils in the Fara region tend to be rather alkaline which at least is not too deliterious to bone. In the majority of cases however, the collapse of the chambers must have promoted first the crushing and then the encasing of the bones which eventually destroyed them. (The 1000 cemetery on the other hand does record skeletal remains more frequently, which may reflect a difference in excavating technique or accuracy of recording.)

The Tomb Cards frequently mention that the tombs have been disturbed, but whether this disturbance is only a matter of roof fall, or if it is some more systematic robbing is not always clear. The report speaks of robbing of the tombs, but how extensive this was is not described.[13]

In those cases where bones have been recovered, it would seem that the burials can be both individual burials and, more usually, group burials. Of the style, Petrie states:-

> "No. 550 Pl.XVII has 5 skeletons so placed that it is impossible for them to have been swathed for burial. The varied position of the legs suggested that after death the body was left to stiffen and then carried out and buried as it was"[14]

The skeletons are usually extended, legs placed rather roughly downwards but sometimes splayed. The arms are

placed about the chest or abdomen. No consistent direction for the placement of the bodies was noticed.

POTTERY

The pottery constitutes the bulk of the grave goods in every tomb. As discovered, the vessels were in the main complete - occasionally a sherd only is found which may suggest earlier disturbance - but because in nearly every tomb the roof had collapsed a large number of the vessels, though complete, were fragmented. This condition would seem additionally to have hindered the transmission of objects from Tell Fara.

As the vessels were excavated, they were given a letter designation and the Corpus type number was entered against that letter on the Tomb Card, so that it is relatively straight-forward to recreate the pottery groups in toto. On the other hand, since the Corpus was, as has been said, in its embryonic state, the type numbers have to be checked for error.

Whilst it would seem that all the vessels were recorded upon excavation, it is clear that only a proportion of them were removed; in nearly every case a number of vessels were left behind. The precise mechanics of this division are not at all clear, whether the vessels were simply left in situ in the tomb or removed elsewhere for study and later dumped. At any event, the Tomb Card records the suffix NTH in these cases, which according to contemporary correspondence (Lankester Harding - now in Rockefeller Museum) meant NOT TAKEN HOME,[15] although Miss Tufnell maintains it meant NOT TO HOUSE, i.e. the Excavation house. A second designation

appears quite frequently interspersed with the first, of NTHH, but the significance of this longer suffix is lost. The effect however is the same.

As a rule, it is the same classes of objects that were left behind and 'not taken home'. Particularly common are the storage jars and occasionally the large jugs which may have been complete upon excavation but the effort of removing such large and ungainly objects was not thought to be worthwhile. Particularly if such vessels were broken, one can imagine that they would have presented a tremendous amorphous weight. As a result of this selection, there is hardly a single storage jar in the preserved material although well over sixty were found. Other types of vessels to be left were those that were irreparably fragmented, particularly the cylindrical juglets which are prone to shatter. Bowls, lamps and other types of juglet have as a rule fared very well by comparison.

Of those vessels that were removed, most have withstood the passage of the last forty-five years reasonably well, although the friable nature of the ware in certain cases has been responsible for some breakage.

Manufacture

Of the published material, in every case but one the vessels are wheel made. (The exception is F551P). It is this feature which allows the flaring shapes which characterize the period. An equally important feature of manufacture however is the almost universal use of 'turning' in forming

the lower part of each vessel. This procedure is common to platters, large and small carinated bowls, cylindrical and dipper juglets, jugs and probably even to storage jars. In the vast majority of cases then, evidence of turning can specifically be seen, and in the remainder it can often be assumed.

The process entails manufacturing the vessel on a 'foot' of clay, giving it extra stability on the wheel by widening the contact area. The interior of the vessel was formed into its final shape at this stage. When the clay was leather hard, but before firing, the vessel would have been turned upsidedown on the wheel, centered, and then the thick clay 'foot' pared off with a knife, working from the shoulder downwards. Gradually the thicker areas of clay were reduced and finally the base was shaped during this reduction. Whether the base would have been flat, concave disk or 'ring' base depended solely upon the thickness of the clay to be reduced in the 'foot'. The technical aim of the turning or cutting of the pot was that the reduction of the extra-thick clay 'foot', which had been so vital in the early stages of manufacture, would lessen the risk of the base cracking open upon firing owing to differential expansion. This would probably happen were it left on the base.

The turning process is very clearly evidenced on the Fara pots, being distinguishable even beneath a slip by a scratched and scored surface which contrasts with the smooth finger-mark striated surface of the wheel manufacture. The finger-mark striations are very fine and horizontal - the turning marks are deep grooves and incisions, often at quite steep angles on the outer walls of the vessel.

Finish

The finish of many of the vessels is not as clear as it might be. Many of the pots, particularly the bowls and the juglets, seem to have been slipped, some heavily and some less so. There is also what has been described as a self-slip in some cases, the formation of a slurry on the surface of the wall during manufacture, effecting the same clay-cream finish as a deliberately applied slip. Owing to the damp and close-grained nature of the earth from which the vessels were excavated, much of the slip has decayed, cracked and become seperated from the wall of the vessel, so that total analysis based on the use or non-use of slip would now be impossible. Many of the vessels also have a 'well-scrubbed' appearance characteristic of so many pots excavated at this time. What contribution vigourous cleaning has made to the obliteration of the surface of these vessels can never be known, but certain vessels have particularly suffered, especially the very few painted varieties (see F554D).

Painted or incised decoration is very rare on the vessels from this cemetery. There are perhaps only three vessels (F554D, F569F and F551P) upon which paint is still found; all three pieces are also morphologically rare. Deliberate incised decoration is not found at all.

On the other hand, burnish is widely evidenced. The majority of juglets show evidence of vertical strokes of burnishing and even when the surface is very worn, the facets of the burnish can still be seen in the differential wear patterns of the outer surface. It would be correct to assume

that many more vessels upon which burnish is no longer visible may, before the surface was obliterated by a combination of scrubbing, pitting and concreting, have once shown burnish.

Bowls

Among the small bowls, the most characteristic is the carinated bowl with the everted rim, upright upper wall, slightly carinated shoulder and a turned disk base. There are five such bowls in tomb F555 alone, and very few tombs are totally without this form. There are naturally types of bowl that do not fit into this profile, for example F569 Fig. 54.1, or F596 Fig. 81.1-3, but in the main the form is relatively consistent. Small flaring carinated bowls are rare. (F556 Fig. 34.1, F575 Fig.60b.1, F578 Fig. 64.1) as are their opposite, the simple convex profile bowl (F554 Fig.28b.1, F569 Fig. 54.6, both with handles)

A second common type is the large carinated bowl (F545 Fig.19a.2 etc) with a plain rim, upper wall flared out, overfolded carination, convex lower wall and a turned disk or turned ring base. The carination is naturally less on some than on others. (F565 Fig. 47.5, F587 Fig.73b.3) but the capacity would seem to be generally the same. Rarely, radial burnish is evidenced internally.

A third type of bowl is the platter, of which less than ten now survive in the collections. Internal thickening of the rim is more or less universal to this group, presumably to provide stability and prevent the sagging and warping of the wall which is all too common. (The thickening

is omitted in F582 Fig. 68a.1). Elsewhere (Jericho JTI p.456) these vessels have been associated with the provision of joints of meat.[16] The almost total lack of skeletal material at Fara prevents a similar conclusion being drawn. In a number of examples, radial burnish is observed on the interior (F569 Fig. 54 .7). An unusual form is F554 (Fig.28b.2) a platter with handles.

Juglets

With one unique exception there are only two forms of juglet present in the cemetery, cylindrical juglets and dipper juglets. The exception is the piriform juglet of F561, which unfortunately is in an unprovenanced group.

a) Cylindrical juglets. The cylindrical juglets are made on a small foot of clay and the base is turned to the rounded appearance. The bulbous rim is folded over and out (see F557B Fig. 36 .1) At least half of the cylindrical juglets currently available were slipped and burnished, and it is likely that others also were so finished. In form, these juglets vary from the squat types of F555 (Fig.31 .6) to the rather elongated types of F551 (Fig.25 .10). Bases vary from the very rounded form of F582 (Fig.68a .3) to the almost flat base of F555 (Fig.31 .9). The size and capacity is generally the same in all cases, except for two miniature versions in F550 (Fig.21 .9 & 10). Whatever the significance of the button on the handle, it is to be noted in the minority of examples. The function of the juglets is not

easily ascertained. Several references on the Tomb Cards refer to them as 'oil jars', but on what evidence is not given.

b) Dipper juglets. There are about forty dipper juglets still found in the collections. Despite their rather brittle nature, the number preserved intact is high, due no doubt to the fact that many of these vessels were found inside storage jars and thus they were somewhat protected from roof falls. The vessel varies very little from the pointed base, elongated body, narrow neck and pinched rim. The pointed base is the result of the turning off of the clay 'foot' on which the vessel had been made. The majority of examples still extant exhibit the use of slip and particularly burnish vertically on the walls. There is only one case of miniaturization, in F551 (Fig. 25.12).

The connection between the dipper juglets and storage jars is well attested in the tombs. In certain cases there is an equal connection with the single handled jugs. In the majority of cases, these vessels form a pair, as noted elsewhere.[17] Examples of the dipper juglet and storage jar as a pair with the dipper inside the jar are to be noted many times, (e.g. several times in F559). There are also examples of the single handled jug being found with the dipper inside, (e.g. F557) and there are several examples of the two being found in close proximity (F576, F581, F584) although they

cannot fit through the necks of these.

A curious feature of the dipper juglets from Fara is that they are several times referred to as 'bil-bil' juglets on the Tomb Card (e.g. F545 etc.) but the title is plainly confused.

Jugs

Fewer than twenty jugs are now preserved from the tombs. The majority are a variety of the type found in F584 Fig.70b.3, with the everted rim, sometimes pinched out or folded to assist pouring, a fairly wide neck, globular body and either a small flat or a stub-pointed turned base. The handle is from the rim to the shoulder. Exceptionally the handle has been placed on the shoulder only (e.g. F557 Fig.36 .4, F569 Fig.54.14, F561 Fig.42 .3, F582 Fig.68a.6). (The cypriot jug in tomb F551 (Fig.25.17) is unique.) A number of these jugs exhibit a vertical burnish on the outside.

The connection of the jug and the dipper juglet mentioned above deserves comment. The obvious pairing of the two vessels in tombs such as F576, F581 and F584 cannot be the normal utilitarian consideration because the accompanying dipper juglets cannot enter the mouths of these jugs. In fact the finding of the dipper inside the jug of F557 is unique in the cemetery. Further, since the jug is both lighter than the storage jar when full and also has a pinched mouth to facilitate pouring there would be no need for the dipper to accompany the jug at all. It might be then that here in the cemetery the appearance of the two together is a

token gesture rather than a functional one.

Storage jars

By far the largest type of vessel found in the cemetery is the storage jar. It is for this reason, as explained, that it is now the rarest in the collections. Of the total of some 69 storage jars found in the tombs under discussion, only two are currently available (F578 & F590). The reasons for the loss, the problem of excavation, transportation and conservation have already been mentioned. Over half are marked NTH, and one presumes that the remainder suffered the same fate.

In the attempt to reconstruct the types of storage jars found in the tombs, it appears that the typology of the storage jars as excavated and as reported in EPI and the Corpus has differing nomenclature. The Tomb Cards have isolated examples of Types 43 D, E and G, but the majority of jars are typed as forms of 43 R, T and V. The EPI report and the Corpus do not recognise these latter types, and the typology of all the Fara storage jars is translated into Types 43A, D, E, F and J, presumably because the Types 43R, T and V were obsolete terms.

The main types of the jars are either the handless storage jars (43A) or the jars with two opposing handles on the shoulder; this is the more common form. The rim shapes vary within that range. From the examples remaining it seems that the base was turned as with the smaller vessels.

As has been said, the storage jars were often found

with dipper juglets inside them. The decanting was presumably a necessary procedure if the jars were anything near full when they would have been too heavy to move or tip. One might note that in this context of weight, in those tombs where a location is given for vessels, the storage jars are found always laid against the wall nearest to the entrance[18].

Lamps

In total there are only about twenty five lamps found in the tombs and so they were used only rarely; well over half this number have been preserved in collections. The lamps are made in a rather rough and ready manner. They are wheel made on a clay 'foot'; the nozzle would have been pinched and folded when the clay was wet. Since the folding distorted the rim to such an extent that the vessel would no longer sit evenly on its rim if upturned, the reduction of the clay 'foot' has been effected not by paring the clay on the wheel but by smoothing the clay of the foot so as to re-distribute it and hence avoid the undesirable thickness at the edge of the foot. (A good example is F569 Fig. 54.2). As far as extant examples are concerned, there are none of the flat based variety since they have all been finished in this way.

None of the lamps is decorated, and indeed their appearance is usually somewhat grimy. Most of the lamps show the evidence of use in the form of soot caked around the nozzle. It is obviously not possible to ascertain when these marks were aquired, whether in the tomb or beforehand.

(A tomb not being considered, F549, has a lamp in its small assemblage, although the burial was in an ordinary grave which presumably was backfilled; this would not allow the lamp to have burned.)

As may be seen at other sites, chipped vessels and even sherds may deputize for custom-made lamps on occasion. The two unique dishes in F596 (Figs. 81a .1 & 2) both show obvious reuse with the blackening around the chip in the rim.

Miscelleneous

There are three vessels in the tomb groups which are either unique or unknown forms. They are the carinated jug of Tomb F557, the cooking pot of Tomb F551 (Fig.25 .4) and the cypriot jug of the same tomb (Fig.25.17).

SCARABS

The total number of scarabs found in the tombs being catalogued is about eighty. They can be divided into two groups - those with carved seals and those which are plain. The carved scarabs as a rule have attracted much more attention than the others, possibly because of the emphasis which Petrie placed upon them for dating. It is noticeable for example that in the Institute of Archaeology catalogue, whilst the carved scarabs are actually drawn on the Catalogue Card as well as being described and referenced, the plain scarabs are not even mentioned. The Tomb Card is frequently fuller, but it does not always mention that plain scarabs have been found. The BPI catalogue also sometimes omits reference to them.

Predominantly, the carved scarabs are made of one of three materials, black or white steatite, limestone and paste. The plain scarabs are cut from harder stones such as amethystine quartz, crystal, jasper and red or white carnelian. The carving in these cases is light and rudimentary, presumably a result of their hardness.

As skeletal remains are sparse, it is impossible to alot scarabs to individuals or to specific parts of the body. It is however apparent that the scarabs were mounted by at least two methods. First, a number of scarabs were found either with complete or decayed bronze or silver rings. In tombs F558, F582 and F584, the rings are still intact. In other cases, only the bronze blocking of the mounting hole or the bronze, gold or electrum frame (F569) attests that the scarab was ring-mounted. (The only complete silver ring (F570) was found unattached). Whether the scarab was pierced or mounted in a frame, it was fixed to the ring by twisted wires.

Second, it is possible that in certain instances no ring had been used. It is noticeable that many scarabs have been found without a ring or bronze staining, although the bronze, had it been present, would have left its mark. These scarabs must have been attached to the corpse in some other way. There is a coincidence in the distribution of these scarabs with the appearance of toggle pins in the same tombs. (e.g. F547, F567, F574, F584, F593 etc.) Those tombs which do not have scarabs rarely have toggle pins. This accords with Kenyon's observation at Jericho, where scarabs may have been suspended

by a string from pins or even suspended from the wrist or neck.

The designs on the carved scarabs have occasioned much comment in the past. Petrie placed some of the tombs at Fara in a chronological order according to the style of the designs and he was inclined to compare the Palestinian scarabs with those from dateable contexts in Egypt.[19] In the present work, the scarabs from Jerusalem are described according to Rowe[20] and those from the collections in Britain have been examined by the Department of Egyptology, University College, London. It is felt that in the majority of cases, the amorphous and often hybrid nature of the designs is more usefully understood without the strict Egyptian parallels which Petrie made. He had formulated his theory about Hyksos scarabs in 1906 and in support of the chronology at Tell Fara, he illustrated and compared that site with Tell el Yahudiyeh[21].

That the scarabs are Hyksos is not in dispute, but that they are, at best, suitably modified copies of Middle Kingdom scarabs and, at worst, uninformed, unreadable Egyptianized motifs is felt to be the approach which more honestly fits the evidence. Few, if any, can be accorded the term 'Royal Scarabs', even with a readable cartouche. (Possibly F558 e.v.35/5 or F551 e.v.2/19). The tendency amongst so many, however, is towards an unintelligent copy executed by craftsmen unskilled in the subtleties of Egyptian hieroglyphics. Many signs would seem to have been chosen for their quasi-magical or suggestive nature, for example the nefer sign for goodness or beauty, the neb sign for gold or wealth, the ankh sign for longevity or eternity, etc..

In some cases, the signs are jumbled together to form a series of these 'good-luck' symbols. So strong is their attraction that in certain cases whole designs have been constructed with a repetition of one or two of them.[22] In other cases, the hieroglyphs are so badly mutilated that even if readings are possible, they can only be tentative. When readings do suggest themselves, the text is usually garbled. (F570 e.v.19/13).

An alternative view to this is given by Murray:-

> "The inscribed scarabs of the Hyksos period are usually dismissed with the contemptuous epithet of 'nonsense hieroglyphs', yet many of these scarabs are among the finest in workmanship and material ... ... it is not possible that so much skill and consequent cost would have been spent on ignorant copies of misunderstood inscriptions."[23]

She refers here particularly to the Di-n-rn R‡ scarabs, (e.g. in F559[24].) and other more obvious forms.

The Egyptianising influence is clear in many of the designs, though some scarabs restrict their subject matter to geometric designs, sometimes finely carved but at other times deeply and crudely incised. Interwoven bands are a favourite design, as are concentric circles. Finally, there are a number of scaraboids in the collection, notably in F565 and F570.

BRONZE

The bronze objects from the tombs may be divided into four main types:- pins and nails, daggers, rings and bangles, and a miscellaneous group which would include dagger

fittings. Whilst the bronze objects had not entirely decayed within the tombs, their present state is the last stage of a long decline. In many cases the objects are so extensively corroded that there is no longer any metal left. The corrosion has not only brought about the destruction of the bronze itself but has in some cases obscured the original profile. The pins have suffered worst of all, probably because they contained so little metal. Many of them had broken into fragments before excavation. Such breakage has been exacerbated by their subsequent removal, transportation and storage, with the result that it is often difficult to know how many pins and of which designs the tombs originally contained. The daggers, having a greater bulk of metal, have fared better. Even so the edges have frequently been destroyed leaving only the mid-rib and tang and a part of the blade. The rings have already been mentioned, but it would seem that they suffered the same fate as the pins.

The cataloguing of the bronze work is not as careful as that of the pottery or the scarabs. At the excavation stage, the number of pins entered on the Tomb Card is often queried, presumably because there were so many pieces. (F556, F567 etc.). The BPI catalogue does illustrate as many pins as possible, but where corrosion has obscured the patterning of the upper shaft, it is shown plain. (F556). In cases where points had broken off, some are illustrated as short pins with a point being shown at the broken end (F555).

The Institute catalogue does not include any pins at all, and the method of storage of the fragments has not avoided further confusion.

It has been possible however to restore some degree of order to the evidence, firstly by counting the needle-eyes of the fragments of any one tomb, thereby arriving at a basic figure of the number of pins. Pieces have then been restored to the eyes by analysis and an examination of the fragments remaining. In certain cases where patterns were badly corroded, cleaning has restored them. Finally, having counted the number of pins by this method, it is noteworthy that the numbers err towards more pins, not less, so that few can have been lost.

The daggers are in the main catalogued well throughout. They can easily be cross referenced with the BPI report. The nails, rings, bangles and dagger fittings however have received the same cursory treatment as the pins.

Analysis

Forty-five of the available pieces currently reviewed were the subject of an experimental programme of analysis at the Research Laboratory of the British Museum. Three forms of analysis were attempted; qualitative analysis to determine the basic alloy, quantitative analysis to determine the exact composition and the trace elements, and semi-quantitative analysis in cases where the metal was not as well preserved, again to determine the main components.

All the samples were analysed qualitatively by emission spectrography. Where the constitution of the metal

permitted, (in about half the cases) quantitative analyses were carried out by atomic absorption for the following elements:- copper, lead, silver, iron, antimony, arsenic, zinc and bismuth, and polarography was used in these cases to determine the quantities of nickel and cobalt. The results show that the copper-based metal objects in the tombs were of three different types:

a) Copper with only trace amounts of other elements

b) Arsenical copper

c) Copper-tin alloys.

The analyses are published tomb by tomb in Table 1.

The following interpretation has been made of the analyses: The period from which these bronzes come appears to be a period when arsenical copper and copper-tin alloys are being used simultaneously. In the history of the Near East and the Aegean it would appear to be one of transition metallurgically, in which the older arsenical copper was being replaced by true bronze, a copper-tin alloy. The quantitative analyses of those samples consisting of sound metal show that the copper-tin alloys from the tombs contain between 3.5 and 9.0% tin, a concentration typical of early bronzes. The arsenical coppers contained between 1.0 and 3% arsenic; this is not as high as some of the Cycladic daggers which contained up to 9.5% arsenic,[26] but it is consistent with objects from both Troy[27] and Egypt,[28] similar in date to the Tell Fara tombs, which have been found to contain between 1 and 4% arsenic.

FAIENCE

There were eleven glazed faience pots found in the tombs under discussion. Owing to the very friable nature of this material they are more often than not totally fragmented and the surface is frequently worn away. It seems that some were in that condition when they were excavated, and others have achieved it since.

Among the tombs at the Institute of Archaeology, most of the faience from these tombs had already been loaned to the British Museum where it is now kept. Apart from this anomaly, the catalogues and the Tomb Cards match up well.

Two basic forms of the faience pot are to be noted, the one a bag shaped vase, sometimes slightly carinated, with a flat or a round base, the other is a lenticular flask, frequently refered to as a 'pilgrim flask'. Most of the extant examples preserve traces of brown-black paint and the blue-green glaze.

GYPSUM

Several gypsum vases were found, but they were all in very poor condition.

BONE INLAY

In several of the tombs, fragments of bone inlay were found. The designs are typical of the period, though the amount preserved in most cases (except perhaps F551) would hardly furnish a complete inlay, judging from the

size of the complete examples from Jericho. (JTI Pl.XXVIII). It is probable that since the destruction of bone and other organic material has been so thorough at Fara, to judge from the lack of skeletal remains, then only fragments of the original inlay have been preserved suggesting that it is only a remnant of the original.

BEADS

Beads, in numbers, are not very common in the tombs. Such that there were have been typed by Petrie on the Tomb c Card according to the Bead Corpus in Duncan's own Corpus. They are infrequently registered in present collections and clearly only some have survived.

The materials used are paste, carnelian, pottery, amethystine quartz and rarely a form of brown-white marble. The shapes of the paste beads, usually still bearing the marks of a faded and decayed gree-blue slip, vary from small flat beads to large striated ones. The carnelian beads are either lozenge shaped, cylindrical or barrel-shaped, but they are all very small.

THE CATALOGUE

Because of the number of vessels which currently are not available for study, and also the variety of the minute differences even in the relatively small sample that the collections exhibit, (a total of little over 200 vessels of the original 350) no attempt has been made to construct a refined typology by which the vessels and other objects might be published. The gross and obvious differences in function i.e. bowls, juglets, jugs etc. is the first criterion of division, and then within each category of each object the vessels are described and discussed according to size, the smallest first.

Although Petrie ranked some of the tombs in what he believed to be their chronological order, the following tombs are in purely numerical order.

F545 Institute of Archaeology, London
(I.A. e.v.8/ BPI XIV & XV)

The tomb is located in the extreme north of the cemetery. (See Fig.17)

PLAN (Fig.18)

The plan is after Petrie, BPIpl.XVIII, with the section reconstructed from the depth measurements given with that plan. The tomb is a shaft and chamber tomb with a stepped dromos having in all five steps. The roof is a matter of speculation since no measurement is given.

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A comment on the tomb card states that this is a disturbed burial; no skeletal remains are mentioned. The grave goods consisted of nine pots. One bronze pin is mentioned and there are said to be five scarabs. Of the nine pots, two storage jars are marked NTH; the remaining seven vessels are in the Institute collection. As well as the pin and the five scarabs, an additional pin and an additional scarab are found with the group.

POTTERY

Bowls

Fig.19a.1 Small carinated bowl (e.v.8/2 F545C 23V2)
Max. height 7.8 cms. Max width 17.2 cms.

Form. Everted rim, upper wall sloping outwards to shoulder, carinated shoulder, convex lower walls, turned disk base.

Ware. Grey ware, light grey finish; clear turning marks below shoulder to base.

Fig.19a.2 Large carinated bowl (e.v.8/1 F545A 23K9)
Max. height 11.3 cms. Max width 25.2 cms.

Form. Plain rim, upper wall sloping inward to shoulder, overfolded carinated shoulder, slightly convex lower wall, turned ring base.

Ware. Soft Orange ware, thick buff to red slip, particularly noticeable on exterior.

Juglets

Fig.19a.3 Small cylindrical juglet (e.v.8/4 F545G 7402)
Max. height 11.0 cms. Max. width 7.6 cms.

Form. Thickened rim, narrow neck, rounded shoulder, convex sides, round base, double coil handle from rim to shoulder WITH button.

Ware. Hard orange ware, buff finish, traces of vertical burnish on body.

Fig.19a.4 Cylindrical juglet (e.v.8/5 F545Ex2 7401)
Max. height 12.2 cms. Max. width 9.4 cms.

Form. Thickened everted rim, narrow neck,

sharply carinated shoulder, straight sides, slightly rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Orange brown ware, buff grey slip, traces of vertical burnish on body.

Fig.19a.5 Cylindrical juglet (e.v.8/6 F545Ex2 7401)
Max. height unknown. Max. width 9.4 cms.
(This is assumed to be a cylindrical juglet largely because of the Corpus number, but in fact there is not quite enough of the fragmentary body to be absolutely certain).

Form. Thickened rim, narrow neck, body missing, double coil handle from rim to shoulder without button.

Ware. Brown ware with white grits, grey white slip; traces of vertical burnish around neck.

Fig.19a.6 Dipper juglet (e.v.8/3 F545D 51G7)
Max. height 17.2 cms. Max. width 6.7 cms.
(Found inside one of the storage jars F545C, 43V4. Curiously, the Tomb Card refers to this juglet as a 'bil-bil'.)

Form. Mouth broken, narrowed neck, slightly angled shoulder, convex sides, rounded base, single coil handle from below rim to shoulder.

Ware. Orange-brown ware; buff-grey finish; marks of vertical burnish.

Lamps

Fig.19a.7 Single spouted lamp (e.v.8/7 F545F 91A1)
Max. height 4.5 cms. Max. width 11.4 cms.
Form. Single spout, very slight folding at nozzle, rounded walls, round base.
Ware. Orange ware with buff-grey slip.

SCARABS

Fig.19b.1 (e.v.8/18 BPI Pl.VII,45)
Length 1.4 cms. Breadth 0.9 cms. Height 0.6cms.
Steatite; Ten interlocking scrolls.

Fig.19b.2 (e.v.8/19 BPI Pl.VII,46)
Length 1.7 cms. Breadth 1.1 cms. Height 0.8 cms.
Steatite; Standing figure of hawk headed person ('Horus', says Tomb Card) with outstreached left arm - above and below are uraei. Below, the neb sign.

Fig.19b.3 (e.v.8/20 BPI Pl.VII,47)
Length 1.7 cms. Breadth 1.2 cms. Height 0.8 cms
Steatite; full frontal nude female - indication of pubic triangle; standing on neb sign if this is intended. The two sides are feathered and could be interpreted as two flanking reeds, but this is dubious.
The Tomb Card identifies the figure as 'Hathor'.

Fig.19b.4 (e.v.8/22 BPI Pl.VII,49)

Length 1.9 cms. Breadth 1.3 cms. Height 0.7 cms. Steatite; A rope border within which is an interlocking scroll border. Above, Kheper; Below, udjet (eye of horus); below, the ankh sign flanked by single nefer signs; below ?

Fig.19b.5 (e.v.8/21 BPI Pl.VII, 48)

Length 2.6 cms. Breadth 1.8 cms. Height 1.1 cms. Steatite; The scarab has no consecutive sense. Top; Garbled winged disk, below which are two antithetic udjet signs (eye of Horus). Between them is the hetep sign. Below; two uraei face each other wearing the red crown of Lower Egypt. Between them is an ankh sign flanked by single nefer signs. Below this group is the hieroglyph sa flanked by single reed hieroglyphs. Below again is the nub sign. The probable intended reading is a mixture of good luck symbols:- nub for gold; ankh for life; nefer for good fortune; uraeus with crown for royal power; udjet as a well known amulet.

Fig.19b.6 (not recorded)

Length 1.5 cms. Breadth 1.0 cms. Height 0.4 cms. Amethyst in gold setting; back lightly incised; seal blank.

Pins

Fig.19b.7 BPI Pl.VI,1
Max length 18.2 cms. (based upon BPI)

Form. Vertical plain upper shaft with slight swelling at top; lower shaft fragmented but plain.

Analysis. BM545/1, 2 & 4 Copper-tin alloy; quantitative analysis not attempted.

Not illustrated Possibly fragments of BPI Pl.VI,2
Max. length unknown.

Form. Shaft fragments show no decoration.

Analysis. BM545/3 Copper-tin alloy; Quantitative analysis not attempted.

CATALOGUE ANOMALIES

i) The BPI catalogue, Pl.XV, has omitted the two bowls from the list. Their restoration is effected from the tomb card.

ii) The Institute of Archaeology catalogue numbers are strangely non-consecutive. The pottery is labelled from e.v.8/1 - 7, but the scarab numbers do not resume until e.v.8/18 onwards, omitting the use of ten numbers. The pins as always are not catalogued here.

iii) As usual, the corpus type attributed to the storage jar of the group varies. The Tomb Card records it as 43V4; BPI records 43E4.

iv) The most curious anomaly of this group is the appearance in the Institute collection of a fine carved amethyst scarab in a gold setting and clearly labelled 545; nothing is mentioned of this in the Institute catalogue, nor yet does it appear in BPI or the Tomb Card. Indeed, there is no Tomb Card in the whole of the group of these tombs which mentions such a scarab. Whereas, therefore, it is published with this group, it is felt that in all probability it does not belong to this tomb, although it is of this period.

v) The Tomb Card records one toggle pin (broken), but BPI Pl.VI illustrates two pins. There may well be the fragments of two pins in the Institute Collection, but only one is capable of reconstruction.

F550 Institute of Archaeology, London.
(One piece only, British Museum.)
(e.v.1/ BPI Pl.XIV & XV)

The tomb lies in the North-Eastern area of the cemetery close to a similarly designed tomb F559. (see Fig.17)

PLAN (Fig.20)

The plan, taken from BPI Pl.XVII after Petrie, indicates a large shaft and double-chambered tomb. The dromos has six steps and approaches from the north; it is markedly separate from the chambers, having a 'doorway' on to a landing between the two chambers. The chambers also are thus seperated from each other by this 'landing' step. Unlike the more usual kidney-shape of the bilobate tombs, this tomb has virtually rectangular chambers.

The section has been reconstructed from the depth measurements given and from sketches of similar tomb sections within the group. The roof, however, both in height and shape, is largely conjectural.

Three photographs of the tomb are to be seen in BPI Pl.VIII.

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From the plan BPI Pl.XVII it is clear that there were five bodies found within the tomb. (BPI p.5; paragraph 11.) Petrie has observed that they were so placed:-

> "...that it is impossible for them to have been swathed for burial. The varied position of the legs suggest that after death the body was left to stiffen, and then carried out and buried as it was."

Two skeletons in the Western Chamber are placed north-south with their heads to the north. The remaining three skeletons of the group were placed in the eastern chamber west-east, two with heads to the east and one to the west. The plan indicates that whilst four of the total are adults, the skeleton nearest the dromos in this eastern chamber (head east) was that of a juvenile. Further, it would seem that the skeleton farthest away from the dromos in the eastern chamber, (head west) was placed in the tomb after the one of the other two since it partially overlies it and the skull of the underlying skeleton seems to be missing as though disturbed. (No attempt has been made to render these skeletons on the present tomb plan, but see BPI Pl.XVII.)

The grave goods form a large group for the cemetery, with nine various bowls, four cylindrical juglets, five dipper juglets, two jugs, two lamps and nine storage jars, together with a number of toggle pins, a bronze dagger, a faience vase, beads and five scarabs.

Of the total of thirty-one vessels, the Institute collection preserves eighteen, including eight of the nine bowls, three of the four cylindrical juglets, all five dipper juglets, one of the two jugs and both the lamps. Although only four of the storage jars are marked

NTH on the Tomb Card, none is now preserved leaving five unaccounted for but most probably also left behind. Two pins are preserved, the dagger, vase, beads and the five scarabs.

From the plan it is possible to attribute some of the pottery to one or other of the two chambers of the tomb.

POTTERY

(A photograhpic illustration of seven selected pieces from this tomb group is shown in BPI Pl.VIII)

An attempt has been made to assign the catalogued vessels to one or other of the two chambers. This, however, is not always possible, either because the chambers have some corpus types in common or because the corpus types in the report plan are not always those of the Tomb Card catalogue. (See anomalies).

The two chambers then contained the following pottery:-

West (two bodies) 4 bowls, 1 cylindrical juglet, 2 dipper juglets, 4 jars and a dagger.

East (three bodies) 5 bowls, 3 cylindrical juglets, 3 dipper juglets, 2 jugs, 2 lamps and 5 jars.

The whereabouts of the scarabs, five in all, is not given.

Bowls

Fig.21.1 Small carinated bowl (e.v.1/5 F550G 18J4) WEST
Max. height 7.9 cms. Max width 17.0 cms.

Form. Slightly everted rim, vertical upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Orange-buff ware with buff finish; turning marks below shoulder.

Fig.21.2 Small carinated bowl (e.v.1/6 F550U 23J6) WEST
Max. height 8.0 cms. Max width 16.8 cms.

Form. Marked everted rim, upper wall angled out to shoulder, marked carination, turned disk base.

Ware. Orange ware with buff self slip.

Fig.21.3 Small carinated bowl (e.v.1/6 F550F 23E3) WEST
Max. height 6.7 cms. Max width 18.0 cms.

Form. Marked everted rim, concave upper wall, very round shoulder, convex wall to base, turned flat disk base.

Ware. Soft orange ware, grey-buff slip, turning marks only at base.

Fig.21.4 Small carinated bowl (e.v.1/5 F550CC 18J8) EAST
Max. height 7.5 cms. Max width 18.4 cms.

Form. Everted rim, vertical upper wall, rounded shoulder, convex wall to base, turned disk base.

Ware. Hard red-orange ware, red mottled appearance.

Fig.21.5 Large carinated bowl (e.v.1/2 F550H 23K12) EAST?
Max. height 11.8 cms. Max. width 26.0 cms.

Form. Everted rim, very flared shoulder, convex walls to turned ring base; warped.

Ware. Red ware with brown core, buff slip inside and out; very clear turning marks below shoulder.

Fig.21.6 Large carinated bowl (e.v.1/4 F550BB 18J9) EAST
Max. height 10.2 cms. Max. width 29.2 cms.

Form. Everted rim, vertical above shoulder, marked shoulder, slightly convex to base; marked ring base.

Ware. Dark red-brown ware; exterior has a red blotched appearance; turning marks noticeable on the inside of the vessel.

Fig.21.7 Large carinated bowl (e.v.1/3 F550T 23J3) EAST?
Max. height 13.5 cms. Max. width 30.0 cms.

Form. Everted rim, high flaring shoulder, convex walls to turned ring base.

Ware. Hard gritted red ware, very slight traces of wheel burnish, turning marks from shoulder downwards.

Fig. 21.8 Platter (e.v.1/1 F550S 6C3) EAST
Max. height 9.1 cms. Max. width 38.4 cms.

Form. Slightly inverted rim, shallow angled walls, marked turned ring base.

Ware. Orange ware, traces of buff slip inside; interior burnished radially.

Juglets

Fig.21.9 Small cylindrical juglet (e.v.1/11b F550X 7403) EAST
Max. height 7.8 cms. Max. width 5.7 cms.

Form. Slightly thickened rim, narrow neck, angular shoulder, convex sides, rounded base, double coil handle from rim to shoulder WITH button.

Ware. Orange ware; traces of red slip.

Fig.21.10 Small cylindrical juglet (e.v.1/11b F550K 7405)WEST
Max. height approx. 8 cms. Max. width 6.4 cms.

Form. Neck missing, angular shoulder, tapering sides, round base, double coil handle - button area missing.

Ware. Dark brown ware; traces of buff finish; badly decayed.

Not illustrated. Totally fragmented cylindrical juglet. (F550Z 740) EAST (Not registered at I.A.)

Form. Very bulbous rim, narrow neck, body completely broken, double coil handle from rim to shoulder.

Ware. Orange ware, buff finish.

Fig. 21.11 Dipper juglet (e.v.1/9 F550DD 51G4) EITHER Max. height 17.4 cms. Max. width 6.7 cms.

Form. Small pinched mouth; parallel walled neck, wide shoulder, parallel sides, slightly pointed base, single ovate handle from below rim to shoulder.

Ware. Hard orange ware, slip variegatedly fired buff and red with vertical burnish.

Fig. 21.12 Dipper juglet (e.v.1/8 F550E 51G4) EITHER Max. height 20.0 cms. Max width 7.5 cms.

Form. Pinched mouth, slightly narrowing neck, round shoulder, rounded sides, rounded base; flattened single handle from below rim to shoulder.

Ware. Fine brown ware, buff self finish; turning marks near base.

Fig.21.13 Dipper juglet (e.v.1/10 F550FF 51G4) EITHER
Max. height 21.8 cms. Max. width 7.5 cms.

Form. Wide slightly pinched mouth, wide neck, roughly made tapering body, stub base. Single coil handle from below rim to shoulder.

Ware. Orange ware, variegatedly fired buff-orange finish.

Fig.21.14 Dipper juglet (e.v.1/7 F550EE 51G2) EAST
Max. height 22.9 cms. Max. width 9.3 cms.

Form. Wide pinched mouth, narrowing neck, extra wide shoulder, tapering sides, pointed base, single coil handle from below neck to shoulder.

Ware. Grey ware, heavily gritted, light grey/buff slip, vertically burnished.

Not illustrated. Dipper juglet (e.v.1/14 F550L 51G4) EITHER
Fragments only - no measurement possible.

Form. Incomplete; narrowing neck, seemingly rounded body, single coil handle from below neck to shoulder.

Ware. Soft orange ware; buff self (?) slip.

Jugs

Fig.22.1 Single handle jug (e.v.1/12 F550Y 38P3) EAST
Max. height 25.6 cms. Max. width 17.2 cms.

Form. Rim broken, wide neck, round shoulder, tapered to base, small flat base, strap handle from below neck to shoulder.

Ware. Dark brown gritted ware, red finish with marks of vertical burnish; very rough turning marks below shoulder.

Lamps

Fig.22.2 Single spouted lamp (e.v.1/13b F550AA 91A4) EAST Max. height 4.0 cms. Max. width 11.2 cms.

Form. Single spout, nozzle missing but apparently slightly folded over, rounded walls to rounded base.

Ware. Red ware, buff slip.

Fig.22.3 Single spouted lamp (e.v.1/13a F550V 91A1) EAST Max. height 4.0 cms. Max width 11.6 cms.

Form. Single spout (burned), slight folding at nozzle. Rounded rim, sharply sloping sides, round base.

Ware. Brown ware, buff slip.

SCARABS

Fig.23a.1 (e.v.1/20 BPI Pl.VII,31)
Length 1.4cms Breadth 1.1cms Height 0.7cms
White Faience (IA cat.); ? rn S' , giving the

meaning:- "Protecting the name" (IA "Protection of ...").

Fig.23a.2 (e.v.1/18 BPI Pl.VII,29)
Length 1.7 cms. Breadth 1.1 cms. Height 0.8 cms. Yellow faience (IA Cat); Ntr nfr M' - ỉb - Rᶜ di ᶜnh , giving the reading:-
"The good god Ma-ib-re given life". (IA "...gifted with life.") Dyn. XV ?Sheshi

Fig.23a.3 (e.v.1/19 BPI Pl.VII,30)
Length 1.8 cms. Breadth 1.2 cms. Height 0.7 cms. White faience, discoloured (IA Cat);
Debased winged sun disk: S' nb flanked by ? Nefer sign. Good luck or protective signs.
Hyksos period.

Fig.23a.4 (e.v.1/16 BPI Pl.VII,27)
Length 1.9 cms. Breadth 1.3 cms. Height 0.8 cms. White steatite; Hawk headed man (Horus?) with was sceptre; flanked by nefer behind and Kheper sign in front. XV or ? XVI dyn. Hyksos.
(IA Cat. incorrectly both draws and describes the was sceptre as a man "holding a lotus")

Fig.23a.5 (e.v.1/17 BPI Pl.VII,28)
Length 1.9 cms. Breadth 1.3 cms. Height 0.9 cms. White faience (IA Cat.); Two bearded figures facing one another, wearing the nemes head-cloth and long kilt.

BRONZE

Pins

Fig.23b.1 Possibly equivalent to BPI Pl.VI,17 (Not Cat. IA)
Max. length 9.3 cms.

Form. Vertical upper shaft with light horizontal grooves; lower shaft slightly curved.

Analysis. BM550/2 Copper-arsenic alloy.
Table 1. No.1.

Fig.23b.2 BPI Pl.VI,16 (Not Cat. IA)
Max. length 14.4 cms.

Form. Vertical upper shaft with heavy horizontal grooves; lower shaft plain.

Analysis. BM550/1 Heavily corroded; analysis impossible.

Dagger

Fig.23b.3 (e.v.1/15 BPI Pl.VI,14)
Max. length 21.1 cms. Max. width 4.8 cms.

Form. Tanged flat slightly ribbed blade with concave edges and rounded point.

Analysis. Not available for analysis.

FAIENCE

Fig.23b.4 Glazed faience vase (BM W.Asiatic Dept. L353 BPI Pl.VI,15)
Max. height 7.2 cms. Max. width 4.5 cms INCOMPLETE

Form. Rim missing, neck broken, body bag shaped, base rounded.

Ware. White faience, green glaze, brown paint in a chevron, bar and petal decoration. Described by Petrie as 'Kohl Pot'
(NB discrepancy in the chevron decoration)

BONE

Fig.23b.5 Two of ten bone bars of varying length, each having ten holes passing right through the narrow dimension. The purpose of these is unclear. Because of the obvious decimal coincidence of ten bars with ten holes they might be of metric origin. (Not mentioned on Tomb Card, BPI or IA Cat.)

BEADS

Not illustrated 29 small cowrie shells, each with the top missing, presumably to assist threading.

Not illustrated 4 small carnelian beads, two lozenge shaped, 1 cylindrical and 1 ring shaped.

Not illustrated — Several hundred very small pot and faience beads (?), tubular in shape.

Not illustrated — A number of small mother of pearl disks with holes through (max. width 6 mm)

CATALOGUE ANOMALIES

i) As frequently happens among this group, presumably because of their comparative scarcity, there is a confused and variant set of readings given for the typing of the jugs in the tomb.

The Tomb Card records two jugs only, F550N and F550Y which read 38B2 and 34P3 respectively. In the Corpus, there is no such class 34P3, but there is a class 38P3, and this tomb 550 is given as a source, as indeed it is for 38B2. The Tomb Card has an ink adjustment at F550Y from 34P3 to 38P3 as a result.

Despite this change, the plan of the tomb in BPI Pl.XVII which gives all the corpus numbers of the vessels found preserves the original typing of the Tomb Card, i.e. 34P3 and 38B2. Accordingly conflating both sets of information, the BPI Catalogue of the group Pl.XV gives all the variants as occurrent types, 34P3, 38B2 and 38P3, making three jugs in all, not the original two. Undoubtedly the correct typology to adopt is the reading 38B2 and 38P3, since the 34P type is a XXth Dynasty form (unless of course this is the source of the original confusion).

ii) Two cylindrical juglets of the original four on the Tomb Card are catalogued in the Institute of Archaeology Collection. A third cylindrical juglet does however lodge there also, albeit fragmentary. It has been restored to the group.

iii) The usual discrepancies occur among the typing of the nine storage jars; the Tomb Card has types 43 R8, T4 & V4 whereas the BPI catalogue has 43 D4, E4 & F3.

F550Q and F550R originally were typed on the Tomb Card as 41N and 41M respectively, patently an error to judge from the photograph in BPI Pl.VIII where these jars are shown. They have been amended at some time to read 43A3 and 43A2 which has been perpetuated in the BP catalogue and the BPI plan.

The bowl types vary considerably from one source to another:-

Tomb Card:	6C3,	18J4, 7 & 8,	21B,	23E3,	J3,	J4, & K12
BP Plan:	6C3,	18J4, 8 & 9,	21B,	23E3,	K18,	& K19
BP Cat.:	6C3,	18J4, 8 & 9,	21B			

The class 23 is completely omitted from the BP catalogue.

iv) Oddly, the five scarabs of this tomb do not feature at all on the Tomb Card, although they are clearly catalogued in BPI Pl.XIV as five scarabs.

v) Two pins are recorded on the Tomb Card and two are illustrated in BPI Pl.VI,16 & 17. No. 16 is certainly Fig.23b.2, but 17 is both undecorated and is far too large easily to be equated with Fig.23b.1

vi) The faience pot in Pl.VI varies slightly in design to the one now in the British Museum - possibly a slip in the drawing. More interestingly, the size of the vessel is not correctly represented as a 2:3 reduction. From an observation of the actual vessel, it would seem that it was originally drawn 1:2 and then reduced 2:3 to give an actual reduction of its original height as 1:3.

F551 Institute of Archaeology, London.

(e.v.2/ BP XIV & XV)

The tomb lies in the north-western area of the cemetery (see Fig.17).

PLAN (Fig.24)

The plan, after Petrie BPI Pl.XVII, is that of a large bilobate tomb with the usual six-stepped dromos. The axis of the shaft and chamber bear slightly west of north by some 12°, but otherwise the tomb conforms with others of this type with its entrance from the north.

The dromos forms a separate area from the chamber, having a marked "doorway" at the bottom step. Apparently this doorway was completely blocked with large stone slabs (BPI Pg.5 Para.11) which were thought sufficiently unusual and important to merit a photograph (BPI Pl.VIII). The blocking is significant in that material was found both in the dromos and the chamber which can clearly be divided into two separate groups.

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No mention is made on the Tomb Card of any skeletal remains, but the plan of the tomb in BPI Pl.XVIII shows a single skull in the southern part of the eastern chamber. Groups of pottery in other parts of the tomb would indicate that other remains have been lost. The tomb contained twenty-nine vessels in all, divided into two groups. The first, a group of five vessels, was found in the stepped

dromos area, and judging by the blocking might well represent a final burial; the group consisted of three bowls, a dipper juglet and a jug. The second group was found in the chamber, consisting of the remaining twenty-four vessels; five bowls, seven cylindrical juglets, three dipper juglets, two jugs, two lamps, four storage jars and one cooking pot.

Of the twenty-nine vessels, six are marked NTH on the Tomb Card, and one, a bowl in the stairway, was found in fragments. The remaining twenty-two vessels are presently represented by sixteen catalogued at the Institute and one uncatalogued piece, making a total of seventeen available for publication and five unaccounted for.

In addition to the pottery, three toggle pins are recorded on the tomb card, together with a bronze dagger and seven scarabs, one of which belong to the dromos group. Also, there are a number of fragments of bone inlay from the western part of the chamber, as well as four metal beads, two of which are very small ring shaped beads, and the other two are very small lozenge shaped, although none of this material is mentioned on the Tomb Card. It would seem likely also that, although unrecorded, there should be a small alabaster jar added to the group.

The material has been set out in the description, though not in the plates, as two groups, that of the stairway and that of the chamber. A photograph of a selection of the contents of the tomb is shown in BPI Pl.VIII.

No attempt has been made further to subdivide the material from the chamber despite the suggestive nature of the numbered locations on the plan BPI.Pl XVII. If F550 is

any guide, it would seem that some objects are clearly communal and that the exact position of other vessels in relation to the burials is quite arbitrary.

GROUP I - STAIRWAY

The Tomb Card distinguishes this group by the use of a capital A followed by a number.

POTTERY

Bowls

Fig.25.3 Small carinated bowl (e.v.2/2 F551A2 18J6)
Max. height 7.3 cms. Max. width 17.8 cms.

Form. Everted rim, upper wall vertical, slight carination, straight walls to turned disk base.

Ware. Hard grey-brown ware, light grey finish, turning marks to base from shoulder.

Fig.25.6 Large carinated bowl (e.v.2/1b F551A4 23K6)
Max. height 13.0 cms. Max. width 32.8 cms.

Form. Everted rim, upper wall angled inwards to shoulder, marked flaring at shoulder, increased angle to base; turned disk base.

Ware. Gritted orange ware, fine buff slip, turning marks below shoulder.

Juglets

Fig.25.12 Small dipper juglet (e.v.2/6 F551 Probably A5 51G7).

Max, height 12.7 cms. Max. width 5.0 cms.

Form. Mouth missing; narrowed neck, rounded shoulder, angled sides, slightly pointed base, single coil handle from rim to shoulder.

Ware. Hard orange ware.

Jug.

Fig. 26.1 Single handle jug (e.v.2/12 F551A1 38H5)

Max. height 35.6 cms. Max. width 11.2 cms.
Form. Mouth missing, everted rim, wide neck, round shoulder, tapering sides, pointed base, single strap handle from rim to shoulder.

Ware. Grey ware.

SCARAB

Fig. 27a.7 (e.v.2/19 BPVII,11)

Limestone ? (IA 'steatite'); white faded blue. Squared scroll pattern, S' R followed by a cartouche with a debased royal name. IA Cat. reads:- S' R' M'' nb R' , giving the meaning "Son of the Sun, Ma-neb-re". This could be a prenomen for Sheshi.

GROUP 2 - CHAMBER

POTTERY

Bowls

Fig.25.1 Small bowl ? (Not registered anywhere)
Could be the fragmented bowl from the stairway F551. No measurements possible.

Form. Lower wall and turned disk base only.

Ware. Grey-orange ware, thick grey slip; marks of turning around the base.

Fig.25.2 Small carinated bowl (e.v.2/3 F551W 23K4).
Max. height 6.0 cms. Max. width 16.2 cms.

Form. Plain rim, upper wall angled outwards to rim, slightly flared carination at shoulder, slightly convex lower wall; turned disk base.

Ware. Thick brown ware with grits; coarse red-grey mottled finish.

Fig. 25.4 Cooking pot (?) (e.v.2/15 F551U 32E3)
Max. height not available. Max. width 21.6 cms.

Form. Everted rim, globular body, base missing.

Ware. Coarse orange ware with buff exterior; roughly made, charcoal-blackened outside.

Fig.25.5 Large carinated bowl (e.v.2/1a F551G 23K8)
Max. height 10.8 cms. Max. width 26.4 cms.

Form. Plain rim, angled upper wall, pronounced flaring carination, convex lower wall, turned ring base (cracked).

Ware. Light orange ware, light grey-buff slip. Interior radially burnished below shoulder; turning marks on exterior below shoulder to base.

Juglets

Fig.25.7 Cylindrical juglet (e.v.2/9 F551Q 7407)
Max.height 10.6 cms. Max. width 8.8 cms.

Form. Thickened rim, narrow neck, very rounded shoulder, slightly tapering sides, slightly rounded base, double coil handle from rim to shoulder WITH button.

Ware. Orange ware, red slip with vertical burnish.

Fig.25.8 Cylindrical juglet (e.v.2/10 F551R 7401 by elim.)
Max. height 12.5 cms. Max. width 10.4 cms.

Form. Rim missing, narrow neck, angled shoulder, slightly convex sides, rounded base, double coil handle from neck to shoulder. Button not discernable.

Ware. Orange ware, thin buff slip, vertical burnish, turning marks near base.

Fig.25.9 Cylindrical juglet (e.v.2/9 F551N 7407)
Max. height 13.0 cms. Max. width 9.9 cms.

Form. Thickened rim, narrow neck, round shoulder, slightly tapering sides, slightly rounded base, double coil handle from rim to shoulder WITHOUT button.
Ware. Grey ware, light grey slip with vertical burnish. Turning marks below shoulder and around base.

Fig.25.10 Cylindrical juglet (e.v.2/8 F5510 7407)
Max. height 14.2 cms. Max. width 9.4 cms.

Form. Thickened rim, narrow neck, rounded shoulder, convex sides, slightly rounded base, double coil handle rim to shoulder WITH button.
Ware. Dark grey ware with drab grey slip; traces of vertical burnish. Turning marks on base.

Fig.25.11 Cylindrical juglet (unregistered F551H 74012)
Max. height 11.9 cms. Max. width 10.4 cms.

Form. Thickened rim, narrow neck, slightly angled shoulder, slightly convex sides, slightly rounded base, double coil handle from rim to shoulder WITHOUT button.
Ware. Buff ware, with worn buff-orange finish.

Fig.25.13 Dipper Juglet (e.v.2/5 F551T 51G4) See 'anomalies'
Max. height 17.2 cms. Max. width 6.2 cms.

Form. Slightly pinched mouth, narrow neck, rounded shoulder, convex sides, slightly pointed base, single coil handle from below rim to shoulder.

Ware. Orange ware with dark red-buff blotched slip; vertical burnish.

Fig.25.14 Dipper juglet (e.v.2/4 F551V 51G3)
Max. height 17.6 cms. Max. width 6.9 cms.

Form. Slightly pinched mouth, narrow neck, slightly angled shoulder, convex sides, base broken. Single coil handle from below rim to shoulder.

Ware. Buff ware with buff grits; surface very badly pitted.

Fig.25.15 Dipper juglet (e.v.2/7 F551K 51G2)
Max. height 21 cms plus Max. width 9.2 cms.

Form. Mouth lacking, narrow neck, slightly angled shoulder, slightly convex sides, pointed base, handle missing.

Ware. Grey ware with worn yellow-grey slip. Traces of vertical burnish.

Jugs

Fig.25.16 Single handle jug (e.v.2/13 F551L 35P2)
Max. height 24 cms. plus Max. width 17.6 cms.

Form. Mouth and neck missing, round shoulder, convex tapering sides, small flat base, single handle missing.

Ware. Grey-buff ware with grey finish. Surface worn and concreted; turning marks below shoulder.

Fig.25.17 Cypriot jug (e.v.2/11 F551P 68R)
Max. height 31.6 cms. Max. width 22.0 cms.

Form. Slightly everted rim, long neck tapering outwards, spherical body, single rectangular sectioned handle from well below rim to shoulder.

Ware. Hand made grey-brown ware with black on red decoration. The dark red paint is overpainted with zones of parallel black lines, each zone perpendicular to its neighbours. The paint is very worn and flaked. (The piece is in every way anomalous to the whole tomb group.)

Lamps

Fig.26.2 Single spout lamp (e.v.2/14 F551Y 91A1)
Max. height 4.3 cms. Max. width 12.2 cms.

Form. Single spouted, slightly folding at nozzle, curved walls to flat base.

Ware. Grey ware with light grey gritted finish.

Fig.26.3 Single spout lamp. (e.v.2/14a F551X 91A4)
Max. height 5.0 cms. Max, width 13.3 cms.

Form. Single spouted, folding at nozzle, curved walls to slightly rounded base.

Ware. Orange brown ware, natural finish. This piece indicates the method of manufacture, with the rim and upper wall fine and wheel made. The lower part and the base are rough and heavy. The process is that the one-time pedastal on which the lamp was made was not turned off since the vessel would not sit flush on the wheel once the nozzle had been made. The pedestal was therefore scraped and smoothed roughly over the lower part to reduce the thickness and the danger of cracking.

SCARABS

Fig.27a.1 (e.v.2/23 BPI Pl.VII,16)
Length 1.6 cms. Breadth 1.1 cms. Height 0.7 cms.
Steatite, yellowish; Nub sign (for good luck) ʿnh n Rʿ meaning "Life of Ra".

Fig.27a.2 (e.v.2/20 BPI Pl.VII,13)
Length 1.9 cms. Breadth 1.3 cms. Height 1.3 cms.
Steatite, yellow. Above, Two uraei flanking a papyrus clump representing the North. Centre,

debased winged sun disk. Below, two nefer signs signifying good luck.

Fig.27a.3 (e.v.2/18 BPI Pl.VII,10)
Length 1.9 cms. Breadth 1.2 cms. Height 1.2 cms. Steatite, yellowish; Kneeling deity; standing falcon deity with outspread wings possibly protecting Kheper sign.

Fig.27a.4 (e.v.2/21 BPI Pl.VII,14)
Steatite, white; Possibly a floral/lotus and a spiral design, or possibly an insect (?) design.

Fig.27a.5 (e.v.2/22 BPI Pl.VII,15)
Length 2.0 cms. Breadth 1.4 cms. Height 1.4 cms. White steatite; Above, Kheper flanked by djed sign and lotus antithetically. Centre, debased winged disk. Below, group of three unreadable hieroglyphs repeated.

Fig.27a.6 (e.v.2/17 BPI Pl.VII,12)
Length 2.2 cms. Breadth 1.5 cms. Height 1.4 cms. Faience, yellow; Debased papyrus clump with striations for water; two buds possibly at base (IA Cat. "lotus").

BRONZE

Pins

Fig.27b.1 Ought to equal BPI Pl.VI,5.
Max. length 4.2 cms. INCOMPLETE

Form. Vertical upper shaft, plain.
Lower shaft missing.

Analysis. BM551/5 Copper.
Quantitative analysis not attempted.

Fig.27b.2 BPI Pl.VI,6.
Max. length 4.9 cms. INCOMPLETE.

Form. Vertical twisted square sectioned upper shaft; lower shaft missing.

Analysis. Heavily corroded; analysis not attempted.

Fig.27b.3 BPI Pl.VI,8.
Max. length 11.9 cms.

Form. Vertical twisted square sectioned upper shaft; plain slightly curved lower shaft.

Analysis. BM551/1 Copper-Arsenic alloy.
Quantitative analysis; Table 1. No.2

Fig.27b.4 BPI Pl.VI,7.

Max. length 12.3 cms. INCOMPLETE

Form. Swollen headed upper shaft with three twists above eye. Lower shaft slightly curved but now incomplete. The probable original length according to BPI is 18.0 cms.

Analysis. BM551/2 Copper-tin alloy.
Quantitative analysis not attempted.

Daggers

Fig.27b.5 E.V. 2/16 BPI Pl.VI,11.

Max. length 17.7 cms. Max. width (incomplete) 2.5cms

Form. The dagger is very badly diseased and the form bears no relationship to the drawing in BP. It was apparently a double sided flat blade with double sided midrib and two rivet holes near the base. The broken line of the figure shows the BP outline.

Analysis. BM551/8 Copper-tin alloy.
Quantitative analysis: Table 1. No.5

Rings

Fig.27b.6 Scarab ring.

Clearance between ends 1.9 cms.

Analysis. BM551/4 Copper-Arsenic-Tin alloy.

Quantitative analysis not attempted.

Fig.27b.7 Scarab ring.
Clearance between ends 2.4 cms.

Analysis. BM551/3 Copper-Arsenic alloy.
Quantitative analysis: Table 1. No. 3

Miscelleneous Bronze

Fig.27b.8 Rivetted dagger fitting. (cf. F564).
Max. length 4.9 cms. Max height 0.7 cms.

Form. A length of metal covered in metal at one end and rivetted at the other.

Analysis. BM551/6 Copper-Arsenic alloy.
Quantitative analysis: Table 1. No.4

BONE INLAY

Fig.27b.9 A number (about thirty) fragments of bone inlay of a 'pylon' design with horizontal grooving on the upper section. The probable total which number of fragments would represent must be at least six complete 'pylons'. One only is shown in BPI Pl.VI,10. Five pieces are illustrated here, some of them joined together.

Fig.27b.10 BPI Pl.VI,9. One carved piece of bone inlay in the form of a human head and the upper part of the torso.

CATALOGUE ANOMALIES

i) A confusion has arisen over the corpus typing of the dipper juglets. On the Tomb Card there are strictly only two, F551K 51G2 and F551V 51G3, in addition, however, there are two further juglets, F551A5 and F551T which are given the type numbers 59N1 and 59G4 respectively. If this were so, they would represent two MBII dipper juglets and two Late Bronze Age/Iron Age handled bottles respectively.

The Institute collection preserves four dipper juglets from this tomb - e.v.2/4, 5, 6 & 7 of which two are expected F551K and F551V. A third is F551T and the fourth is unmarked. F551T, one of the offending juglets, is marked 51G4 (not 59G4). The final juglet, marked only 51G7, must, it is thought, be the vessel F551A5 in the light of the above, and that an error has been made in the original typing.

It is at this point, however, that a standard conflation of these sources may be observed in the BPI Pl.XV catalogue for this tomb. Four dipper juglets are given, 51G2, 3, 6 & 7, but 59G4 & N1 are retained. It would appear that once they had been included in error on the tomb card, their existence could not be disproved; with the homecoming of four dipper juglets therefore, the total of four became six. The two juglets marked 59 on the Tomb Card can now be restored as dipper juglets.

ii) As always, the storage jars are retyped in the BPI catalogue. The Tomb Card reads 43H, R6, T4 and the publication reads 43D2 & 5, F2 & 3, J3. Further, however, the total on the Tomb Card is only four, whereas the BP catalogue total is five.

iii) The plethora of cylindrical juglets vary their typing in each source. The Tomb Card gives 7401, 7 & 12. The BP Plan gives 7401, 2 & 7. The BP catalogue gives 7401, 2, 7 & 15 and the Corpus cites examples from the tomb under 7402, 7 & 15 (the Corpus does not illustrate the form 74012).

iv) Among the small finds in the Institute collection are eleven fragments of badly worn and weathered alabaster, presumably the remains of a small vessel(s); no record of such a vessel occurs on the Tomb Card, nor yet in the BPI catalogue or the Institute catalogue. However, its provenance is reassured by the plan BPI Pl.XVII, which shows a 'Glaze (sic) Kohl Pot' near the door in the east part of the chamber. One might presume that this is the alabaster. (Although the use of the word 'Glaze' would normally suggest faience rather than alabaster).

v) Three pins are recorded on the Tomb Card but four are illustrated in BPI Pl.VI, and the same four are still present in the Institute of Archaeology collection. This might suggest that one pin is additional to this group since excavation but before publication,

The dagger fitting is not mentioned anywhere, either because it is unique and therefore not illustrated, or because it does not belong here at all.

vi) The plan Pl.XVII preserves two additional vessels in the chamber to those on the Tomb Card; they are one dipper juglet and one cylindrical juglet, bringing the chamber total to twenty-six vessels instead of twenty-four. This cannot be a confusion of the staircase material, nor yet the juglet typing; although the staircase material is not shown on the plan the total number should be twenty-nine vessels.

F554 Institute of Archaeology, London
(e.v.28/ BPL Pl.XIV & XV)

The tomb is situated just north of the centre of the cemetery. (See Fig.17)

PLAN (Fig.28a)

The plan is a rescaling of Petrie's plan of BPI Pl.XVIII. No section is possible since neither BPI nor the Tomb Card give the heights of the roof. The tomb is a small bilobate tomb with a six-stepped dromos, (presumably steep stepped). As with all the others of this type, the entrance is from the north.

CONTENTS

For a tomb of this size, the contents are few. No skeletal remains are recorded, but the grave goods included three bowls, the cylindrical juglet, one dipper juglet, two lamps and two storage jars, together with one toggle pin, one dagger, three scarabs, some fragments of bone inlay and the fragments of a faience vase. Of the nine vessels, five still remain; one storage jar was marked NTH, leaving one bowl, one cylindrical juglet and one storage jar unaccounted for. The pin and the faience are also missing.

POTTERY

Bowls

Fig.28b.1 Small plain bowl (e.v.28/2 F554D 15M with handle)

Max. height 6.7 cms. Max. width 17.2 cms.

Form. Plain rim, convex plain profile without shoulder, turned ring base, single horizontal coil handle near rim.

Ware. Fine light buff ware, hard fired; surface very worn, but traces of dark red paint where protected around handle.

Fig.28b.2 Large plain bowl (e.v.28/1 F554A 6D1)
Max. height 14.1 cms. Max. width 43.0 cms.

Form. Wide platter type bowl; internal thickening at rim, plain curved sides, turned ring base; two opposed ovoid vertical handles from rim to side; badly warped.

Ware. Orange ware with grey core.

Juglets.

Fig.28b.3 Dipper juglet (e.v.28/3 F554J 51G4)
Max. height damaged Max. width 7.2 cms.

Form. Slightly inverted rim, slightly pinched mouth, slightly narrowing neck, round shoulders, rounded sides, base missing, single coil handle from below rim to shoulder.

Ware. Brown ware with grey slip; clear marks of vertical burnish but very worn.

Lamps

Fig.28b.4 Single spouted lamp (e.v.3/11a F554F 91A1)
(The lamp is wrongly catalogued - see 'anomalies'.)
Max. height 3.1 cms. Max width 11.9 cms.

Form. Single spout with marked folding at nozzle. convex sides rounding to flatish base. Burnishing at nozzle.

Ware. Buff brown ware finely made; light grey slip, roughly burnished inside and out.

Fig.28b.5 Single spouted lamp (e.v.28/4 F554C 91A3).
Max. height 3.5 cms. Max. width 12.1 cms.

Form. Single spout with slight folding at nozzle, roughly made convex sides rounding to a flatish base. Burning at nozzle.

Ware. Red ware with grey core, red slip inside and out - possibly once burnished. A grey deposit is noticeable inside.

SCARABS

Fig.29a.1 (e.v.28/8 BPI Pl.XII,139)
Length 1.5 cms. Breadth 1.0 cms. Height 0.6 cms.
Steatite; grey; nefer sign for 'good luck' surrounded by six sets of concentric circles.

Fig.29a.2 (e.v.28/7 BPI Pl.XII,138)

Length 1.6 cms. Breadth 1.2 cms. Height 0.7 cms.

Steatite, yellow; Geometric design with loops.

Fig.29a.3 (e.v.28/6 BPI Pl.XII,137)
Length 2.3 cms. Breadth 1.6 cms. Height 1.0 cms.
Steatite; Standing figure with left arm upraised, facing garbled hieroglyphs - unreadable.

BRONZE

Dagger

Fig.29b.1 (e.v.28/5 BPI Pl.XI,82)
Max. length 15.7 incomplete; Breadth at hilt 4.0 cms.

Form. Flanged 'I' section hilt - handle missing (BPI describes the handle as 'inlayed'). Plain tapering blade; point missing.

Analysis. Not available for analysis.

BONE INLAY

Fig.29b.2 One fragment of broken bone inlay, carved with two horizontal bars and one side of the flanking chevron design.

CATALOGUE ANOMALIES

i) The most obvious anomaly is the omission from the Institute of Archaeology catalogue of F554F, the smaller of the two lamps of the group. It had been erroneously catalogued under F555 (which see) but it is here restored with its original IA number.

ii) The Tomb Card originally classed F554E as 21W2, but the BP catalogue and the Corpus cite it as 21M. At some time later, the Tomb Card was changed to this number in ink.

iii) The dipper juglet, F554J appeared originally on the Tomb Card as 51G4'. It appears the same in the BP catalogue and in the Corpus, but an ink correction of the Tomb Card changes the typing to $51G^{V}$, a curious correction since this type is not shown in the Corpus.

F555 Institute of Archaeology, London.
(One piece British Museum.)
(I.A. e.v.3 BPI Pl.XIV/XV)

The tomb lies at the extreme northern end of the cemetery (see Fig. 17)

PLAN (Fig.30)

The plan is taken from BPI XVII. It illustrates a tomb with a stepped dromos from the north and a double chamber. The shaft has six steps. No measurements are given for the roof which is here reconstructed tentatively in the section. A photograph of this tomb occurs in BPI PL.VIII

CONTENTS

No bodies are mentioned on the Tomb Card, but one skull has been drawn in at the southern end of the western chamber in the BPI illustration. According to the Tomb Card, the accompanying grave goods consist of six bowls, six cylindrical juglets, three dipper juglets, one jug, one lamp and five storage jars, a total of twenty-two pieces (although the plan illustrates only eighteen.) Six are marked NTH leaving sixteen. Only fourteen however are catalogued in the Institute of Archaeology collection, although fifteen vessels are present. In addition to the pottery, two pins were recorded, together with four scarabs, a glazed faience pilgrim flask and a number of beads.

POTTERY

Bowls

Fig.31.1 Small carinated bowl (e.v.3/1 F555C 18J6).
Max. height 6.0 cms. Max, width 16.4 cms.

Form. Everted rim, vertical upper wall, slightly carinated shoulder, convex lower wall, turned disk base.

Ware. Brown ware with brownish yellow finish.

Fig.31.2 Small carinated bowl (e.v.3/1 F555A 18J6)
Max. height 7.2 cms. Max width 16.4 cms.

Form. Everted rim, vertical upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Hard orange ware with red-grey slip inside and outside.

Fig.31.3. Small carinated bowl (e.v.3/2 F555J 18J6)
Max. height 8.5 cms. Max width 16.8 cms.

Form. Everted rim, upper wall sloping outwards slightly to carinated shoulder; lower wall convex with a turned disk base.

Ware. Orange ware with decayed orange slip.

Fig.31.4 Small carinated bowl (e.v.3/1 F555D 18J6)
Max. height 8.2 cms. Max. width 17.2 cms.

Form. Everted rim, vertical upper wall, carinated shoulder, turned disk base.

Ware. Orange ware with grey core, buff orange variegated slip (self-slip?). Turning marks below shoulder to base.

Fig.31.5 Small carinated bowl (e.v.3/2 F555F 18J6)
Max. height 8.8 cms. Max. width 18.4 cms.

Form. Everted rim, short vertical upper wall, carinated shoulder, long slightly convex lower wall, turned disk base.

Ware. Orange ware with buff-orange self slip. Turning marks visible below shoulder to base.

Juglets

Fig.31.6 Cylindrical juglet (e.v.3/9 F555Q (?) 7400)
Max. height 8.5 cms. Max. width 9.7 cms.

Form. Everted rim, narrow neck, slightly rounded shoulder, very squat body, slightly rounded base, double coil handle from rim to shoulder WITH button.

Ware. Grey ware.

Fig. 31.7 Cylindrical juglet (not catalogued F555L 7408)
Max. height 11.2 cms. Max. width 8.3 cms.

Form. Small rim, narrow neck, very round shoulder with convex tapering sides, almost flat base, handle mostly missing but double coil WITHOUT button.

Ware. Soft dark grey ware; surface very worn but traces of vertical burnish.

Fig. 31.8 Cylindrical juglet (e.v.3/6 F555K (?) 7407)
(F number obliterated)
Max. height 12.3 cms. Max width 8.8 cms.

Form. Everted rim, parallel sided small neck, rounded shoulder, barrelled sides, round base, double coil handle from rim to shoulder without button.

Ware. Grey ware with grey slip. Vertical burnish marks on outer walls and burnish marks on base.

Fig.31.9 Cylindrical juglet (e.v.3/7 F555B ? 7408)
Max. height 13.0 cms. Max width 9.5 cms.

Form. Everted rim, narrow neck, slightly sharp shoulder, concave sides, rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Coarse brown ware with yellow grey slip and traces of vertical burnish on walls.

Fig.31.10 Cylindrical juglet (e.v.3/8 F555V 74016)
Max. height 13.0 cms. Max. width 10.6 cms

Form. Everted rim, narrow neck, carinated shoulder, convex sides, slightly rounded base, single flat handle from rim to shoulder WITHOUT button.

Fig.31.11 Dipper juglet (e.v.3/5 F555E 51G11)
Max. height 17.9 cms. Max. width 6.5 cms.

Form. Wide pinched mouth, narrowing neck, rounded shoulder, slightly tapering sides, rounded base, single coil handle from below rim to base.

Ware. Grey ware with light grey slip; clear turning marks from below shoulder to base.

Fig.31.12 Dipper juglet (e.v.3/4 F555T 51G7)
Max. height 18.3 cms. Max width 6.6 cms.

Form. Mouth broken, narrowing neck, round shoulder, tapering sides, slightly pointed base, single coil handle from just below rim to shoulder.

Fig.31.13 Dipper juglet (e.v.3/3 F555U 51G11)
Max. height 20.0 cms. Max. width 8.2 cms.

Form. Small pinched mouth, narrow neck, rounded shoulder, rounded sides, rounded base. Single

coil handle from just below rim to shoulder.

Ware. Fine red ware with grey core; buff-brown slip with traces of vertical burnish. Diagonal brown paint lines visible from point where the handle meets the rim across the neck to the shoulder on either side of the vessel.

Jugs.

Fig.31.14 Single handled jug. (e.v.3/10 F555N 38H7)
Max. height 32.0 cms. Max. width 21.7 cms.

Form. Single spout pinched mouth, wide neck, rounded shoulder, convex sides, small flat base; a single strap handle from rim to shoulder.

Ware. Grey ware with grey self (?) slip; turning marks from shoulder to base.

Lamps

Fig.31.15 Single spouted lamp (e.v.3/11 F555G 91A3)
Max. height 3.6 cms. Max. width 11.7 cms.

Form. Single spout, slight folding at nozzle, shallow curved walls and rounded base.

Ware. Soft orange ware with buff finish.

SCARABS

Fig.32a.1 (e.v.3/13 BPI Pl.VII,55)
Length 0.9 cms. Breadth 0.7 cms. Height 0.4 cms. Steatite, yellow. No border. Six sets of concentric circles with horizontal bars joining each pair.

Fig.32a.2 (e.v.3/12 BPI Pl.VII,54)
Length 1.5 cms. Breadth 1.1 cms. Height 0.6 cms. Steatite, yellow. Design showing man fleeing from lion.

Fig.32a.3 (not catalogued IA or BP)
Length 1.5 cms. Breadth 0.9 cms. Height 0.5 cms. Greenstone ?. Plain seal, very lightly carved back.

Not illustrated Another plain scarab ???

BRONZE

Pins

Fig.32b.1 BPI Pl.VI either No. 35 or 37.
Max. length 7.8 cms INCOMPLETE

Form. After cleaning, upper shaft vertical with medium grooving; lower shaft plain but point missing (cf. BPI Pl.VI which shows point incorrectly

Analysis. BM555/3 Copper-Tin alloy.
Quantitative analysis not attempted.

Fig.32b.2 BPI Pl.VI,36.
Max. length 11.5 cms. INCOMPLETE

Form. Apparently plain upper shaft with slight button, now missing. Lower shaft plain. Probable total length 14.6 cms.

Analysis. BM555/2 Copper-Tin alloy.
Quantitative analysis. Table 1. No.7.

Fig.32b.3 Ought to be BPI Pl.VI 35 or 37 but too long.
Max. length 13.4 cms. INCOMPLETE

Form. Plain vertical upper shaft, plain lower shaft but point missing.

Analysis. BM555/1 & 4. Copper-Arsenic-Tin alloy.
Quantitative analysis BM555/4 Table.1. No.6.

FAIENCE

Fig.32b.4 Flask (BM Western Asiatic Dept.L853)
Max. height 8.1 cms. INCOMPLETE. Diameter 7.5 cms.

Form. Pilgrim flask; neck missing, body circular with lentoid profile.

Ware. White faience; green glaze with traces of dark brown and orange paint but pattern now indistinguishable.

BEADS

Not illustrated. 16 dark brown and buff paste beads.

CATALOGUE ANOMALIES

i) A confusion has arisen in the Institute of Archaeology Catalogue. Two lamps, e.v.3/11 and e.v.3/11a are mentioned as occurring in this tomb. Only one lamp is recorded on the Tomb Card which is F555G, equal to e.v.3/11; e.v.11a therefore is incorrectly catalogued. The registration card at the Institute shows an awareness of the error, querying the occurence and referring to tomb F569. In actual fact, the faded underwriting on the vessel can be reconstructed as F554F, which is indeed a lamp of the type 91A1. It has been restored to its original position in tomb F554.

ii) In the BPI catalogue (Pl.XV), a form 55S4[1] appears under this group. The form in fact is a Late Bronze Age II Mycenaean pyxis and hence its occurrence here would be difficult to explain. Amongst the material preserved at the Institute of Archaeology from this tomb there is no trace of such a vessel. Further, on the Tomb Card this type does not feature in the original list, but is an ink addition presumably added on the basis of the BPI catalogue. The Corpus, in giving examples of this type of vessel, does not list F555 as a source. The appearance of the vessel then has been ignored as a compounded error based upon the BPI catalogue.

Another ink addition to the tomb card, this time one which does not occur in the BPI catalogue is a form 28X2; this also has been omitted.

iii) The cylindrical juglet F555L is present in the collection at the Institute of Archaeology but has never been catalogued.

iv) The Tomb Card records four scarabs, two of which are described as plain. BPI Pl.XIV and VII mention only two scarabs; in the Institute catalogue, only the same two illustrated in BPI Pl.VII are recorded, whereas the collection preserves a third scarab which is one of the two plain examples, the other of which is lost.

v) The typical feature of discrepancies in typing the vessels from the Corpus are seen here;-

Corpus types 43E6, R4, T5, V4 and V6 on the Tomb Card, become 43D5, E4 and F3 in the BPI catalogue.

A bowl F555W (23J4) which is given on the Tomb Card is omitted from the BPI catalogue, although tomb F555 is listed in the Corpus as a source for this type.

vi) On the Tomb Card, two toggle pins are mentioned as found in the group. BPI Pl.VI illustrates three:- 35, 36 & 37 and three are indeed found in the Institute collections. However, whilst two of the IA pins match two of the BPI illustrations, the third pin does not. One can only put this down to the somewhat less careful way in which the toggle pins have been handled and published.

F556 Institute of Archaeology, London.
(Selected pieces British Museum Western Asiatic Dept.)
(One vessel Rocke feller Museum, Jerusalem)
(e.v.9/ BPI XIV & XV)

The tomb is slightly north west of the centre of the cemetery, between tombs 554 and 550, of the same type. (See Fig.17)

PLAN (Fig.33)

The plan is a rescaling of Petrie's plan of BPI Pl.XVIII. The section is taken from the height measurements given on the plan, with the exception of the fifth step which is of a conjectural height. Similarly, the roof is conjectured since figures are not available for its reconstruction; it is more than likely that the roof had collapsed long before excavation.

The plan is that of a stepped shaft and double chambered tomb, the two chambers being at marginally different depths. The steep stepped dromos forms almost a separate area, having a 'doorway and landing' approach to the chambers themselves. As usual, the dromos has six steps. The axis of the shaft and the chamber are slightly east of north by 22°, otherwise it is a northern approach.

CONTENTS

There would appear to be no surviving human remains associated with the tomb. The accompanying grave goods, which the Tomb Card states were not planned, consisted

of fifteen vessels, one of which was marked NTH. Eleven vessels are extant, ten in the Institute and one in the Rockefeller Museum, Jerusalem. Of the remaining three vessels unaccounted for, two are storage jars which explains their absence, and the third is a lamp.

Together with the pottery, the small objects consisted of five (?) toggle pins, as well as a bronze dagger. At least twelve scarabs are recorded and also a number of beads, fragments of bone inlay and a glazed faience vase. Of the catalogued scarabs, ten of the twelve remain, as well as two uncatalogued pieces. One should note that one of the scarabs was found "high in the filling"; which particular scarab is meant by that is not clear, but the find might imply some reuse of the tomb.

POTTERY

Bowls

Fig.34.1 Small flaring carinated bowl (e.v.9/1 F556F? 23J4)
Max. height 7.1 cms. Max. width 13.6 cms.

Form. Plain rim, upper walls angled inwards to shoulder, flaring shoulder, convex lower walls, high turned pedestal base.

Ware. Buff/brown ware, drab buff slip, clear turning marks above and below shoulder to base.

Fig.34.2 Small carinated bowl (e.v.9/3 F556H 23K3)
Max. height 6.3 cms. Max. width 16.4 cms.

Form. Everted rim, very roumded shoulder, turned ring base, small recess inside centre.

Ware. Thick hard orange ware with yellow grey slip? Turning marks from shoulder to base.

Fig.34.3 Small carinated bowl (e.v.9/2 F556P 18J7)
Max. height 8.2 cms. Max. width 18.4 cms.

Form. Everted rim, vertical upper wall, slightly convex lower wall, turned disk base.

Ware. Orange ware, self finished, clear turning marks from shoulder to base

Fig.34.4 Large carinated bowl. (Jerusalem 14389 F556J 23K3?)
Max. height 11.7 cms. Max. width 12.4 cms.

Form. Plain rim, upper walls angled outwards to shoulder, shoulder slightly carinated, slightly convex lower wall, turned ring base. Two 'vestigial' double coil handles affixed as vertical lugs diametrically opposed at rim.

Ware. Hard orange ware with internal self slip. Radial burnish inside on lower surface.

Juglets

Fig.34.5 Cylindrical juglet (e.v.9/8 F556G 74011)
Max. height 12.8 cms. Max. width 9.8 cms.

Form. Thickened rim, narrow neck, carinated shoulder, slightly convex sides, slightly rounded base. Double coil handle from rim to shoulder WITHOUT button.

Ware. Orange ware, grey slip in parts, traces of vertical burnish.

Fig.34.6 Cylindrical juglet (e.v.9/9 F556B 7404)
Max. height 13.7 cms. Max. width 11.1 cms.

Form. Wide thickened rim, narrow neck, broad slightly carinated shoulder, tapering sides, slightly rounded base, double coil handle from rim to shoulder - there may have been a button which is now missing.

Ware. Orange ware with buff finish. Clear turning marks from shoulder to base.

Fig.34.7 Cylindrical juglet (e.v.9/7 F556A 7403)
Max. height 14.4 cms. Max. width 10.8 cms.

Form. Thickened rim, narrow neck, rounded shoulder, tapering sides, slightly rounded base, double coil handle from rim to shoulder WITH button.

Ware. Dark grey ware, yellow/grey slip, the matt finish excluded definite evidence of burnish though it is suspected.

Fig.34.8 Dipper juglet (e.v.9/4 F556O 51G7)
Found inside storage jar F556C (43V4)
Max. height 18.2 cms. Max. width 6.9 cms.

Form. Mouth broken, narrow neck, rounded shoulder, convex sides, round base, single coil handle from below rim to shoulder.

Ware. Orange ware, light buff finish, traces of vertical burnish.

Fig.34.9 Dipper juglet (e.v.9/5 F556N 51G14).
Found inside storage jar F556M (43T4)
Max. height 19.2 cms. Max. width 7.6 cms.

Form. Plain rim, pinched mouth, narrow neck, slightly angled shoulder, convex sides, slightly pointed base, single coil handle from below rim to shoulder.

Ware. Light brown ware, light grey/yellow finish, clear traces of vertical burnish.

Lamps

Fig.34.10 Single spouted lamp (e.v.9/2 F556D 91A6)
Max. height 4.7 cms. Max. width 12.2 cms.

Form. Single spouted lamp but nozzle folding missing; rounded walls; slightly shaped flat base.

Ware. Orange ware; much evidence of burning through use.

Fig.34.11 Single spouted lamp (e.v.9/10 F556K 91A3)
Max. height 3.0 cms. Max. width 10.5 cms.

Form. Single spouted lamp with slight folding at nozzle; body only partly present; rounded walls to rounded base.

Ware. Orange ware.

SCARABS

Of a potential total of fourteen scarabs attributable to this tomb, only four are currently available for study. (See catalogue anomalies.)

Fig.35a.1 (British Museum L794 BPI Pl.X,75)
Length 1.9 cms otherwise DAMAGED.
Steatite. Skirted figure facing right with crown and sceptre. The scarab is said by Petrie to be of the Thutmosis III period, merely an intrusion from a later burial.

Fig.35a.2 (e.v.9/13 BPI Pl.X,72)
Length 2.0 cms. Breadth 1.3 cms. Height 1.0 cms.
Steatite, yellowish; Scroll and sign border, within which is Dy hrw nfr, "May there be given a happy day".

Fig.35a.3 (British Museum L804 Not catalogued BPI)
Length 1.3 cms. Breadth 1.0 cms. Height 0.6 cms.
Amethystine Quartz; plain seal, lightly carved back.

Fig.35a.4 (British Museum L803 Not catalogued BPI)
Length 1.4 cms. Breadth 0.9 cms. Height 0.6 cms.
White Carnelian (BM Catalogue); plain seal, lightly carved back.

BRONZE

Pins.

Fig.35b.1 BPI Pl.IX,41 (by process of elimination)
Max. length 2.4 cms INCOMPLETE

Form. Owing to almost complete disintegration, the form is impossible to ascertain.
Probable original length 10.5 cms.

Analysis. BM556/6 Copper-Tin alloy.

Quantitative analysis not attempted.

Fig.35b.2 BPI Pl.IX,45
Max. length 7.2 cms. INCOMPLETE

Form. Vertical upper shaft, square sectioned and twisted; lower shaft incomplete. Probable original length according to BPI 11.4 cms.

Analysis. BM556/10 Copper-Arsenic alloy.
Quantitative analysis not attempted.

Fig.35b.3 BPI Pl.IX,40
Max. length 9.6 cms. INCOMPLETE

Form. Upper shaft vertical with heavy grooving from top to eye; lower shaft plain but incomplete.

Analysis. BM556/3 Copper-Tin alloy.
Quantitative analysis not attempted.

Fig.35b.4 BPI Pl.IX,42?
Max. length 11.7 cms.
Form. Upper shaft vertical; very decayed but traces of twisting just visible; lower shaft slightly curved.

Analysis. BM556/7 Copper-Arsenic alloy.
Quantitative analysis not attempted.

Fig.35b.5 BPI Pl.IX,44
Max. length 11.8 cms. INCOMPLETE

Form. Upper shaft vertical, plain with slightly swollen top; lower shaft largely missing; according to BPI the probable original length is 18.6 cms.

Analysis. BM556/4 Copper-Tin alloy.
Quantitative analysis not attempted.

Fig.35b.6 BPI Pl.IX,43

Max. length 12.8 cms. INCOMPLETE

Form. Plain upper shaft with slightly swollen top; lower shaft plain but partly missing. According to BPI, the original length was probably 18.2 cms.

Analysis. BM556/2 Copper-Arsenic alloy. Quantitative analysis not attempted.

Nails

Fig.35b.7 BPI Not illustrated.

Max. length 3.5 cms.

Form. Square section with slightly flattened head.

Analysis. BM556/9 Copper-Arsenic. Quantitative analysis. Table 1. No.8

Fig.35b.7 BPI Not illustrated.

Max. length 3.6 cms.

Form. Square section with slightly flattened head.

Analysis. BM556/3 Copper-Arsenic alloy. Quantitative analysis not attempted.

Daggers

Fig.35b.8 BPI Pl.IX,38.
Max. length 10.7. Max. width 3.2 cms.

Form. Double sided blade with mid rib on both sides; two rivet holes near base.

Analysis. BM556/11 Copper.
Quantitative analysis. Table 1. No.9

FAIENCE

Fir.35b.9 Small vase (BM/L857 BPI Pl.IX,39)
Max. height 8.5 cms. Max. width 4.7 cms.

Form. Slightly flared rim, narrow neck, bag-shaped body, round base.

Ware. White faience - decayed and fragmented. Green glaze, brown paint applied in a line and petal design.

CATALOGUE ANOMALIES

i) The Tomb Card lists only two dipper juglets;- F556N and F5560, 51G14 and 51G7 respectively. Two dipper juglets are presently found in the Institute collection, the said F556N and F5560. However, the IA Catalogue lists three dipper juglets, e.v.9/ 4, 5 & 6. The above two dippers are e.v.9/4 & 5, but the third, e.v.9/6, which is not supposed to exist, is not to be found. The BPI catalogue Pl.XV further confuses the

picture; it gives three dipper juglets for this tomb, 51G1V, 51G7 and 51G14. The Corpus cites the tomb for only two types, 51G1V and 51G7, and does not cite it under 51G14 which has been mentioned both by the Tomb Card and the BP Catalogue.

It would seem that because of the difference in typing between one source and another, an additional dipper juglet has been conflated into the catalogues, and should therefore be ignored. (Why it should presently be missing can have no bearing on the problem.)

ii) There is the usual and consistent alteration in the catalogues of the typing of storage jars. The Tomb Card records types 43T4 and V4, whereas the BPI catalogue has examples of types 43E4, E6 and F3.

iii) The situation of the cataloguing of the bowls by Corpus type is one of the most confusing within the tomb group. So complex is it that it is now irreconcilable, there being four sources and four bowls. Of the four lists, none agree on more than one occasion, and no type number occurs in more than two lists. Most disagree totally.

Tomb Card.	23J3,	23J4,	23J7	and 18J7
BPI Cat.	18J9,	18J13,	18K18	(only three types mentioned)
Corpus	18J9,	23J13,	23K2	and 23K14
Reinked Tomb Card	23K2,	23J13,	23K6	and 23K18

iv) Unusually, the one pot kept in Jerusalem, F556J, is not mentioned on the Tomb Card as being so apportioned and was found to be among that material by accident.

v) The Tomb Card records a total of twelve scarabs, that is one in particular with a kheper sign and others, plus eleven more. All twelve are illustrated in BPI Pl.X nos. 64-75. The British Museum holds one, and the Institute nine, leaving two missing. The Institute Catalogue records this same information, that Pl.X nos. 64 and 65, both decorated scarabs, are indeed missing. However, the British Museum holds a further two scarabs under this tomb number, but both of them are plain, not the missing decorated ones, so that the tomb may have had a total of fourteen scarabs originally, two of which are still missing. Inexplicably, eight of the nine in the Institute collection (e.v.9/14-20) are currently unavailable for study.

vi) The toggle pins are said in BPI to be illustrated on Pl.VI (BPI Pl.XIV) but in fact they are on Pl.IX, 40-45.

According to the Tomb Card, 5? (sic) were discovered in this tomb, but BPI IX illustrates six. By counting the needle-eyes, it is possible to deduce that the Institute collection has preserved six pins under this tomb. Since on the original Tomb Card the figure five was queried, one might feel justified in thinking that there were six pins originally in the tomb, as

illustrated.

On the other hand, it is to be pointed out that of the six pins in the publication, only one is decorated. Of the six pins in the Institute collection, three are decorated. Rather than disgarding this evidence, it would seem more consistent with the publication that insufficient care was taken in the drawing of the pins, as seems to be seen elsewhere in the tomb group.

vii) The two nails, Fig.35b.7 are neither mentioned nor illustrated elsewhere, although they probably are original to the tomb but are not mentioned because of their rarity.

F557 Institute of Archaeology, London.

(I.A. e.v.29 BPI Pl.LXIX)

The group is situated in the central eastern part of the cemetery north and east of 559 and 550 respectively (Fig.17). No plan exists of the tomb, and the Tomb Card describes the material as "a group of four pots only", a description reiterated in BPI.

CONTENTS

No skeletal remains are recorded with the four vessels, a cylindrical juglet, a dipper juglet, a one handled vase and a one handled jug within which the dipper juglet was found. All four of the vessels are present in the collection.

POTTERY

Juglets

Fig.36.1 Cylindrical juglet (e.v.29/2 F557B 74011)
Max. height 13.2 cms. Max. width 10.2 cms.

Form. Slightly thickened rim (folded out and over), slightly narrowed neck, carinated shoulder, convex sides, slightly rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Brown ware, buff slip; surface decayed.

Fig. 36.2 Dipper juglet (e.v.29/1 F557D 51G7)
Max. height 18.5 cms. Max. width 6.8 cms.
(Found inside the one handled jug F557A 38N)

Form. Mouth missing, neck narrow, round shoulder, round body, pointed base, single coil handle from below rim to shoulder.

Ware. Grey ware, grey-buff slip, traces of vertical burnish.

Jugs

Fig.36.3 One handled jug or vase (e.v.29/3 F557C 33N3 ?)
Max. height 16.5 cms. plus. Max. width 10.2 cms.
(This is a unique piece within the tombs.)

Form. Rim and neck missing, long convex upper walls sloping outwards to marked carination near base; short lower walls sloping inwards to small flatish base; single oval sectioned handle rising from upper wall, then missing.

Ware. Brown ware, grey slip with traces of vertical burnish particularly on upper wall.

Fig.36.4 One handled jug (e.v.29/4 F557A 38N)
Max. height 30.8 cms. Max. width 23.4 cms.

Form. Everted rim, wide mouth, rounded shoulder, convex sides. Turned disk base, single strap handle on shoulder.

Ware. Orange-brown ware, grey-buff slip.

CATALOGUE ANOMALIES

The anomalies in the cataloguing of this tomb are very typical of their kind, revolving as the do around the progressive misunderstanding of the unique pottery form F557C. All four sources, the original Tomb Card, the Corpus, the Beth Pelet Report and the altered Tomb Card are to be compared. The original Tomb Card and BPI state categorically that there are four pots only in this group. The Tomb Card lists:-

A ... 38N	B ... 74011
C ... 34N8	D ... 51G1

The confusion is centred upon A ... 38N a normal one handled juglet and c ... 34N8 supposedly the one handled vase. When the Corpus is compiled, the list is different:-

A ... 38N	B ... 74011
C ... 33N8	D ... 51G1

The vessel in question has been recognised clearly as not being of the general class 34 and is corrected to 33N8. (In all cases in the Corpus, this tomb 557 is quoted as a reference for each of the types.)

The error is now compounded in the BPI list of vessels in the tomb. BPI LXIX quotes four vessels:-

37V8	740
33N8	51G1

33N8 is here retained, but 38N, a perfectly reasonable typing, has been altered in error to 37V8. This kind of error is in fact relatively frequent in BPI, arising either from typographic slips or simple confusion of numbers.

At some time later than this the Tomb Card was altered in ink, presumably to make sense of the previous errors. The altered Tomb Card shows a perfect conflation of all the previous sources:-

	A ... 38N	Original Tomb Card
	B ... 74011	Original Tomb Card
	C ... 34V8	Mixture of Tomb Card and BPI
	D ... 51G1	Original Tomb Card
Plus	... 33N8 Corp.	Mixture of Corpus and BPI

The type 38N, as appearing in the Corpus, remains. 34N8 however is altered on an acceptance of the error in the BPI catalogue to 34V8, thus compounding the error of BPI retyping 38N to 37V8. (There does not appear to be any such type.) One is now left with the Corpus reference to a 33N8, which is then added to the Tomb Card to make an impossible number of five pots. The list should read:-

A ... 38N B ... 74011 C ... 33N8 D ... 51G1

Ironically, the correct typing for this unique vessel is equally puzzling, since 33N8 marked in the Corpus as having an example in tomb 557 is dated by Petrie et al to Dyn.XXVI. Patently it would not be fitting to have an iron age vessel in this particular group; the vessel in question however bears only a passing resemblance to type 33N8, and the example illustrated in the Corpus is from the iron age tomb 390. It is equally fair to point out however that the form in 557 is unique within the Fara tombs of the MB II.

F558 Institute of Archaeology, London.

(e.v.35/ BPI Pl.XIV & XV)

The tomb lies in the extreme north of the cemetery adjacent to the bilobate tomb F555. (Fig.17)

PLAN (Fig.37a)

From the sketch and the measurements given on the reverse of the Tomb Card, it is clear that the group comes from a simple rectangular grave oriented north-south.

CONTENTS

Although the tomb is described as 'disturbed' on the Tomb Card, it seems that a skeleton was still present, its head towards the north. Accompanying the body were five vessels, comprising a carinated bowl, a cylindrical juglet, a dipper juglet and two storage jars inside one of which the dipper juglet had been placed. The dipper juglet and both the jars are marked NTH on the card, but the remaining two vessels are preserved in the Institute Collection.

Together with the pottery, there was said to be the fragments of a twisted toggle pin and two scarabs. As frequently happens, there are in fact the remains of two pins from this tomb.

POTTERY

Bowls

Fig.37b.1 Small carinated bowl (e.v.35/1 F553A 23P4)
Max. height 7.8 cms. Max. width 16.6 cms.

Form. Marked everted rim, upper sides slope outwards slightly, carination rounded, turned disk base.

Ware. Orange ware, traces of buff finish, clear turning marks below shoulder to base.

Juglets

Fig.37b.2 Dipper juglets (e.v.35/2 F553D 51G7)
Max. height 21.3 cms. Max. width 6.9 cms.
(Found inside storage jar F558C 43T4)

Form. Mouth pinched, narrow meck, rounded shoulder, elongated body, rounded base, handle just below rim to shoulder.

Ware. Brown ware, surface badly decayed.

SCARABS

Fig.37c.1 (e.v.35/6 BPI Pl.VII,50)
Length 2.1 cms. Breadth 1.4 cms. Height 1.0 cms.
Steatite, yellowish. Standing hawk-headed figure holding a lotus plant in the left hand; behind, a reed, and flanking either side a uraeus,

and below on the right, the neb sign.

Fig.37c.2 (e.v.35/5 BPI Pl.VII,51) With ring fragments. Length 2.2 cms. Breadth 1.5 cms. Height 1.0 cms. Steatite, yellow. Hooked scroll border within which is Rdi n Kh‘ n R‘ giving the reading 'Gift of Kha-en-ra.'

Fig.37c.3 (Not catalogued in IA or BP)
Length 1.3 cms. Breadth 0.9 cms. Width 0.6 cms. Greenstone. Seal blank, very lightly carved back.

BRONZE

Pins

Fig.37c.4 BPI Not illustrated.
Max. length 2.2 cms. INCOMPLETE

Form. Upper shaft heavily grooved but top missing; lower shaft missing.

Analysis. BM558/3 Copper-Tin alloy.
Quantitative analysis. Table 1. No. 18)

Fig.37c.5 BPI Pl.VI,32
Max. length 7.0 cms. INCOMPLETE

Form. Upper shaft vertical, square sectioned and twisted; lower shaft missing.

Analysis. BM558/1 Copper-Arsenic-Tin alloy.
Quantitative analysis. Table 1. No. 10.

Not illustrated. Eyeless fragment of shaft only.

Analysis. BM558/4 Copper-Tin alloy.
Quantitative analysis. Table 1. No.12.

Rings

Not illustrated. Fragment of scarab ring.

Analysis. BM558/5 Copper-Tin alloy.
Quantitative analysis. Table 1. No.19.

CATALOGUE ANOMALIES

(i) The bowl of the group, F558A is typed on the Tomb Card as 23P4. This bowl is not mentioned in the BPI catalogue Pl.XIV, nor is any other. Also, in the Corpus, F558 is not cited as having an example of this type. Nevertheless it is clearly marked on the Tomb Card, on the vessel and in the Institute catalogue that this bowl belongs to F558.

(ii) The usual discrepancy arises over the typing of the storage jars:- Tomb Card 43T4 & V6
BPI Pl.XV 43E5 & F3

(iii) The cylindrical juglet, obviously too fragmented to be typed properly and so marked 740 NTH on the Tomb Card is not mentioned at all in the BPI catalogue.

(iv) Only one pin is recorded on the Tomb Card, and one only is illustrated in BPI Pl.VI. From a count of

the needle eyes, there are at least two preserved in the Institute Collection, and from the quantitative analyses there may well be the remains of three. Either the extra do not belong here, or more likely the fragments were too small to be accounted for whether in the tomb register or the publication.

(v) The Tomb Card specifically describes two scarabs, the two that are carved. An ink note on the card speaks of four scarabs in this tomb. Three scarabs are preserved in the collection of the Institute of Archaeology, the two carved ones and one plain. It is more than likely, that there was yet another plain scarab in the tomb, making a total of four, two carved and two plain, of which one of the plain is now missing, hence the figure of 'two' in BPI and the figure of 'four' on the Tomb Card, since BPI seldom mentions plain scarabs.

(vi) Although not catalogued at the Institute of Archaeology, that collection preserves a number of beads clearly labelled for this tomb. They consist of thirty-six carnelian beads, thirty of which are lozenge-shaped, the remainder circular, together with three small barrel-shaped beads of a brown-white banded stone. These beads are not recorded on the Tomb Card, nor do they appear in the BPI catalogue. Their presence then is highly suspect in this context.

F559 Rockefeller Museum, Jerusalem.

(RM 14340-4385 BPI Pl.XIV & XV)

The tomb is located in the north east corner of the cemetery near tomb 550. (See Fig.17)

PLAN (Fig.38)

The plan is taken from Petrie's own sketch plan BPI Pl.XVII. It illustrates a stepped shaft and double chambered tomb, having two separate rectangular chambers with a ledge in between, a feature seen in tombs 550 and 556.

The dromos is a separate unit from the chambered area, having a constriction in the passage at the lower end of the stairway forming a 'doorway', and then the central ledge acting as a 'landing' giving a total descent of seven steps into the west chamber and eight into the east chamber. Unusually, the axis of the tomb and stairway is set north-west south-east instead of the more typical north-south orientation.

The section has been reconstructed from the depth measurements given on the plan. The shape of the roof of the chambers is conjectural; it is more likely that the tomb had collapsed before excavation so that measurements could not have been made.

CONTENTS

No skeletal remains are recorded from this tomb, either on the Tomb Card or marked on the BPI Pl.XVII plan.

The grave goods form a large group for the cemetery, with a total of thirty-four vessels, comprised of twelve bowls, four cylindrical juglets, six dipper juglets, one jug, two lamps and nine storage jars. (The distribution plan is at variance with these numbers.) Twenty-one vessels are currently housed in the Rockefeller Museum collection. Of the remaining thirteen, seven are marked NTH, leaving a further six unaccounted for. At least four of these unaccountable vessels are expectedly storage jars.

The pottery was accompanied by three pins, two daggers and a bronze bangle, two nails, nine scarabs, four beads and a number of fine flint points.

POTTERY

No attempt has been made to render the type distribution of the pottery on the plan, chamber by chamber, as in BPI Pl.XVII, since the reliability of this plan is in doubt. (See catalogue anomalies). Wherever possible however, objects are marked East or West Chamber, but the discrepancy in the number and the type does not allow the groups readily to be separated.

Bowls

Fig.39.1 Small carinated bowl. (I4347 F559U 16T4) EAST
Max. height 6.1 cms. Max. width 14.5 cms.

Form. Plain rim, upper wall convex, very slight rounded carination, convex lower wall, turned

base.

Ware. Soft red ware, light red self (?) slip.

Fig.39.2 Small carinated bowl (I4356 F559G 18J10)
Max. height 7.9 cms. Max. width 16.5 cms.

Form. Everted rim, vertical upper wall, carinated shoulder, very slightly convex lower wall, turned disk base.

Ware. Hard buff-grey ware; light buff finish.

Fig.39.3 Small carinated bowl (I4355 F559H 23K10) EAST
Max. height 6.8 cms. Max. width 18.0 cms.

Form. Plain rim, upper wall angled slightly outwards, slightly flated shoulder, convex lower wall, turned ring base.

Ware. Soft light red ware, light buff slip.

Fig.39.4 Carinated bowl (I4363 F559AA 23P4) EAST
Max. height 8.3 cms. Max. width 19.7 cms.

Form. Everted rim, short concave upper wall, markedly carinated shoulder, slightly convex lower wall, turned disk base.

Ware. Hard red ware - no slip.

Fig.39.5 Carinated bowl (I4344 F559Q 22B2) WEST
Max. height 10.7 cms. Max. width 22.4 cms.

Form. Inverted rim, convex vertical upper wall, very slightly carinated shoulder, slightly convex lower wall, turned ring base.

Ware. Hard red ware - no slip.

Fig.39.6 Large carinated bowl (I4342 F559P? 23E2)
Max. height 13.5 cms. Max. width 25.2 cms.

Form. Rim everted, concave upper wall, rounded shoulder, convex lower wall, turned disk base.

Ware. Soft red ware, pink self (?) slip.

Fig.39.7 Large carinated bowl (I4353 F559X 16K4)
Max. height 12.8 cms. Max. width 28.6 cms.

Form. Slightly everted rim, upper wall sloping inwards to shoulder with two horizontal ribs. Shoulder carinated, almost straight lower wall, turned ring base (with cordon?).

Ware. Hard red ware; traces of slip decayed on the interior surface.

Fig.39.8 Large carinated bowl (I4359 F559S 23K9) Prob. WEST
Max. height 13.5 plus. Max. width 28.6 cms (sherd only)

Form. Everted rim, almost vertical upper wall, slightly flaring carinated shoulder, convex lower wall, base missing.

Ware. Hard red ware; light pink self (?) slip.

Fig.39.9 Platter (I4349 F559W 6C3) WEST

Max. height 8.4 cms. Max. width 31.0 cms.

Form. Plain rim, thickened internally; slightly convex walls, turned disk base.

Ware. Hard red ware apparently without slip; badly warped.

Fig.39.10 Platter (I4352 F559J 6C2) EAST

Max. height 12.2 cms. Max. width 41.2 cms.

Form. Rim plain but with marked internal thickening; slightly convex walls, turned ring base.

Ware. Soft red ware, fine buff slip.

Juglets

Fig.40.1 Cylindrical juglet (I4358 F559N 74011) EAST

Max. height 13.1 cms. Max. width 10.0 cms.

Form. Thickened everted rim, narrow neck, sharply carinated shoulder, tapering convex sides, round base, double coil handle from rim to shoulder WITHOUT button.

Ware. Hard grey ware, dark brown slip with vertical burnish marks on both shoulder and sides.

Fig.40.2 Cylindrical juglet (I4345 F5590 74011) EAST
Max. height 13.7 cms. Max. width 9.8 cms.

Form. Everted non-thickened rim, narrow neck sharply carinated shoulder, convex sides, round base; double coil handle from rim to shoulder, WITHOUT button.

Ware. Soft red ware; buff slip.

Not illustrated. Cylindrical juglet (I4343 F559R 74011) EAST
(In a very decayed condition - dimensions impossible)

Form. Sharply carinated shoulder; body completely fragmented, double coil handle WITHOUT button.

Ware. Very soft orange ware; orange-yellow finish.

Fig.40.3 Dipper juglet (I4358 F559HH 51GN)
Max. height 18.1 cms. Max. width 7.5 cms.

Form. Slightly pinched mouth, slightly narrow neck, round shoulder, wide convex sided body, blunt pointed base, single coil handle from just below rim to shoulder.

Ware. Hard light red ware, light grey slip; marks of vertical burnish.

Fig.40.4 Dipper juglet (I4361 F559Y 51G7) EAST
Max. height 18.4 cms. Max. width 6.3 cms.

Form. Wide pinched mouth, narrow neck, slight shoulder, tapering convex sides, slightly pointed base, single coil handle from below rim to shoulder.

Ware. Soft red ware, light pink self (?) slip.

Fig.40.5 Dipper juglet (I4362 F559GG 51GIV)
Max. height 18.4 cms. Max. width 7.0 cms.

Form. Pinched mouth, slightly narrow neck, round shoulder, convex sides, slightly pointed base, single coil handle from below rim to shoulder.

Ware. Hard red ware, red finish (slip?); marks of vertical burnish.

Fig.40.6 Dipper juglet (I4364 F559V 51G4) EAST
Max. height 19.1 cms. Max. width 7.1 cms.

Form. Slightly inverted rim, pinched mouth, narrow neck, slight shoulder, straight tapering sides, rounded base, single coil handle from below rim to shoulder.

Ware. Soft red ware.

Fig.40.7 Dipper juglet (I4360 F559EE 51G4) EAST

Form. Mouth broken, narrow neck, no shoulder, long tapering sides, base damaged, single coil handle from just below rim to shoulder.

Ware. Hard red ware with light buff slip.

Fig.4 O.8 - Dipper juglet (No. not known F559FF 51G2) EAST
Max. height 19 cms. + Max. width 9.5 cms.

Form. Neck missing, broad round shoulder, convex tapering sides, pointed base, handle missing. (Single coil from shoulder.)

Ware. Hard buff ware; red slip (worn) with vertical burnish.

Lamps

Fig.40.9 Single spouted lamp (I4346 F559DD 91A3)
Max. height 4.1 cms. Max. width 11.5cms.

Form. Single spouted, slight folding at nozzle, rounded walls, rounded base.

Ware. Hard fine red ware.

Not illustrated

Single spouted lamp (I4365 F559JJ 91A3)
Max. height 4.4 cms. Max. width 9.0 cms.

Form. Single spout, folding at nozzle, shallow rounded walls, rounded base.

Ware. Hard red ware.

SCARABS

Fig.41a.1 (RM 14372 Rowe 275 BPI Pl.X,84) WEST ?
Length 1.3 cms. Breadth 0.9 cms. Height 0.7 cms. Steatite, hard white-yellow; kneeling solar deity, with human body and falcon's head, holding in the left hand a uraeus on a standard or sceptre. Below is the nub sign, "Lord".

Fig.41a.2 (RM 14376 Rowe 286 BPI Pl.X,79) EAST
Length 1.3 cms. Breadth 0.9 cms. Height 0.7 cms. Steatite, soft yellowish-brown; woman adorned in wig and rather large garment with left hand raised in adoration: she is perhaps pregnant. In front is a uraeus at the back of which is a small oblique stroke.

Fig.41a.3 (RM 14374 Rowe 39 BPI Pl.X,80) EAST
Length 1.4 cms. Breadth 0.9 cms. Width 0.6 cms. Steatite, white; nsw bit Nb , giving the meaning "King of Upper and Lower Egypt, Neb" flanked by the ʿnh sign. Rowe gives this a date of Dyn. XIII or later.

Fig.41a.4 (RM 14375 Rowe 416 BPI Pl.X,87) EAST
Length 1.4 cms. Breadth 1.0 cms. Width 0.6 cms. Steatite, hard light yellow. Four groups of semicircles attatched to a poorly carved central cross - each end is slightly raised as a pendant. (?)

Fig.41a.5 (RM 14373 Rowe 165 BPI Pl.X,81) EAST
Length 1.5 cms. Breadth 1.0 cms. Width 0.7 cms.
Steatite, white; a scarab beetle (khener) with the nb sign on either side; perhaps short for Ra-Khener, a king's name.

Fig.41a.6 (RM 14370 Rowe 409 BPI Pl.X,86) WEST ?
Length 1.6 cms. Breadth 1.2 cms. Height 0.7 cms.
Steatite; Deeply incised scroll designs a symbol ℘ either for wah or for sa.

Fig.41a.7 (RM 14368 Rowe 221 BPI Pl.X,83) EAST
Length 1.8 cms. Breadth 1.2 cms. Height 0.8 cms.
Steatite, hard; deeply incised design showing above and below the papyrus clump for Lower Egypt; between, A - ne - Ra.

Fig.41a.8 (RM 14371 Rowe 337 BPI Pl.X,85) EAST
Length 1.8 cms. Breadth 1.3 cms. Height 0.8 cms.
Steatite, hard; lightly incised, two uraei with falcon in between.

Fig.41a.9 (RM 14369 Rowe 355 BPI Pl.X,82 EAST
Length 2.1 cms. Breadth 1.5 cms. Height 1.0 cms.
Steatite, hard; deeply incised design of above; inverted ankh between two plants below; two inverted nefer signs with djed sign in between.

BRONZE

Daggers

Fig.41b.1 (I4381 BPI Pl.IX,46)
Max. length 16.7 cms. Max. width 5.3 cms.

Form. Flat blade, rounded point. Three (?) rivet holes at base.

Analysis. Not available.

Fig.41.b.2 (I4382 BPI Pl.IX,47)
Max. length 17.1 cms. Max. width 4.9 cms.

Form. Flat blade, rounded point, concave edges, tanged base.

Analysis. Not available.

Nails

Fig. .3 (I4378 Two examples)
Max. length 4.1 cms.

Form. Square section nail with small flat head.

Analysis. Not available.

Miscellaneous.

Fig.41b.4 Bangle (Not registered)
Clearance between ends 6.8 cms.

Form. Circular sectioned bronze bangle (?).

Similar in design to a scarab ring with wired ends, but much larger; purpose unknown.

Analysis. Not available.

CATALOGUE ANOMALIES

i) The estimate of the total number of vessels from the tomb varies on the Tomb Card and the BPI plan.

Tomb Card: 12 bowls.4 cyls. 6 dipprs.1 jug.2 lamps.9 s.jars = 34

BPI Plan: 11 bowls.4 cyls.3 dipprs.1 jug.1 lamp.11 s.jars = 31

Not only are the totals different, but the subtotals vary considerably, particularly in the matter of the number of dipper juglets that were found. This type of inconsistency is very difficult to explain, unless it stems from the fact that the group was left in Jerusalem and that in some way the records varied. Typed correspondence at the Museum dated 10th March, 1929, presumably the time of the accession, simply repeats the Tomb Card information.

ii) The usual variant Corpus readings are noted:-

Tomb Card Jars:- 43G, R4 & R6, T4

BPI Cat. Jars:- 43A4, D5, D6, F3, J7.

The bowls are surprisingly equal in their type numbers, except for the rare type 16, where the Tomb Card gives a type 16K4 which is not shown on the BPI catalogue.

iii) The Tomb Card refers curiously to only six scarabs, whereas nine are published in BPI Pl.X,79-87, and the same nine are present in the collection.

iv) The Tomb Card refers to fragments of a bronze bangle; the object illustrated here is complete, if this is the same object.

v) A number of small objects are not present, including the toggle pins illustrated in BPI IX,48-50, the beads and the fine flint points.

F561 Institute of Archaeology, London
(e.v.30/ BPI Pl.LXIX)

The tomb location is not shown on Petrie's map of the cemetery, BPI Pl.LXIV. The bearing given on the Tomb Card is ambiguous since the survey reference point to which the bearing was taken seems to have been omitted. The bearing should read either 'Pt: I 138°' in which case the tomb would lie close to tomb 547, or it should read 'Pt: I 38°', in which case it would lie between tombs 566 and 564. The latter reading has here been adopted. (See Fig.17)

PLAN

No plan or measurements are given for this grave since it appears to be simply an isolated unprovenanced group of material some 24" (60 cms.) below the surface.

CONTENTS

BPI Pl.LXIV states that the group consisted of three pots only and that it was not in any way related obviously either to a burial, a grave or a tomb. The three vessels are one piriform juglet, one dipper juglet and a single-handled jug. There were no small finds.

The presence of the piriform juglet is to be noted as the only occurrence of this form in the cemetery, here clearly not provenanced.

POTTERY

Juglets

Fig.42.1 Piriform juglet (e.v.30/2 F561B 60N4)
Max. height 18.4 cms. Max. width 11.6 cms.

Form. Everted rim, narrow neck, sloping shoulder, slight carination, marked button base, double coil handle from rim to shoulder WITH button.

Ware. Soft orange ware, grey slip, traces of vertical burnish.

Fig.42.2 Dipper juglet (e.v.30/1 F561C 51G3')
Max. height - Max. width 5.6 cms.

Form. Neck missing, elongated body, rounded base, handle missing - broken in antiquity.

Ware. Orange ware, heavily concreted.

Jugs.

Fig.42.3 Single handled jug (Not catalogued F561A 38M)
Max. height - Max. width 20.0 cms. (without handle)

Form. Neck missing, wide body, rounded shoulder, base missing, single handle on shoulder.

Ware. Brown ware with grey core, buff finish, turning marks below shoulder.

CATALOGUE ANOMALIES

i) The multiple cataloguing of this tomb again illustrates the confusion which can arise. The Tomb Card mentions a total of three objects found; a one handled jug (38M), a dipper juglet (51G3') and the piriform juglet (60N4). The Tomb Card further indicates that all three were removed. The Corpus accords with this, citing F561 as having an example of each of the three types. The BPI catalogue however, Pl.LXIX, whilst giving only three vessels for the tomb makes a scribal error in changing the dipper juglet 51G3' into the short Late Bronze Age/Iron Age juglet 50G3' which it patently is not.

Further to this error, the Institute catalogues only two of the three vessels, whereas all three are currently housed in the collection.

The group has been restored as excavated.

F563 Fitzwilliam Museum, Cambridge
(- 1929 BPI Pl.XIV & XV)

The tomb is located on the western edge of the cemetery (see Fig.17).

PLAN (Fig.43a)

The plan is after Petrie BPI Pl. XVIII, with the section reconstructed from the depth measurements given with the plan. The tomb is a stepped shaft and chamber tomb, the dromos having six steps and approaching from the north. The roof is speculatory. A peculiarity of this tomb is the considerably widened lowest step.

CONTENTS

Rarely, it seems that skeletal remains were found in the tomb, lying west to east head to the west. No other details are given. The accompanying grave goods included a group of seven vessels, comprised of one bowl, one lamp, two cylindrical juglets and two storage jars, inside one of which was a dipper juglet. Small finds included fragments of a toggle pin, a crystal scarab and what is described as a "Hunting Scarab". The only objects preserved are the bowl, the dipper juglet and the carved scarab.

POTTERY

Bowls

Fig.43b.1 Small carinated bowl (22-1929 F563E 18J12)
Max. height 7.6 cms. Max. width 18.0 cms.

Form. Everted rim, vertical upper wall, marked carination, convex lower wall, turned disk base.

Ware. Orange brown ware, clear turning marks from below shoulder to base.

Juglets

Fig.43b.2 Dipper juglet (18-1929 F563C 51G10)
Inside storage jar F563B 43V6)
Max. height 20.6 cms. Max. width 8.3 cms.

Form. Rim missing, neck slightly narrowing, rounded wide shoulder, convex tapered sides to slightly pointed base.

Ware. Hard reddish grey ware; surface worn.

SCARABS

Fig.43c.1 (12-1929 BP XII,125)
Length 2.7 cms. Breadth 1.9 cms. Height 1.2 cms.
Limestone. A lion rearing upon the back of a gazelle which it is attacking. Petrie (BPI p.4) maintains that the form is clumsy and thus degraded.

CATALOGUE ANOMALIES

i) The BPI catalogue, Pl.XIV, mentions fragments of a pin and of bone inlay illustrated on Pl.XI. The Tomb Card mentions the pin but not the bone inlay, and thus it

may be out of place in the BP catalogue. It is not preserved with the collection.

ii) The BPI catalogue mentions only one scarab - the carved scarab Fig 43c.1. The Tomb Card adds another plain crystal scarab but since these were so infrequently catalogued in BPI, it does not appear there. It is currently missing.

iii) Catalogue variants include the bowl, typed as 18J12 on the Tomb Card, but 18J14 in BPI and the Corpus. The storage jars, 43V6 on the Tomb Card, become 43E5 in BPI

F564 University Museum, Manchester.

(BPI Pl.XIV & XV)

The tomb lies in the western central part of the cemetery near tombs 551, 554 and 566. (See Fig.17).

PLAN

There is no extant plan of this tomb, neither on the Tomb Card nor in the BPI catalogue. From the plan of the cemetery on BPI Pl.LXIV, it is noted that this tomb is one of the bilobate chambered tombs; it lies very close to others of that type. The reason why such an important tomb has no plan is that large and complex tombs were never planned on the Tomb Card; a separate plan was made and then illustrated in the BP report. Presumably this plan has been lost.

CONTENTS

No skeletal remains are recorded; the tomb equipment was relatively rich, with twenty-one vessels comprised of ten assorted bowls, six cylindrical juglets, one dipper juglet, two storage jars and two lamps. Eight of the vessels are marked NTH, and eleven are currently housed in the collection. The missing two vessels are a fragmentary cylindrical juglet and a hand-made lamp.

The recorded small objects include two daggers, four pins, twelve scarabs and two calcite vases. Of these objects, the daggers and pins, together with dagger fittings are currently in the collection. Only one of the calcite vases is now present but there are fifteen scarabs preserved.

POTTERY

Bowls

Fig.44.1 Small plain bowl (? F564U 15G)
Max. height 4.0 cms. Max. width 11.9 cms.

Form. Plain rim, plainly convex walls, flat unturned base.

Ware. Orange ware; traces of red slip inside and out. Used as a lamp in three chipped areas around the rim - soot blackened.

Fig.44.2 Small carinated bowl (8633 F564K 18J11)
Max. height 7.5 cms. Max. width 14.6 cms.

Form. Everted rim, slightly concave upper wall, round shoulder, convex lower wall, turned disk base.

Ware. Fine orange ware; dull red finish, turning marks from below rim to base.

Fig.44.3 Small carinated bowl (8635A F564H 18J11)
Max. height 8.0 cms. Max. width 16.0 cms.

Form. Everted rim, slightly concave upper wall, round shoulder, turned disk base.

Ware. Soft orange ware; buff finish, turning marks from shoulder to base.

Fig.44.4 Small carinated bowl (? F564G 18J10)
Max. height 7.0 cms. Max. width 16.5 cms.

Form. Everted rim, upright upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Buff ware; grey-buff finish.

Fig.44.5 Small carinated bowl (8602A F564F 18J7)
Max. height 6.8 cms. Max. width 17.0 cms.

Form. Everted rim, upright upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Buff ware, light grey finish, turning marks from below shoulder to base.

Fig.44.6 Small carinated bowl (8630A & B F564M 18J6)
Max. height 6.9 cms. Max. width 17.1 cms.

Form. Everted rim, upright upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Brown ware, buff finish; turning marks below shoulder to base.

Fig.44.7 Carinated bowl (8627 F564D 22B4)
Max. height 10.9 cms. Max. width 20.0 cms.

Form. Plain rim, convex upper wall, rounded shoulder, convex lower wall, turned disk base.

Ware. Soft orange ware, grey-buff slip, turning marks below shoulder around base. Surface worn.

Fig.44.8 Carinated bowl (8626 F564T 18J12)
Max. height 12.1 cms. Max. width 23.1 cms.

Form. Everted rim, upright upper wall, carinated shoulder, convex lower wall, turned ring base.

Ware. Buff ware, very worn; buff-red finish turning marks below shoulder.

Fig.44.9 Large carinated bowl (8628 F564E 23K8)
Max. height 17.3 cms. Max. width 36.4 cms.

Form. Plain rim, upper wall played outwards, overfolded carination, convex lower wall, turned ring base.

Ware. Soft orange-brown ware; drab buff-red finish, very worn surface.

JUGLETS

Fig.44.10 Dipper juglet (8632 F564C 51G4)
Max. height 17.0 cms. Max. width 6.5 cms.

Form. Rim broken, narrowed neck, marked shoulder, convex tapering sides, rounded base. Single coil handle from below rim to shoulder.

Ware. Red ware; traces of buff slip.
Vertically burnished.

LAMPS

Fig.44.11 Single spouted lamp (8601 F564J 91A1)
Max. height 5.0 cms. Max. width 13.2 cms.

Form. Single spout, pinched; nozzle lightly folded; plain rim with slight carination on rounded wall. Base rounded.

Ware. Light grey ware; light grey finish; soot burning marks. Bottom scraped to form shape of base to near rim.

SCARABS.

Fig.45a.1 (8622 BPI Pl.XII,134)
Length 1.1 cms. Breadth 0.9 cms. Height 0.7 cms.
Steatite, yellow. Roughly carved geometric design with single twist design centre.

Fig.45a.2 (8617 BPI Pl.XII,128)
Length 1.2 cms. Breadth 0.8 cms. Height 0.5 cms.
Steatite, white. Quadruple hooked scroll design.

Fig.45a.3 (8623 BPI Pl.XII,135)
Length 1.4 cms. Breadth 1.0 cms. Height 0.6 cms.
Steatite, white; traces of green glaze?
Geometric design; single loop design centre.

Fig.45a.4 (8622 BPI Pl.XII,130)
Length 1.4 cms. Breadth 1.0 cms. Height 0.6 cms.
Steatite, yellow. Decorative 'cross' motif; uraeus in each of the four quarters.

Fig.45a.5 (8616 BPI Pl.XII,127)
Length 1.4 cms. Breadth 1.0 cms. Height 0.6 cms. Steatite, yellow. Horned animal walking to right on grassy ground; cross hatching on body; lines at neck; sign over back.

Fig.45a.6 (8619 BPI Pl.XII,132)
Length 1.7 cms. Breadth 1.2 cms. Height 0.8 cms. Steatite, yellow. Interlocked double scroll design terminating in signs.

Fig.45a.7 (8618 BPI Pl.XII,131)
Length 1.7 cms. Breadth 1.2 cms. Height 0.8 cms. Steatite, hard yellow; much decayed green glaze all over the body and seal. Centre: scroll design, flanked by antithetic plant signs.

Fig.45a.8 (8620 BPI Pl.XII,133)
Length 1.8 cms. Breadth 1.2 cms. Height 0.7 cms. Steatite, yellowish. Geometric design flanking triple twist motif.

Fig.45a.9 (8615 BPI Pl.XII,126)
Length 1.8 cms. Breadth 1.2 cms. Height 0.8 cms. Steatite, yellow. Horned animal running to right with head turned back; cross-hatching on body, lines at neck; uraeus above back.

Fig.45a.10 (8613 BPI Pl.XII,129)
Length 1.8 cms. Breadth 1.3 cms. Height 0.8 cms.

Steatite, yellow; with electrum frame. Garbled antithetic lotus design.

Fig.45a.11 (8621 BPI Pl.XII,136)
Length 2.0 cms. Breadth 1.3 cms. Height 0.9 cms.
Limestone, buff. Centre; four concentric circle motifs joined; flanked by double looped design.

Fig.45a.12 (8624D Not catalogued BPI)
Several very worn fragments.
Steatite, soft white. Seal very badly damaged, but including a khepar sign.

Plain

Fig.45a.13 (8614 Not catalogued BPI)
Length 1.0 cms. Breadth 0.7 cms. Height 0.5 cms.
Amethystine quartz. Plain seal, carving light.

Fig.45a.14 (8609A Not catalogued BPI)
Length 1.1 cms. Breadth 0.7 cms. Height 0.5 cms.
Crystal. Plain seal, carving light.

Fig.45a.15 (8608 Not catalogued BPI)
Length 1.3 cms. Breadth 0.8 cms. Height 0.7 cms.
Paste and glaze; with bronze ring.
Seal plain, moulding rudimentary.

BRONZE

Pins.

Fig.45b.1 (8612 B-C Not illustrated BPI)
INCOMPLETE Length 3.8 cms.

Form. Upper shaft with horizontal grooves. Lower shaft plain but point missing.

Analysis. Not available.

Fig.45b.2 (8612 BPI Pl.XI,79)
INCOMPLETE Length 6.4 cms.

Form. Upper shaft missing; lower shaft plain but point missing.

Analysis. Not available.

Fig.45b.3 (8611 BPI Pl.XI,77)
Length 9.2 cms.

Form. Upper shaft square section twisted; lower shaft plain. Bent out of true.

Analysis. Not available.

Fig.45b.4 (8610 BPI Pl.XI,78)
INCOMPLETE Length 14.7 cms.

Form. Upper shaft vertical but slightly tapering to eye; lower shaft plain; point missing.

Analysis. Not available.

Daggers

Fig.45b.5 (8606 BPI Pl.XI,76)

Max. length 14.6 cms. Max. width 5.0 cms.

Form. Triangular blade with double sided mid-rib. Only one rivet remaining but probably once four. No tang.

Analysis. Not available.

Fig.45b.6 (8605 BPI Pl.XI,75)

Max. length 19.6 cms. Max. width 5.0 cms.

Form. Concave edges, rounded point, ovoid section, rectangular sectioned tang.

Analysis. Not available.

Miscellaneous

Fig.45b.7 (8624 A & B BPI Pl.XI,80)

Approx. 4.5 cms. in length.

Form. Two fittings of bronze with single rivets; the fittings are themselves riveted on to an ivory cross-piece, now fragmented. The catalogue in Manchester describes these as 'bronze and ivory hilt-fragments'.

Analysis. Not available.

ALABASTER

Fig.45a.8 Small single handled vase (8604 BPI Pl.XI,81)
Max. height 8.2 incomplete. Max. width 3.9 cms.

Form. Rim missing, neck narrowed, bag shaped body, small flat base. Single handle from shoulder to rim ? missing. Body shape oval.

BEADS

Not illustrated

(8607 BPI Not illustrated)
Forty five assorted beads made up as follows:

a) 5 carnelian beads, barrel shaped.

b) 32 carnelian beads, circular.

c) 2 amethystine quartz beads, circular, large.

d) 3 crystal beads, circular.

CATALOGUE ANOMALIES

1) The cataloguing of the tomb reveals the usual discrepancies and omissions.

Tomb
Card: 15G, 16K, 18J6,7,10,11,12, 22B4, 23K8, 43T4 51G4, 74011,12 91A4

BPI: 15G, 18J8,9,12,13,K3, 22B4, 43F3, 51G4,4', 74011,14,15 91A1,4

Corpus: 18J8,9,12,13,14,K3, 22B4, 23K12, 43F3, 51G4' 74011,14,15

The most obvious inconsistencies are to be found in the BPI catalogue, which omits the type 16 and the type 23

bowls altogether. It also adds an extra dipper juglet 51G4' which certainly was never found in this group, nor is it preserved.

ii) The Tomb Card has a late ink addition to the effect that the tomb contained twelve scarabs. The BPI catalogue only records and illustrates eleven. The collection preserves fifteen. The discrepancy undoubtedly arises as follows. There were eleven whole carved scarabs in the tomb, and one badly fragmented which was not illustrated or recorded in BPI. The remaining three scarabs are plain scarabs which are rarely recorded.

iii) Of the two recorded and illustrated calcite vases in BPI, one is now missing. It is likely that this vessel is still in the collection in Manchester, Cat. No. 8603. The collection is only now being put in good order, with the result that several pieces are yet to be located. The unlocated cylindrical juglet 8637A might be F564Q (?).

565 Institute of Archaeology, London.
(One piece, British Museum)
(e.v.11/ BPI Pl.XIV & XV)

The tomb does not appear on the plan of the cemetery BPI Pl.LXIV but from its bearing on the Tomb Card given as 76' 0", 13° from Point 1, it would seem to lie on the western edge of the cemetery between tombs 566 and 570, near tomb 567. (See Fig.17)

PLAN (Fig.46)

The plan is taken from BPI Pl.XVIII after Petrie. It is a bilobate tomb with a four-stepped dromos. The section is irrecoverable as the heights are not given. The constricted entrance into the chamber acts as a 'doorway'. The dromos, as usual, enters from the north the bearing of which is given on the Tomb Card.

CONTENTS

The tomb is described as disturbed and no skeletal remains are recorded. As for the accompanying grave goods, this group is among the most difficult to piece together, being fraught with contradictory information. The Tomb Card states that fifteen vessels were found in the tomb, one of which is not described at all (F5650, marked NTH). Of the remaining fourteen, four are marked NTH, leaving a possible total of ten. Nine are currently catalogued at the Institute of Archaeology, one of which is missing, with one further vessel in the collection which is not registered, so that one vessel is unaccounted for. The uncollected pieces are: one bowl, three cylindrical juglets,

one storage jar and one other vessel mentioned above.

Together with the pottery, the Tomb Card mentions toggle pins, bone inlay and two kohl pots. It omits (?) to mention a large group of some sixteen scarabs and seals published under this tomb number fourteen of which are still available. The toggle pins are now missing, but the bone inlay and one of the kohl pots are to be found in the British Museum.

POTTERY

Bowls

Fig.47.1 Small carinated bowl (e.v.11/4 F565G 18J10)
Max. height 5.8 cms. Max. width 13.3 cms.

Form. Everted rim, upper wall vertical, slight carination, lower wall becoming horizontal to base, turned disk base.

Ware. Soft orange ware with buff finish, turning marks below shoulder.

Fig.47.2 Small carinated bowl (e.v.11/4 F565F 18J13)
Max. height 6.9 cms. Max. width 17.8 cms.

Form. Pronounced everted rim, upper wall vertical, carinated shoulder, lower wall convex, turned disk base.

Ware. Orange with grits, buff slip, turning marks from below shoulder to base.

Fig.47.3 Small carinated bowl (not registered F565P 16K3)
Max. height ? Max. width 15.8 cms.

Form. Rim missing, upper wall concave, carinated shoulder, convex lower wall, turned ring base.

Ware. Dark brown ware, drab buff/brown finish.

Fig.47.4 Carinated bowl (e.v.11/3 F565M 18J12)
Max. height 9.4 cms. Max. width 18.2 cms.

Form. Everted rim, high vertical upper wall, sharp carination, sloping lower wall, turned disk base.

Ware. Brown ware, turning marks from below shoulder to rim. Breaks at the rim make it clear that the evertion of the rim was effected by folding the clay outwards and over on itself.

Fig.47.5 Large flaring carinated bowl (e.v.11/1 F565C 23J1)
Max. height 11.6 cms. Max. width 28.2 cms.

Form. Slightly everted rim, upper wall concave, slight flare in carination, lower wall convex, turned ring base.

Ware. Orange ware, worn buff finish, turning marks below shoulder to base, warped.

Juglets

Fig.47.6 Cylindrical juglet (e.v.11/5 (6?) F565K 74011)
Max. height 12.0 cms. Max. width 9.4 cms.

Form. Slightly thickened rim, narrow neck, slightly angled shoulder, slightly convex sides, slightly rounded base, double coil handle from rim to shoulder WITH button.

Ware. Brown grey ware, worn light grey surface, (slip?) with possible traces of vertical burnish (?)

Fig.47.7 Cylindrical juglet (e.v.11/7 F565N 74016)
Max. height 12.0 cms. Max. width 11.0 cms.

Form. Slightly thickened everted rim, narrow neck, angular shoulder, convex walls, base missing, double coil handle from rim to shoulder WITHOUT button.

Ware. Dark grey ware with grey brown finish, marks of turning at base and from half way down the walls. Internal deposit.

Jugs

Figs47.8 One handled jug (e.v.11/8 F565A 34B5)
Max. height ? Max. width 20 cms.

Form. Marked trefoil mouth with everted rim, wide neck, rounded shoulder, lower part broken but

with small flat base, single strap handle from rim to shoulder.

Ware. Orange ware, light grey surface.

Lamps

Fig.47.9 Single spouted lamp (e.v.11/9 F565J 91A6)
Max. height 3.9 cms. Max. width 11.9 cms.

Form. Shallow circular body with slight folding at nozzle, rounded walls to rounded base, burning marks at nozzle.

Ware. Orange ware, patchy dark red finish.

SCARABS

Fig.48a.1 BPX.98 L.0.8 B.0.7 H.0.5
Scaraboid - black steatite. Field divided into three, CENTRE: sundisk, nefer sign and the hieroglyph  . EITHER SIDE: nefer sign. Left hand also includes a broken indeterminate sign.

Fig.48a.2 BPX.99 L.0.9. B.0.7. H.0.4.
Scaraboid - black steatite. Winged disc surmounting two serpents, between which is an empty cartouche and an indeterminate hieroglyph  .

Fig.48a.3 BPX.107 L.1.1. B.0.8. H.0.5.
Limestone with gold frame - presently more damaged than when excavated. Central scroll pattern

surrounded on the three surviving sides (and on the fourth) by  sign.

Fig.48a.4 BPX.101 L.1.3. B.1.0. H.0.6.
Limestone ? Middle Kingdom scroll pattern inside which is a cartouche containing two signs Ra and Nefer but better read Nefer, Ra.

Fig.48a.5 BPX.100 L.1.4. B.0.9. H.0.6.
Black steatite. Scroll pattern around the circumference inside which is an oval sundisk, nefer sign, the possibly neb sign.

Fig.48a.6 BPX.105 L.1.5. B.1.1. H.0.7
Limestone. Browsing horned animal (oryx?)
The unusual tail appears to bear a resemblance to a rearing uraeus.

Fig.48a.7 BPX.103 L.1.7. B.1.2. H.0.8.
Limestone. Full frontal nude female, conforming to certain Eqyptian types and may resemble Hathor.

Fig.48a.8 BPX.110 L.1.7. B.1.2. H.0.7.
Limestone. Rows of the hieroglyph  reproduced for a pattern motif.

Fig.48a.9 BPX.102 L.1.8. B.1.2. H.0.8.
Limestone. Khepер beetle with sundisc above, flanked by uraei. Below are two nefer signs

flanked by the hieroglyph  (possibly intended to be K!). Below is a second khepер beetle flanked by ankh signs. The reading has no meaning.

Fig.48a.10 BPX.109 L.1.9. B.1.3. H.0.8.
Limestone. Single rope border within which are three vertical panels. The centre has t signs alternately with the hieroglyph  . The remainder is a jumble of garbled hieroglyphs arranged in symetrical order. The reading has no meaning.

Fig.48a.11 BPX.104 L.1.9. B.1.3. H.0.7.
Limestone. Upper portion unreadable.
Rearing uraeus between two schematically represented plants below which is the t sign.

Fig.48a.12 BPX.97 L.2.2. B.1.7. H.1.0.
Limestone. Miscellaneous hieroglyphs without any connected sense; ankh signs, the papyrus clump, t signs, the goose sign, a seated man with an upraised hand, leg hieroglyph with the value 'b' with what seems to be an appended bud protruding from the foot, and a chameleon (?).

Fig.48a.13 BPX.108 L.2.3. B.1.5. H.1.0.
Limestone. What appears to be an offering stand to the left of which is a cartouche containing

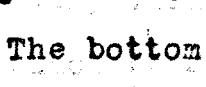
the signs  . There are similar signs to the right  . Below is the t sign, flanked by vultures. Below are two arched uraei between which are the three hieroglyphs  . The bottom has a sign which appears to be the nub sign.

Fig.48a.14 BPX.96 L. ? B.1.0. H.0.7.
Translucent amethyst, broken. Scroll border with the symbol  . No significance or equation is possible.

FAIENCE

Small vase

See Fig.48b.1 (British Museum Western Asiatic Dept L797)
(The vase illustrated is not the original shape of this piece since the piece is completely fragmented. The shape is the type of vase that the fragments once described and the design is taken from the fragments and superimposed upon this outline.)
The vessel was green glazed and the paint was brown.

BONE INLAY

Fig.48b.2 (British Museum Western Asiatic Dept. L771)
Two small fragments of bone inlay. One has a lattice design, the other a series of ring and dot compass designs.

CATALOGUE ANOMALIES

i) The carinated bowl F565C (e.v.11/1) which is marked with the type number 23J1 on the Tomb Card is also marked on the base very clearly with the number 73J1. Fortunately this cannot be correct since type 73J1 is an Iron Age black lustrous juglet. The error was originally present on the Tomb Card but has been altered to 23J1 which this bowl clearly fits. Nevertheless it has not prevented the presence of a 73J1 in the BPXV catalogue which is totally erroneous.

ii) A discrepancy arises in the number of vessels actually registered at the Institute of Archaeology. Firstly nine are registered but only eight are present. The missing object is e.v.11/5 described as a small carinated bowl. This number, however, is also inscribed on a cylindrical juglet and therefore, the catalogued vessel that is missing is e.v.11/6, a cylindrical juglet. Since only two cylindrical juglets were brought back, two are catalogued and two are present; then the missing object is the e.v.11/5 or 6 bowl. To compound the confusion, there is one extra bowl which is unregistered but in the collection. The ink marking gives it as 565L but the Tomb Card maintains that this object is a storage jar. Pencil markings underneath the ink clearly show the object to be 565P, the bowl 16K3. (It may be that this is the missing bowl e.v.11/5 or 6.)

iii) There are sixteen scarabs and scaraboids found in this tomb according to the BPI catalogue, Pl.XIV. These sixteen are illustrated as belonging to this tomb on Pl.X,96-111. Fourteen of these are currently held at the Institute of Archaeology, omitting nos. 106 and 111. This is the largest collection of scarabs in any of the tombs being discussed yet astonishingly, no record appears of this cache on the Tomb Card. The singular omission of this find is to be viewed with great suspicion. To compound the error, the Institute collection has either lost or does not have the registration cards for these scarabs, one of which is the interesting "cylinder seal", missing altogether from the collection, BPI Pl.X,111.

iv) One of the two faience pots mentioned on the Tomb Card is missing as are the three toggle pins of Pl.IX. On the other hand, the BP catalogue Pl.XIV records no faience at all for this tomb. Further, it records a number of "flints" with the illustration reference to Pl.IX, but that plate records more correctly that these flints belong not to F565 but to F596.

v) There are the usual discrepancies between the typing of pots on the Tomb Card, the Corpus and BPI. Notable among these whimsical variations is the bowl F565P, typed as 16K3 on the Tomb Card, but 16K4 in the BP catalogue and the Corpus. Other bowls typed on the Tomb Card as 18J2 and 18J13 become 18J4 and 18J14 in the Corpus and BP.

F566 Rockefeller Museum, Jerusalem
(I4386-4393 & 4423 BPI.PlXIV & XV)

The tomb is situated on the west side of the cemetery near tomb 564. (See Fig.17)

PLAN (Fig.49)

The plan and the section are reconstructed from the sketch and the measurements given in BPI Pl.XVIII. The roof is conjectural since undoubtedly the tomb roof had collapsed before excavation. The plan is that of a bilobate tomb with the usual six steep stepped dromos entered slightly to the west of north.

CONTENTS

No skeletal remains are recorded. The grave goods consisted only of pottery, thirteen vessels in all, made up of three bowls, two cylindrical juglets, four storage jars, two dipper juglets and two lamps. Of this group, one cylindrical juglet, one lamp and two storage jars are marked NTH. Apart from the other two storage jars of the group which are missing presumed lost, the remaining seven vessels are present in the Rockefeller Museum collection.

POTTERY

Bowls

Fig.50.1 Small carinated bowl (I4387 F566G 18J4)
Max. height 7.7 cms. Max. width 16.1 cms.

Form. Everted rim, vertical upper wall, slightly rounded shoulder, lower walls slightly convex to turned but flat disk base.

Ware. Soft grey-brown ware, roughly made with variable carination.

Fig.50.2 Small carinated bowl (I4388 F566H 18J9)
Max. height 7.5 cms. Max. width 18.1 cms.

Form. Everted rim, upper wall slightly angled outwards to shoulder, marked carination, convex lower wall, turned disk base.

Ware. Fine hard red ware; dark red finish.

Fig.50.3 Large carinated bowl (I4389 F566J 22G3)
Max. height 11.7 cms. Max. width 24.7 cms.

Form. Plain rim, upper wall almost vertical, carination rounded, convex lower wall, turned ring base. Two double strand residual ledge handles vertically fixed are attached to the body at the rim diametrically opposed to one another.

Ware. Hard orange ware, slight buff slip, vertically burnished inside on lower surface.

Fig.50.4 Cylindrical juglet (I4386 F566L 74016)
Max. height 12.9 cms. Max. length 10.7 cms.

Form. Slightly thickened everted rim, narrow neck, round shouldered, slightly round base, single strap handle from rim to shoulder.

Ware. Medium hard red ware, traces of dark red slip and of vertical burnish.

Fig.50.5 Dipper juglet (I4392 ? F566F 51G11)
(Inside storage jar F566B, 43T4)
Max. height 18.1 cms. Max. width 6.8 cms.

Form. Rim thickened internally, pinched mouth, narrow neck, marked shoulder, convex tapering sides, rounded base, single coil handle from just below rim to shoulder.

Ware. Buff ware, light grey slip - worn.

Fig.50.6 Dipper juglet (I4391 F566E 51G11)
Max. height 19.3 cms. Max. width 6.8 cms.

Form. Plain rim, slightly pinched mouth, narrow neck, rounded shoulder, convex tapering sides, base pointed to a nipple, single coil handle from below rim to shoulder.

Ware. Soft light red ware, buff slip (worn), traces of vertical burnish.

Fig.50.7 Single spout lamp (I4390 F566K 91A1)
Max. height 4.5 cms. Max. width 12.3 cms.

Form. Single spout, slight folding towards nozzle, rounded walls to rounded base.

Ware. Soft red ware.

CATALOGUE ANOMALIES

i) The BPI catalogue, Pl.XV, omits the bowl F566G, 18J4.

ii) The usual change takes place in the typing of the storage jars. The Tomb Card gives the type 43T4 four times, whereas the BPI catalogue gives 43E4 and F3.

F567 Institute of Archaeology, London.
(e.v.45/ BPI Pl.XIV & XV)

The tomb lies in the western area of the cemetery (see Fig.17).

PLAN (Fig.51)

The tomb is a shaft and chamber tomb, the shaft being a vertical central opening and the chamber a double chamber with one part stepped down. With regard to the reconstruction of this tomb, the measurements given in BPI Pl.XIV imply that both chambers lie to the south of the shaft, but the sketch plan and section on the back of the Tomb Card clearly show one chamber to the north and the other to the south of the shaft. The width of the shaft and the south chamber are not given on the Tomb Card. The widths used in the above reconstruction are taken from BPI Pl.XIV although even this measurement of 65" is queried in the report.

CONTENTS

There is no record of any skeletal remains with this tomb. According to both the tomb card and the BPI catalogue the accompanying pottery is a group of three cylindrical juglets, one dipper juglet and one jar, together with three scarabs and a number of beads. Two toggle pins are also mentioned on the Tomb Card though the number is queried; two are illustrated in BPI Pl.IX.

Of the pottery very little is now available. Of the total five vessels, the dipper juglet is marked NTH on the

Tomb Card, leaving four. Two cylindrical juglets are registered at the Institute of Archaeology leaving one cylindrical juglet unaccounted for; also the jar or jug, once present at the Institute, can no longer be located.

The small objects have fared better; all three scarabs are still available; so also are the toggle pins and one bead.

POTTERY

Juglets

Fig.52a.1 Cylindrical juglet (e.v.45/3 F567B 74011)
Max. height 13.3 cms. Max. width 10.1 cms.

Form. Neck broken; slightly everted rim, narrow neck, rounded shoulder, tapering sides, slightly rounded base; double coil handle WITHOUT button.

Ware. Soft orange ware, buff slip, surface badly decayed but traces of vertical burnish.

Not illustrated Cylindrical juglet (e.v.45/3 F567 7403)
(Present but totally fragmented.)

Form. Neck missing, rounded shoulder, base almost flat, handle missing.

Ware. Soft orange ware; buff slip.

Jugs

Not illustrated — Single handled jug (e.v.45/1 F567A 38B2)
(Catalogued at Institute but now missing.)

Form. Round mouthed jar (sic I.A. catalogue) with short neck, everted rim and one handle on shoulder. The vessel is in fact a jug.

SCARABS

Fig.52b.1 — (e.v.45/6 BPI Pl.X,91)
Length 1.2 cms. Breadth 0.9 cms. Height 0.5 cms.
Steatite, yellowish. ABOVE: papyrus plant.
BELOW: interlocking spirals.

Fig.52b.2 — (e.v.45/5 BPI Pl.X,90)
Length 1.3 cms. Breadth 0.9 cms. Height 0.5 cms.
Steatite, whitish. A series of interlocking spirals enclosing two 井 signs (?).

Fig.52b.3 — (e.v.45/4 BPI Pl.X,89)
Length 2.0 cms. Breadth 1.3 cms. Height 0.9 cms.
Faience, white. Kneeling deity with human body and falcon's head holding in the left and right hands a standard bearing uraei (?). See 559 Fig.41a.1.

BEADS

Fig.52b.4 — BPI Pl.IX,52
One large striated faience bead, togehher with

a second of the same size not illustrated, without striations (BPI Pl.IX,51) and thirty three small faience ring beads (BPI Pl.IX,53). (Not illustrated). All show traces of green glaze.

BRONZE

Pins

Fig.52c.1 BPI not illustrated.
Max. length 6.8 INCOMPLETE

Form. Vertical upper shaft, square sectioned and twisted; top missing. Lower shaft plain but bottom missing.

Analysis. BM567/2 Copper-tin alloy.
Quantitative analysis: Table 1. No.20.

Fig.52c.2 BPI Pl.IX,55
Max. length 9.5 cms. INCOMPLETE

Form. Upper shaft missing but apparently plain; original length probably 15.9 cms. according to BPI.

Analysis. BM567/3 Copper-tin alloy.
Quantitative analysis not attempted.

Fig.52c.3 BPI Pl.IX,54
Max. length 12.7 cms.

Form. Vertical upper shaft square sectioned and twisted; lower shaft plain and slightly curved.

Analysis. BM567/1 Copper- Arsenic alloy.
Quantitative analysis: Table 1. 13.

CATALOGUE ANOMALIES

i) The main problem centres upon the appearance in the Institute of Archaeology catalogue of a dipper juglet e.v.45/2, which is complete.

From the Tomb Card it can be noted that there was indeed one dipper juglet found in this tomb, but the Tomb Card clearly adds the suffix NTH, implying that it was never brought back with the collection. Further, the Corpus number given to this vessel is incomplete (51G) lacking the final digit, which implies that the vessel was too fragmented to be fully typed.

A close examination of e.v.45/2 shows the original tomb registration number as F567K. The third digit of the number looks like a 7. However there is no vessel 567K on the Tomb Card. F569K, on the other hand, according to its Tomb Card, is a dipper juglet of the type 51G7, a mark which occurs on the dipper in question but tomb 569 has no dipper in the IA collection. It is therefore proposed to omit this vessel e.v.45/2 from tomb F567 and to restore it to tomb F569. There is no other tomb of the 560 series of which the registration mark K is a dipper juglet.

ii) The Tomb Card records only two toggle pins and only two are illustrated in BPI Pl.IX, but the collections at the Institute of Archaeology preserve the fragments of three pins. The third pin is rather more fragmentary than the

other two and it may be for this reason that it was never included in the catalogues, though it should be pointed out that the number two on the Tomb Card has a query next to it.

F569 Institute of Archaeology, London.
British Museum, London (two pieces).
Rockefeller Museum, Jerusalem (one piece).
(e.v.5/ BPI Pl.XIV & XV)

The tomb lies on the western side of the cemetery (see Fig.17)

PLAN (Fig.53)

The plan is taken from Petrie's plan BPI Pl.XVIII. It shows a bilobate chamber with dromos. The dromos has seven steps in all, constricted near the bottom of the stairway to form a 'doorway' into the chamber. The chamber itself is approached more or less from a northerly direction, the axis of the dromos bearing 167°, which makes it slightly west of north. No heights are given for the steps or the roof, so that the tomb lacks a section.

CONTENTS

No note is made of any skeletal remains in the tomb, though the tomb itself is comparatively large; it contained twenty five vessels in all, comprised of nine bowls of various types, three cylindrical juglets, three dipper juglets, three jugs, two lamps and five storage jars. The small finds included a bronze dagger, a twisted toggle pin, five scarabs and at least one gypsum vase, together with fragments of bone inlay.

Of the twenty five vessels, five are marked on the Tomb Card NTH, leaving twenty. Fourteen are currently catalogued in the IA catalogue. One is catalogued at the Rockefeller Museum, a further vessel has appeared catalogued incorrectly in the Institute catalogue under tomb F567, and yet another at the Institute has not been catalogued at all. The total of vessels accounted for therefore is seventeen, leaving three vessels missing, at least one of which is a storage jar and one other a cylindrical juglet described as 'fragments only'.

POTTERY

Bowls

Fig.54.1 Small globular bowl (e.v.5/6 F569R 26Y)
Max. height 7.4 cms. Max. width 10.8 cms.

Form. Everted rim, globular body, rounded base,

Ware. Orange brown ware, rounded base poorly shaped. This is a rare piece.

Fig.54.2 Small carinated bowl (e.v.5/4 F569X 18K6)
Max. height 6.1 cms. Max. width 15.4 cms.

Form. Flaring everted rim, sharply carinated to vertical upper wall, and convex lower wall. Turned disk base.

Ware. Coarse brown ware heavily concreted, thick buff inside.

Fig.54.3 Small carinated bowl (e.v.5/2 F569Y 23K9)
Max. height 6.8 cms. Max. width 16.6 cms.

Form. Slightly everted rim, upper wall vertical, carination marked, marked disk base.

Ware. Yellowish hard fired ware, turning marks from shoulder to base, base cracked.

Fig.54.4 Small carinated bowl (e.v.5/2 F569Q 18J6)
Max. height 6.9 cms. Max. width 1700 cms.

Form. Everted rim, upper wall slopes outwards to shoulder, marked carination, disk base.

Ware. Brown soft ware with light buff (self?) slip. Turning marks below shoulder.

Fig.54.5 Small (carinated?) bowl (e.v.5/3 F569T 23C2)
Max. height 7.8 cms. Max. width 18.8 cms.

Form. Everted rim, convex body without shoulder, turned disk base.

Ware. Fine hard fired buff ware with interior buff slip. Turning marks from mid wall to base.

Fig.54.6 Small two handled bowl (e.v.5/5 F569F 15N8)
Max. height 6.6 cms. Max. width 16.6 cms.

Form. Plain rim, plain curved walls, disk base, two small diametrically opposed horizontal loop handles.

Ware. Fine dark brown/buff ware, red paint applied on exterior in two chevron bands linked by vertical chevron motifs.

Fig.54.7 Platter type bowl (e.v.5/18 F569D 6C4)
Max. height 13 cms. Max. width 35 cms.

Form. Inside ridge at rim, wide convex walled body without shoulder, turned ring base.

Ware. Orange/brown ware, worn buff slip inside and out, radial burnish on inside, clear turning marks outside from rim to base.

Fig.54.8 Large flaring carinated bowl (e.v.5/1 F569 23C3)
Max. height 15.2 cms. Max. width 30.6 cms.

Form. Everted rim, upper wall slightly splayed, marked flared carination, plain lower wall, turned ring base.

Ware. Hard red ware finely finished, turning marks from shoulder to base.

Juglets

Fig.54.9 Cylindrical juglet (e.v.5/9 F569P 74016)
Max. height 10.4 cms. Max. width 6.4 cms.

Form. Slightly thickened rim, narrow neck, squat body with rounded shoulder, rounded walls and rounded base. Single strand handle WITHOUT button.

Ware. Hard orange ware with yellow buff slip.

Fig.54.10 Dipper juglet (not registered F569W 51G7)
Max. height 17 cms. plus. Max. width 7.1 cms.

Form. Rim and mouth missing, narrow neck, slight shoulder, rounded sides, slightly pointed base, handle broken but single coil to shoulder.

Ware. Orange brown ware, surface badly worn but traces of orange red slip and vertical burnish.

Fig.54.11 Dipper juglet (e.v.5/7 F569M 51G12)
Max. height 18.00 cms. Max. width 6.7 cms.
(Found inside storage jar F569L 43V6)

Form. Rim broken but mouth probably pinched, rounded shoulder and sides, slightly pointed base, single coil handle from below rim to shoulder.

Ware. Gritted soft orange ware, buff grey slip, surface very worn and pitted.

Fig.54.12 Dipper juglet (e.v.5/8 F5690 51G11)
Max. height 19.0 cms. Max. width 7.0 cms.
(Found inside storage jar F569N 43U6)

Form. Wide rim, pinched mouth, very narrow neck, slight shoulder, tapering sides, base damaged, single coil handle from below rim to shoulder.

Ware. Orange ware, red slip and vertical burnish, very worn and patchy.

Fig.54.13 Dipper juglet (e.v.45/2 F569K 51G7)
(Wrongly registered as belonging to tomb 567; this juglet is certainly F569K)
(Found inside storage jar F569J 43V6)
Max. height 19.5 cms. Max. width 7.3 cms.

Form. Pinched mouth, narrow neck, slight shoulder, convex tapering sides, base very slightly flattened, single coil handle from below rim to shoulder.

Ware. Dark brown ware with light buff/grey slip, vertical burnish. Turning marks below shoulder to base.

Jugs.

Fig.54.14 Single handled jug (e.v.5/10 F569B 3804)
Max. height 23 cms. plus. Max. width 20.8 cms.

Form. Mouth missing, narrow neck, wide rounded shoulder, convex walls tapering to turned ring base. One double coil handle on shoulder.

Ware. Hard brown ware, clear turning marks from shoulder to base.

Fig.54.15 Large 'Piriform' Jug (Rockefeller Museum, Jerusalem I4401 F569A 68N4)
Max. height 27.5 cms. Max. width 19.00 cms.

Form. Trefoil mouth, with slight folding; rib below rim, faitly narrow neck, piriform body,

round base, double coil handle from rim to shoulder WITHOUT button.

Ware. Hard red ware, with dark red slip on the exterior, burnished vertically below the shoulder and haphazardly above.

Lamps

Fig.55a.1 Single Spout Lamp (e.v. 5/11a F569S 91A1)
Max. height 4.4 cms. Max. width 13.7 cms.

Form. Single nozzle with folding, rounded walls to rounded base. Burning marks around nozzle.

Ware. Orange brown ware; orange finish.

Fig.55a.2 Single Spout Lamp (e.v. 5/11 F569U 91A1)
Max. height 4.4 cms. Max. width 14.2 cms.

Form. Single nozzle with slight folding; rounded base but slightly flattened.

Ware. Brown ware, buff finish, base roughly smoothed to body.

SCARABS

Fig.55b.1 (e.v.5/17. BPI Pl.XII,124)
Length 1.4 cms. Breadth 1.0 cms. Height 0.5 cms.
Steatite, white; single open twist design flanked by two curved motifs.

Fig.55b.2 (e.v.5/16 BPI Pl.XII,122)

Length 1.9 cms. Breadth 1.3 cms. Height 1.1 cms. Steatite, yellow. Single open twist design with additional lobed cords in corners and with connecting lines (I.A. Cat. "decadent" (?))

Fig.55b.3 (e.v.5/15 BPI Pl.XII,123)

Length 2.2 cms. Breadth 1.4 cms. Height 1.1 cms. Steatite, yellow. Intertwined curvilinear design.

Fig.55b.4 (e.v.5/14 BPI Pl.XII,121)

Length 3.0 cms. Breadth 2.0 cms. Height 1.2 cms. Steatite, discoloured white in bronze setting. Triple vertical inscription; centre: various signs ending in two nefer signs; antithetically flanked by two crowned uraei accompanied by other signs.

Analysis. The bronze setting (without ring) is an alloy of Copper-Tin. BM569/1
Quantative analysis. Table 1. 21.

Not illustrated (e.v.5/13 BPI Pl.XII,120)

Missing from collection. I.A. catalogue describes it as 'Yellow Steatite, clypeus smooth with notches;'. No reading is attempted.

BRONZE

Dagger

Fig.55c.1 (e.v.5/12 BPI Pl.XI,67)

Max. length 20.0 cms. Max. width 4.7 cms.

Form. Flat slightly ribbed tanged blade with concave edges and rounded point - tang incomplete.

Analysis. Not available for analysis.

ALABASTER

Fig.55c.2 Gypsum vase (British Museum, Western Asiatic Dept. L859 BPI Pl.XI,66)

Max. height originally 12.9 cms. Max. width 3.8 cms.

Form. Rim missing but originally everted; narrow neck, oval shaped slender body, flat base, three ribbed handle from shoulder upwards, broken.

Ware. Calcite/alabaster; opaque.

Very badly warped and cracked.

Fig.55c.3 Gypsum vase (British Museum, Western Asiatic Dept. L851, BPI not illustrated or catalogued)

Max. height unknown. Max. width 3.8 cms.

Form. Rim missing, narrow neck, slender body, base missing; simple handle from shoulder upwards - broken.

Ware. Calcite/alabaster but very badly fragmented.

BONE INLAY

Fig.55c.4 Not catalogued at Institute of Archaeology (BPI Pl.XI,68)
A number of fragments of bone inlay with a three line chevron pattern incised.

CATALOGUE ANOMALIES

i) Four dipper juglets are found in tomb 569 according to the Tomb Card, but only two are catalogued in the Institute of Archaeology (e.v.5/7 and e.v.5/8). A further dipper juglet is however present in the Institute collections marked only with the original Tomb Card registration of F569W; clearly it has been omitted from the Institute catalogue in error. The fourth dipper juglet has been found incorrectly registered in tomb 567, but still bearing the markings F569K. (For further information, see tomb 567). It has been restored here.

ii) In the BP catalogue, a number of vessels have been omitted. Most noteworthy is the one handled jug F569A (68N4) which was left in Jerusalem, possibly explaining the omission.

iii) The common alterations are made in BP XV to the storage jar type numbers, the five Tomb Card jars 43V6 being

represented in BPI by the one entry 43E5.

The bowl F569F (15N8) becomes 15N2 in BP, and F569T (23C2) becomes 23C3.

iv) In the British Museum collection there are two very similar gypsum vases assigned to this tomb, but only one is mentioned on the Tomb Card, one in the BP catalogue and only one is illustrated in BPI Pl.XI. The appearance of the second is most puzzling.

F570 Institute of Archaeology, London

(e.v.19 BPI Pl.XIV & XV)

The tomb lies in the centre of the cemetery (see Fig.17). Petrie dates this particular tomb as the earliest within the 500 cemetery on the basis of the scarabs. (See BPI Pl.XV and p.2 paragraph 4.)

PLAN (Fig 56a)

The plan is a rescaled copy of Petrie's own plan in BPI Pl.XVIII. It illustrates a single-chambered tomb with a stepped dromos. Five steep steps of varying shape lead down to the chamber through a constricted 'doorway' in the lower staircase. The roof has been hypothetically reconstructed here according to the use of the term 'chamber' although since no measurement is given to the roof, it would suggest that the roof had already collapsed before excavation.

CONTENTS

Neither a disturbance nor skeletal remains is recorded in the records of this tomb. The grave goods are varied; the pottery totals nine pieces, including two bowls, three cylindrical juglets, two dipper juglets and two storage jars. A possible total of three pins were found, and a number of scarabs, probably eight in all. Small quantities of bone inlay and a number of small beads were also found.

Of the nine possible vessels, one cylindrical juglet and one storage jar are marked NTH. Six are currently

catalogued and present in the Institute collection. Expectedly, the missing vessel is the other storage jar. Seven of the eight scarabs are catalogued at the Institute but only six are currently available.

POTTERY

Bowls

Fig.56b.1 Carinated bowl (e.v.19/2 F570E 18J11)
Max. height 6.8 cms. Max. width 16.8 cms.

Form. Everted rim, vertical above shoulder, carinated shoulder, convex lower wall, turned disk base.

Ware. Soft orange ware with orange self (?) slip. Turning marks below shoulder and around base.

Fig.56b.2 Carinated Bowl (e.v.19/1 F570A 23K3)
Max. height 7.0 cms. Max. width 17.6 cms.

Form. Everted rim, concave above shoulder, rounded shoulder, turned disk base.

Ware. Soft orange ware with buff self slip, turning marks below shoulder to base.

Juglets

Fig.56b.3 Cylindrical juglet (e.v.19/5 F570G 7403)
Max. height - Max. width 10.9 cms.

Form. Incomplete; thickened rim, narrow neck angular shoulder, parallel sides, base missing; double coil handle from rim to shoulder WITHOUT button.

Ware. Soft orange/buff ware; very worn buff slip.

Fig.56b.4 Cylindrical juglet (e.v.19/4 F570B 74011)
Max. height - Max. width 11.0 cms.

Form. Incomplete - handle and neck missing, slightly carinated shoulder, slightly tapering sides, round bottom. Possible remains of a double coil handle.

Ware. Orange ware, surface badly pitted.

Fig.56b.5 Dipper juglet (e.v.19/6 F570H 51G11)
Max. height 13.4 cms. Max. width 6.8 cms.

Form. Rim broken but repaired, short body, rounded base, single coil handle from below rim to shoulder.

Ware. Soft orange ware; remains of dark red slip and burnish.

Fig.56b.6 Dipper juglet (e.v.19/3 F570F 51G5)
Max. height 20.4 cms. Max. width 7.0 cms.

Form. Rim broken, rounded shoulder, rounded base, single coil handle from below rim to shoulder.

Ware. Buff-grey ware with grey self slip. Scoring marks of turning in lowest third.

SCARABS

Fig.57a.1 (e.v.19/7 BPI Pl.VII,3)
Length 1.3 cms. Breadth 0.9 cms. Height 0.6 cms. Limestone, white (IA Cat. 'Faience'). Interlocking scroll pattern.

Fig.57a.2 (e.v.19/12 BPI Pl.VII,8)
Length 1.7 cms. Breadth 1.2 cms. Height 0.8 cms. Steatite, yellow. Above: two nefer signs flanked by the 'T' sign. Centre: above, two udjet signs (eye of Horus), below, two nefer signs flanked by two unreadable signs (possibly the was sceptre ??). Bottom: the nub sign.

Fig.57a.3 (e.v.19/13 BPI Pl.VII,2)
Length 1.8 cms. Breadth 1.2 cms. Height 0.7 cms. Steatite, white. Hooked scroll pattern within which is:- Above: Amen (Imn). Centre: two reeds. Bottom: a seated man with hand raised. The whole group may be a garbled version of the vocative phrase of invocation "O Amen".

Fig.57a.4 (e.v.19/10 BPI Pl.VII,6)
Length 2.0 cms. Breadth 1.5 cms. Height 0.5 cms. Steatite, white. SCARABOID - interlaced loop design.

Fig.57a.5 (e.v.19/9 BPI P.VII,5)
Length 2.4 cms. Breadth 1.7 cms. Height 1.0 cms. Limestone (?) (IA Cat. 'Steatite'): Rope border within which are intertwined patterns.

Fig.57a.6 (e.v.19/8 BPI Pl.VII,4)
Length 2.4 cms. Breadth 1.8 cms. Height 1.0 cms. Steatite, yellow. Standing male figure wearing a headcloth with upraised right arm, holding an unknown missile-like object. Before him is a stooping figure glancing upwards at the object. The significance of the group is unclear. (IA Cat. hazards 'Scene of human sacrifice').

BRONZE

<u>Pins</u>

Fig.57b.1 BPI Pl.VI,1 ? (On the basis of the upper shaft measurement).
Max. length 16.7 cms. INCOMPLETE

<u>Form</u>. Vertical plain upper shaft; plain lower shaft but bottom missing.

Analysis. BM570/2 Copper-tin alloy.
Quantitive analysis Table 1. No. 23

Fig.57b.2 BPI Pl.VI,2 ??? (Hardly similar)
Max. length 17.9 cms.

Form. Vertical plain upper shaft with slightly bulbous top; plain lower shaft with slight curve.

Analysis. BM570/4 Copper-tin alloy.
Quantative analysis Table 1. No.15

Not illustrated Several pin fragments

Analysis. BM570/3 Copper-tin alloy.
Quantative analysis Table 1. No.14.

Not illustrated Several pin fragments.

Analysis. BM570/1 Copper-tin alloy.
Quantative analysis Table 1. No.22

Rings

Fig.57b.3 Scarab ring (not illustrated in BP)
Max. clearance 1.9 cms.

Analysis. BM570/5 Silver.
Quantitative Analysis:-
Largely silver with traces

Copper:	0.9%
Lead:	0.3%
Tin:	0.6%
Arsenic:	0.2%
Iron:	0.02%
Gold:	0.1%

It would seem likely that this ring belongs to the scarab of Fig.57a.1, (BPI Pl.VII,3) since in BPI, the illustration is accompanied by the description 'silver ring'.

BONE INLAY

Fig.57b.4 Several pieces of bone inlay, comprising

a) The 'pylon' design (BPI Pl.VI,3)

b) Horizontal border (BPI Pl.VI,4)

c) Diagonal lines

d) Lattice

BEADS

Not illustrated Sixty four faience beads with the remains of green glaze, together with two small ring-like carnelian beads.

CATALOGUE ANOMALIES

i) The usual variation is noted in the typing of objects from the tomb. The Tomb Card gives the two storage jars as 43T4 and V6. The BPI catalogue Pl.XV gives them as 43E5 and F3.

ii) Some confusion has arisen over the number of scarabs excavated. The Tomb Card states 'two scarabs' and then adds 'in bronze setting.' This must refer to two particular scarabs among a group, with the careless omission of the six others. It cannot refer to the total number from the tomb since eight are mentioned in the BPI catalogue Pl.XIV and that number are illustrated, Pl.VII. Seven are catalogued at the Institute of Archaeology and six are still present

iii) From the Tomb Card it would seem that at least three pins were excavated, since the number is queried. Only two are illustrated in BPI Pl.VI,1 & 2, but it would appear from the analysis of the fragments that there had originally been at least four pins. One extra-ordinary feature however is that the complete pin illustrated BM570/4 is not represented in BPI, if one accepts the identification on the basis of the upper shaft measurement. (This once again throws doubt upon the accuracy of the information of fragments of pins, showing perhaps the less scrupulous attention the pins received both at excavation and later.

iv) The triangular piece of inlay shown in BPI Pl.VI,4 cannot easily be reconciled with the fragments currently published. Lacking explanation, it should be pointed out that the BPI triangular piece, if correct, would be a unique form.

F571 Fitzwilliam Museum, Cambridge

(- 1929 BPI Pl.LXIX)

The tomb is located in the south eastern part of the cemetery, adjacent to point M. (See Fig.17)

PLAN (Fig.58a)

The plan is taken from the sketch and measurements on the reverse of the Tomb Card. Oddly, these measurements are not given in BPI Pl.LXIX as one might have expected. The plan shows a shaft and stepped chamber tomb with the shaft as broad as the chamber. The tomb is singular in that entry is effected from the south, or rather the south east, and not from the north as usual.

CONTENTS

No skeletal remains are recorded. The grave goods included eight vessels in all; they were, three bowls, two storage jars, two cylindrical juglets and one dipper juglet. No small finds are recorded. Five vessels or fragments of vessels are currently housed in the collection. The two storage jars are marked NTH and the dipper is missing.

POTTERY

Bowls

Fig.58b.1 Small carinated bowl (20-1929 F571G 18J19)
Max. height 5.9 cms. Max. width 16.2 cms.

Form. Marked everted rim, upper wall concave to shoulder, rounded shoulder, convex shallow angled walls to turned disk base.

Ware. Light red/buff ware, buff/grey self (?) slip; turning marks from shoulder to base.

Fig.58b.2 Small carinated bowl (19-1929 F571B 18J?)
Max. height 7.3 cms. Max. width 17.2 cms.

Form. Everted rim, straight upper wall angled in to shoulder, slightly overfolded carination at shoulder, convex lower wall to deeply turned disk base.

Ware. Soft red ware, buff finish; turning marks around base

Fig.58b.3 Large carinated bowl (15-1929 F571A 23J1)
Max. height 13.2 cms. Max. width 26.7 cms.
Form. Everted rim, straight upper wall angled outwards to shoulder; marked carination at shoulder, convex lower wall to turned ring base.

Ware. Hard red ware, badly cracked thick red slip on interior; clear turning marks on exterior from shoulder to base.

Juglets

Fig.58b.4 Small cylindrical juglet (19-1929 F571F 740)
Max. height + 6 cms. Max. width 6.5 cms.

Form. Slightly thickened rim, narrow neck, wide marked shoulder, straight sides, base missing, handle missing.

Ware. Soft brown ware, traces of buff/brown slip.

Fig.58b.5 Cylindrical juglet (19-1929 F571H?)
Measurement not available.

Form. Body missing; handle only; lower part of a double coil cylindrical juglet handle.

Ware. Friable orange ware.

CATALOGUE ANOMALIES

1) The cylindrical juglet handle Fig.58b.5 is somewhat of a mystery. It certainly does not belong to Fig.58b.4, and it probably is all that remains of the vessel F571H. However, this fragment of a cylindrical juglet is marked on the Tomb Card NTH. This is believed to be the only example of such a condemned vessel being reprieved.

ii) The small carinated bowls F571B and G, typed 18J and 18J19 on the Tomb Card are listed in the Corpus as 18J14 and 18K4 respectively. The Tomb Card entry for for F571G has been altered from 18J19 to 18K4 but BPI includes only 18K4, omitting the other form 18J14.

iii) The two storage jars F571C & D are typed 43V6 on the Tomb Card and are typed as 43E5 in BPI.

F574 British Museum, London (one piece).
(Once catalogued at Institute of Archaeology, London).
(e.v.39/ BPI Pl.LXIX)

The tomb lies in the south western part of the cemetery. (See Fig.17)

PLAN (Fig.59a)

Although described as a grave with recess in the BPI catalogue, the sketch plan and section together with the Tomb Card description indicate a shaft with two 'alcoves' at the base.

CONTENTS

The tomb had apparently been disturbed. No skeletal remains were recovered, and the accompanying grave goods were slight. They consisted of one small carinated bowl and two storage jars, together with a toggle pin and one scarab. Only the scarab now remains.

SCARAB

Fig.59b.1 (British Museum Western Asiatic Dept. L784
BPI Pl.XXII,213)
Length 1.7 cms. Breadth 1.1 cms. Height 0.8 cms.
Steatite. Double crown and uraeus, flanked by ankh, nefer and was signs.

CATALOGUE ANOMALIES

i) The storage jar typing is as usual variant. The Tomb Card registers two jars: 43 and 43D; neither could have been whole. BPI gives 43C.

ii) The carinated bowl, e.v.39/1 is no longer available. A note in the catalogue states that it was given to Mrs. Wloch (?), Poland in 1948.

F575 Institute of Archaeology, London

" " (e.v.6/ BPI Pl.LXIX)

The tomb is located in the south east corner of the cemetery. (See Fig.17)

PLAN (Fig.60a)

The plan illustrates a shaft and chamber tomb described in BPI as a recessed grave. The reconstruction of the plan and section are taken from the notes on the reverse of the Tomb Card. Although no direction is given for the access and the chamber, it would seem from the shape of the sketch on BP Pl.LXIV that the chamber lies to the north of the shaft, not to the south as is the usual case with its neighbours (e.g. F587).

The height of the roof is hypothetical, but based upon the clear sketch on the Tomb Card.

CONTENTS

Neither disturbance nor skeletal remains are noted on the Tomb Card. The tomb contained five pots; one bowl, one cylindrical juglet, one dipper juglet and two storage jars. Also, there may have been two faience vessels, a pilgrim flask and a vase, accompanying the group.

The two storage jars are predictably marked NTH on the Tomb Card. The remaining three vessels are catalogued in the collection at the Institute of Archaeology, but the

cylindrical juglet has been lost subsequently, leaving only one bowl and one dipper juglet extant.

POTTERY

Bowls

Fig.60b.1 Small carinated bowl (e.v.6/1 F575E 23K8)
Max. height 5.4 cms. Max. width 15.3 cms.

Form. Plain rim, upper wall angled inwards, pronounced overfolded carination, horizontal lower wall, turned ring base. Recessed inside bowl.

Ware. Soft brown ware, drab red slip, turning marks below shoulder.

Juglets

Fig.60b.2 Dipper juglet (e.v.6/2 F575C 51G12)
(Inside storage jar F575B, 43V6)
Max. height 20.3 cms. Max. width 7.3 cms.

Form. Fine pinched mouth, tapering neck, elongated body, pointed base, single coil handle from just below rim to shoulder.

Ware. Brown/buff ware, thick but decayed red-brown slip, vertical burnish from rim to base.

CATALOGUE ANOMALIES

i) The two faience vessels are not catalogued in the collections of the Institute of Archaeology, although from the Tomb Card they seem to have been brought home since they are given a locus in the old University College collection. A note states that they are similar to the pair of faience vessels found in F568, and BPI catalogue describes them as a 'Glazed Kohl Pot and Flask', which describes the pair in F568.

ii) A minor discrepancy arises with the storage jar types, a common problem. The Tomb Card labels them 43 T4 & 43V6, but BPI describes them as 43E4 and 43F4. The Corpus follows the latter typology. (Since both are marked NTH, it may imply that the alteration was made very shortly after excavation, either in the field or in Jerusalem.)

iii) A small error is made in attributing the cylindrical juglet F575C in the Corpus to tomb 576. Since no cylindrical juglet was ever found in that tomb, the correct reading of the Tomb Card and the BPI catalogue should be adopted.

F576 At one time, Institute of Archaeology, London and Leicester ?? Now missing.
(e.v.7 BPI Pl.LXIX)

The tomb is located in the south east part of the cemetery. (See Fig.17)

PLAN (Fig.61)

The tomb is described in BPI as a grave with recess, but from the sketch on the Tomb Card it has a shaft and a single-stepped chamber. The reconstruction is based upon the measurements given on the Tomb Card, with the exception of the roof height which is sketched in on the card but not measured.

CONTENTS

Described as a disturbed tomb, only three vessels were found in the tomb: one dipper juglet, one single-handled jug and a double-handled storage jar. The storage jar was marked NTH. The other two vessels are no longer available.

CATALOGUE ANOMALIES

1) The present whereabouts of the material from this tomb is difficult to ascertain. Only two vessels were brought back as a group, the dipper juglet and the jug. The Tomb Card states that the group was destined for 'Leicester', presumably the museum, but the dipper juglet was catalogued at the Institute of Archaeology

under the number e.v.7/1. It would be reasonable to assume that this was then the only extant vessel. According to the IA Catalogue, the juglet was given to Mrs. Wloch (?), Poland in 1948, so that nothing now remains.

ii) The usual alterations occur in the various catalogues. The Tomb Card types the storage jar as 43R6, but the BPI catalogue quotes it as type 43D6.

F577 Fitzwilliam Museum, Cambridge (one piece)
(Once at Institute of Archaeology, London)
(e.v.23/ BPI Pl.LXIX)

The tomb lies in the southern part of the cemetery. (See Fig.17)

PLAN (Fig.62a)

The tomb is one of the smallest in the cemetery. Described in BPI as a recessed grave, the Tomb Card shows a shaft and alcove tomb. The measurements given on the Tomb Card and BPI vary somewhat, for example the depth of the tomb is given as 4'2" (50") on the Tomb Card, but 60" in BPI. The reconstructed section is, of necessity, a conflation of the two sets of measurements, accepting BPI measurements for the shape of the grave and the Tomb Card measurements for the depth of the shaft. The plan is to be compared to F584 or F587.

CONTENTS

The tomb is described as disturbed when found. There are no recorded skeletal remains, and the grave goods, comprising only a group of four pots, include one carinated bowl, one cylindrical juglet, one single handled jug and one anomalous form of small wide mouthed juglet. (56E2). It would seem that only two vessels were removed from the tomb, the bowl and the cylindrical juglet. The bowl was housed in the Institute collection, whereas the cylindrical juglet was given as a singleton to the Fitzwilliam Museum.

A note on the Tomb Card equates this tomb with F590-594.

POTTERY

Juglets

Fig.62b.1 Cylindrical juglet (Fitzwilliam Museum, Cambridge 27-1929 F577A 7408)

Form. Thickened rim, narrow neck, rounded shoulder, convex sides, very rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Grey ware, buff finish; very slight traces of burnish (?)

CATALOGUE ANOMALIES

i) Of the two extant vessels, the cylindrical juglet, marked 'one pot only to the Fitzwilliam', is still present. The bowl on the other hand, originally catalogued e.v.23/1, was given to 'Mrs. Wloch, Poland' in 1948.

F578 Institute of Archaeology, London and
Fitzwilliam Museum, Cambridge.
(e.v.10/ BPI Pl.LXIX)

The tomb lies in the south eastern corner of the cemetery. (See Fig.17)

PLAN (Fig.63)

BPI classes this tomb as a grave with a recess, but it is clear from the sketch plan and section on the reverse of the Tomb Card that it is a shaft and stepped chamber tomb. The BPI measurements are confused, in that the measurements given are those of the chamber, not of the shaft. The roof of the chamber had collapsed when excavated, so that the present height of the roof is hypothetical but it emulates the sketch-section.

CONTENTS

No skeletal remains seem to have been found, but the accompanying grave goods consist of seven vessels: two carinated bowls, one cylindrical juglet, one dipper juglet, one lamp and two storage jars, one of which contained the dipper juglet. No other material is recorded. Of the seven vessels, two are marked NTH; there are four catalogued in the collections at the Institute of Archaeology, of which three are currently available, namely both of the bowls, and surprisingly one of the two storage jars. This is one of the two tombs in which a jar has been preserved.

POTTERY

Bowls

Fig.64.1 Small carinated bowl (e.v.10/2 F578C 23K22)
Max. height 6.3 cms. Max. width 13.2 cms.

Form. Very slightly everted rim, upper wall sloping inwards to shoulder, overfolded carination, lower wall sloping inwards markedly, turned disk base.

Ware, Fine buff ware; turning marks around base.

Fig.64.2 Large bowl (e.v.10/3 F578B 23V2)
Max. height 13.4 cms. Max. width 29.6 cms.

Form. Everted rim, short concave upper wall, rounded shoulder, long convex lower wall, ring base.

Ware. Soft orange/brown ware, decayed drab orange slip, ring base affixed to smoothed lower body. (This is the only example of an affixed ring base among all the vessels examined.)

Storage jars

Fig.64.3 Double handled jar (e.v.10/4 F578A 43T4)
Max. height 52.5 cms. Max. width 33.6 cms. without handles.

Form. Everted rim, large cordon around neck, neck short, wide globular body and slightly flattened base. Two vertically opposed handles on shoulder.

Ware. Hard gritted orange ware, buff-grey finish, heavily concreted; turning marks below shoulder to base.

CATALOGUE ANOMALIES

i) F578B, the larger of the two bowls, provides a good example of a scribal error. The Tomb Card gives its type as 23V2, but the BPI catalogue Pl.LXIX gives it as 23Y2. The Corpus however confirms the reading of the Tomb Card as 23V2, so that Petrie misread V as Y (23Y is an iron age form; it has no subdivision 23Y2).

ii) F578C 23K22 is an ink alteration on the Tomb Card for the original 23J14. The Corpus and the BP catalogue confirm the alteration.

iii) The storage jar F578A is given the type number 43T4 on the Tomb Card, but both it and the other, F578E 43V6, have been altered in the BPI catalogue to 43F3.

iv) The measurements of the plan include an interesting error in the BPI catalogue Pl.LXIX. Firstly, the figures given are said to be those of the grave; others for a recess are not given. However, it is clear from the Tomb Card that the three measurements given refer to the

chamber, not the shaft. Secondly, the width of the chamber/grave in BPI is given as 78". The plan on the reverse of the Tomb Card gives this measurement in two halves from the centre as 3'9" plus 3'9", a total of 90" in all. Petrie must have read these figures as 39" plus 39", a total of 78", 12" short of the actual distance.

v) There is a certain discrepancy in the direction of the tomb in the various sources. The bearing of the tomb, usually taken from the rear centre of the shaft across the axis of the shaft and chamber, is given on the Tomb Card as 213°, which would mean that the tomb was entered from the north east. The cemetery map in BPI Pl.LXIV clearly shows that it would have been entered from the north west. A point marked 'North East Corner' on the sketch plan suggests that the present reconstruction and direction are correct.

F579 Fitzwilliam Museum, Cambridge
(- 1929 BPI Pl.LXIX)

The tomb lies slightly south of the centre of the cemetery. (See Fig.17)

PLAN (Fig.65a)

The plan, reconstructed from the measurements given on the Tomb Card, shows a simple grave 1.32 m. deep. The orientation of its long axis is north west/south east.

CONTENTS

The tomb was disturbed; no skeletal remains were discovered. The grave goods consisted of a group of five or six pots, including two bowls, one cylindrical juglet, one dipper juglet and one single handled jug, together possibly with a piriform juglet. The Tomb Card records bronze toggle pins and one crystal scarab. Of all this material, only one bowl survives, currently housed in the Fitzwilliam collections.

POTTERY

Bowls

Fig.65b.1 Wide plain bowl (23-1929 F579E 20N)
Max. height 11.4 cms. Max. width 27.1 cms.

Form. Plain rim, bevelled inwards, convex walls without shoulder to turned ring base.

Ware. Soft orange ware; buff slip (?).

CATALOGUE ANOMALIES

i) The Tomb Card records this tomb as being sent to Bolton. It was never accessed there and the only extant piece was found by chance in the Fitzwilliam Museum, Cambridge.

ii) The most disturbing anomaly in the tomb is the mention on the Tomb Card of a piriform juglet 60M5. It is also recorded in BPI and is cited in the Corpus. No such vessel is currently preserved, but one may also doubt its original existence with this group, for it is not a primary entry on the Tomb Card. Some time later than excavation, an ink note has been added to the Card thus: + 60M5. The vessel is a rarity in the cemetery, the only other example being in F561. Whilst it is impossible to ignore this vessel, its inclusion must be regarded with considerable scepticism.

iii) The preserved bowl F579E 20N has been altered in BPI and the Corpus to 22N2. The alteration has been subsequently made in ink on the Tomb Card.

iv) The other unpreserved bowl is F579B 18J19. This bowl is omitted completely in the BPI catalogue, and the form is not found in the Corpus.

F581 Rockefeller Museum, Jerusalem

(I4395-6 BPI Pl.LXIX)

The grave lies in the central southern area of the cemetery. (See Fig.17)

PLAN (Fig.66a)

The plan and the section are reconstructed from the measurements given on the reverse of the Tomb Card. They illustrate a simple grave less than one meter deep with its axis lying almost west-east.

CONTENTS

The grave had been disturbed before excavation, but it contained the body of a small child, accompanied only by one dipper juglet and a single handled jug, presumably a pair. Both vessels survive.

POTTERY

Juglets

Fig.66b.1 Dipper juglet (I4395 F581A 51G13)
Max. height 19.5 cms. Max. width 6.9 cms.

Form. Plain rim, slightly pinched mouth, narrow neck, narrow tapering body, slightly pointed base, single coil handle from just below rim to shoulder.

Ware. Buff ware with traces of buff slip.

Jugs.

Fig.66b.2 Single handled jug (I4396 F581B 35P4)
Max. height 27.8 cms. Max. width 16.4 cms.

Form. Everted rim, slightly trefoil mouth, wide neck, rounded shoulder, convex tapering sides, rounded base, single strap handle from rim to shoulder.

Ware. Orange ware; traces of dark red slip with burnish. (Wheel burnish?)

This is one of the very few tombs of the group about which all the catalogues agree.

F582 Rockefeller Museum, Jerusalem
(I4403-4415 BPI Pl.XIV & XV)

The tomb lies in the central southern area of the cemetery. (See Fig.17)

PLAN (Fig 67)

The plan and the section are reconstructed from the sketches and measurements on the reverse of the Tomb Card. The plan shows a stepped shaft and chamber tomb, with two steps leading down the axis of the tomb, but with a third step unusually located at 90° to the others at the top of the stairway. The main axis of entry is north west to south east.

CONTENTS

The chamber apparently had been disturbed. No skeletal remains were found, but the accompanying grave goods consisted of seven vessels, one bowl, two cylindrical juglets, two dipper juglets, one jug and one storage jar. All the vessels are currently available except, predictably, the storage jar. The small finds include three scarabs, fragments of bone inlay, pieces of a faience vase, and a bronze toggle pin which is now missing.

POTTERY

Bowls

Fig.68a.1 Platter (I4403 F582G 4E)

Max. height 9.8 cms. Max. width 33.7 cms.

Form. Plain rim, plain slightly convex walls, turned disk base.

Ware. Soft orange ware, buff slip.

Juglets

Fig.68a.2 Cylindrical juglet (I4406? F582D 74012)
Max. height 11.2 cms. Max. width 8.3 cms.

Form. Thickened everted rim, narrow neck, rounded shoulder, parallel sides, very rounded base, single strap handle from rim to shoulder.

Ware. Soft orange ware.

Fig.68a.3 Cylindrical juglet (I4405 F582C 74019)
Max. height 13.3 cms. Max. eidth 10.7 cms.
Form. Rim broken, narrow neck, wide rounded shoulder, rounded sides, very rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Soft red ware, dark red slip and vertical burnish.

Fig.68a.4 Dipper juglet (I4404 F582E 51G8)
Max. height 18 cms +. Max. width 7.4 cms.

Form. Rim and neck missing, no shoulder, convex tapering sides, slightly pointed base, single coil handle to shoulder.

Ware. Grey ware, buff slip.

Fig.68a.5 Dipper juglet (I4407 F582F 51GII)
Max. height 22.9 cms. Max. width 8.4 cms.

Form. Rim broken, but mouth almost round; neck narrow, rounded shoulder, long convex tapering sides, slightly pointed base, single coil handle from just below rim to shoulder.

Ware. Buff ware, bands of light incisions similar to turning marks.

Jugs

Fig.68a.6 Single handled jug (I4408? F582A 59K)
Max. height 28 cms. plus. Max. width 33.0 cms.

Form. Everted mouth but missing, narrow neck, very globular body in the profile of an elipse, turned ring base; one triple coil handle on shoulder.

Ware. Hard red ware.

SCARABS

Fig.68b.1 (I4411 Rowe 444 BPI not illustrated)
Length 1.8 cms. Breadth 1.2 cms. Height 1.8 cms.
Crystal, with bronze ring. Carving rudimentary, base blank.

Fig.68b.2 (I4413 Rowe ? BPI not illustrated)
Length 2.2 cms. Breadth 1.5 cms. Height 0.9 cms.
Steatite, black. Carving rudimentary, base blank.

Fig.68b.3 (I4412 Rowe 313 BPI Pl.VII, 32)
Length 2.1 cms. Breadth 1.4 cms. Height 1.0 cms. Steatite, light yellow, with bronze ring. Deeply incised lion walking to the left with its tail curled over its back. The background is comprised of three conventional trees.

FAIENCE

Fig.68c.1 Vase (kohl pot) (I4410 BPI Pl.VII,33)
Max. height 6 cms. plus. Max. width 4.2 cms.

Form. Incomplete; rim and neck missing, carination near base, lower wall more angled than upper, base flat.

Ware. Green glazed faience with brown-black paint. Decorated in registers separated by double horizontal lines; upper: chevron design. Centre: floral and arboreal. Lower: petal design.

BONE INLAY

Fig.68c.2 (I4414 BPI Pl.VI,29)
One of two pieces of bone inlay, possibly the mitred corner, with three diagonal lines.

CATALOGUE ANOMALIES

1) There are the expected changes in the typology between the Tomb Card and the BPI catalogue. The Tomb Card gives 43V6 for its storage jar, changed to 43E5 in the BP catalogue. The cylindrical juglets are also at

variance; the Tomb Card has two juglets of the types 74019 and 74012. The BPI catalogue Pl.XV gives three, 74019, 7409 and 74015. Since there were only two in the tomb, this last error is difficult to explain.

ii) The Tomb Card has a note in ink added to the bottom of the list of pottery but unlettered with the group: 'plus 3k corp.' The vessel cannot belong to this group as the bowls of type 3 are all Iron Age. Also it was not part of the original excavation record, nor is it mentioned in the BPI catalogue. Further, this type number 3K is not illustrated in the Corpus.

F533 Institute of Archaeology, London
(e.v.25/ BPI Pl.XIV & XV)

The grave lies in the extreme south east of the area on the edge of the cemetery. (See Fig.17)

PLAN

There is no plan for this group, as it represents only a location of three pots some twelve inches below the surface which were otherwise unaccompanied.

CONTENTS

The group of three pots included one platter, one dipper juglet and one single handled jug, the latter two undoubtedly being a pair. Of the three vessels, only the dipper juglet has survived.

POTTERY

Juglets

Fig.69.1 Dipper juglet (e.v.25/1 F533A 5104)
Max. height 17.7 cms. Max. width 6.2 cms.

Form. Slightly pinched rim, narrow neck, convex sides, rounded base, single coil handle from just below rim to shoulder.

Ware. Brown-orange ware, light buff slip, surface heavily concreted and decayed; turning marks below shoulder.

CATALOGUE ANOMALIES

1) There are some very minor discrepancies in typing between the Tomb Card and the BPI catalogue, for example the Tomb Card typed the bowl as 6G3, which has been changed to 6C3.

F584 Institute of Archaeology, London
British Museum, London (one piece)
(e.v.26/ BPI Pl.XIV & XV)

The tomb is located in the south western part of the cemetery. (See Fig.17)

PLAN (Fig.70a)

The tomb is a shaft and chamber tomb, the roof of the chamber of which seems to have collapsed before excavation since no height is given and it is restored here conjecturally. The chamber is approached from the shaft from the north by a single step.

CONTENTS

No human remains appear to have been found. The accompaning goods included one small carinated bowl, one fragmentary cylindrical juglet, one dipper juglet and two jugs, a total of five vessels. The cylindrical juglet is marked NTH, and clearly also one of the jugs was not recovered, leaving the three vessels,- the bowl, the dipper juglet and the other jug, now present in the collection. Together with the pottery was found a bronze toggle pin, dagger, four (?) scarabs and a faience pot. The pin is now missing.

POTTERY

Bowls

Fig.70b.1 Small carinated bowl (e.v.26/1 F584C 18J14)
Max. height 6.7 cms. Max. width 16.2 cms.

Form. Everted rim, rounded shoulder, turned disk base.

Ware. Red-brown ware, yellow-buff finish; marks of turning from shoulder to base.

Juglets

Fig.70b.2 Dipper juglets (e.v.26/2 F584D 51G12)
Max. height 23.5cms. Max. width 8.5cms.

Form Slightly pinched mouth, inverted rim, straight-sided constricted neck, rounded shoulder, rather elongated body, rounded base, single coil handle from just below rim to shoulder.

Ware Orange ware, light grey slip, traces of vertical burnish.

Jugs

Fig.70b.3 Single handled jug (e.v.26/3 F584A 38H6)
Max.height 34.8 cms. Max.width 21.5 cms.

Form Everted rim, pinched mouth, wide neck, round shoulder, rounded body, small flat base, single

strap handle from rim to shoulder.

Ware. Brown ware, light grey finish; the rim and neck may have been inserted additionally into the body.

SCARABS

Fig.71a.1 (e.v.26/7 BPI Pl.VII,19)
Length 1.8 cms. Breadth 1.4 cms. Height 0.8 cms. Steatite. Hooked scroll border inside which is Nefer men-neb-Ka which may be read as "Excellence and all protection for the Ka".

Fig.71a.2 (e.v.26/8 BPI Pl.VII,20)
Length 2.4 cms. Breadth 1.6 cms. Height 1.2 cms. Paste, white. Rope border inside which is a finely executed double stranded twist design surrounding a centre of concentric circles.

Fig.71a.3 (e.v.26/6 BPI Pl.VII,17)
Length 2.5 cms. Breadth 1.8 cms. Height 0.9 cms. Steatite, with bronze ring. Two figures kneeling, one holding a lotus ? I.A. Cat. "Hawk between two ... figures". BP p.3, "background ... muddled".

Analysis of ring: BM584/1 Copper-arsenic alloy. Quantitative analysis: Table 1. No. 16.

Fig.71a.4 (e.v.26/5 BPI Pl. VII,13)

Length 2.7 cms. Breadth 1.9 cms. Height 1.1 cms. Steatite, white, with bronze ring. Winged sun disk over papyrus clump (hieroglyph for the North), flanked by falcons with turned back heads. (BPI p.3 " ... quite unEgyptian".)

Analysis of ring: BM584/2 Copper-arsenic alloy. Quantitative analysis: Table 1. No. 17.

BRONZE

Dagger

Not illustrated (e.v.26/4 BPI Pl.VI,12)

Max. height 11.0 cms. Max. width 3.5 cms.

Form. Short flat blade, concave edges, rounded point, wide base, two rivets at base.

Analysis. Not available for analysis.

FAIENCE

Fig.71b.1 (British Museum Western Asiatic Dept. L356. BPI not illustrated.)

Max. height 7.4 cms. Max. width 4.0 cms.

Form. Wide everted rim, narrowing neck, low carination - profile more angled below carination, flat base.

Ware. Blue-green glaze - no visible decoration.

CATALOGUE ANOMALIES

i) There are the usual discrepancies in the Corpus types between the Tomb Card and the BPI catalogue Pl.XV. The Tomb Card types the bowl as 18J14, which is changed in BPI and reinked on the Tomb Card to 18K2, which is followed by the Corpus itself.

F584B was originally typed as 39J. The BPI catalogue changes this to 38H6, and an ink correction to that effect is made on the Tomb Card, which is to the good since the type 39J is an Iron Age jug.

ii) The Tomb Card mentions two scarabs with bronze fittings, two steatite scarabs and one plain carnelian scarab. This latter scarab is now missing. It is not mentioned nor illustrated in BPI nor is it catalogued in the Institute collection.

iii) The toggle pin, BPI Pl.VI,13 seems never to have been in the Institute collection. The dagger has been recently mislaid.

F586 University Museum, Manchester.

The tomb lies in the south eastern part of the cemetery between tombs F571 and F575, and adjacent to point M. (See Fig.17)

PLAN (Fig.72a)

The plan, reconstructed from the plan and the measurements on the reverse of the Tomb Card, illustrates a large shaft and small single stepped chamber tomb with entry from the north east.

CONTENTS

There were no skeletal remains recorded. The grave goods included only three vessels: a cylindrical juglet, a single handled jug, and a lamp. The lamp was marked NTH; the jug is presently in the collection; the cylindrical juglet is uncatalogued and missing.

POTTERY

Jugs

Fig.72b.1 Single handled jug (8600 F586A 35P4)
Max. height 30.7 cms. Max. width 19.0 cms.

Form. Everted rim, Trefoil mouth, wide neck round shoulder, small flat base, single strap handle from shoulder to rim.

Ware. Hard orange ware; grey-buff finish.
Turning marks from shoulder to base.

There would appear to be no discrepancies between the various catalogues of this tomb.

F587 Institute of Archaeology, London.
(e.v.22/ BPI Pl.XIV & XV)

The tomb lies in the south south-eastern sector of the cemetery. (See Fig.17)

PLAN (Fig.73a)

The plan shows a shaft and chamber tomb, the chamber to the south. The reconstruction of the roof of the chamber is hypothetically based upon the section sketch on the reverse of the Tomb Card; the width of the chamber is obtained only after a conflict of measurements.

CONTENTS

There would appear to have been no skeletal remains with this tomb. The chamber contained a group of six vessels, comprised of two small bowls, one larger bowl, one dipper juglet and two storage jars. No other objects are mentioned on the Tomb Card, but one scarab and one toggle pin are illustrated in BPI Pl.XXII. Predictably, the storage jars are missing, as is the toggle pin.

POTTERY

Bowls

Fig.73b.1 Small carinated bowl (e.v.22/1 F587C 23J8)
Max. height 8.6 cms. Max. width 13.5 cms.

Form. Everted rim, short concave upper wall, slight carination at shoulder, convex lower wall, turned disk base.

Ware. Dark brown ware, light grey slip, turning marks from shoulder to base.

Fig.73b.2 Small carinated bowl (e.v.22/4 F587A 18J11)
Max. height 5.7 cms. Max. width 16.5 cms.

Form. Slightly everted rim, short vertical upper wall, carinated shoulder, lower wall tapering straight to base, turned disk base.

Ware. Orange ware with drab decayed surface, turning marks from shoulder to base.

Fig.73b.3 Large carinated bowl (e.v.22/2 F587D 18J12)
Max. height 12.2 cms. Max. width 25.4 cms.

Form. Everted rim, vertical upper wall, carinated shoulder, convex lower wall, turned disk base.

Ware. Orange ware, buff slip (?) finish, turning marks from shoulder to base.

Juglets

Fig.73b.4 Dipper juglet (e.v.22/3 F587B 51G15)
Max. height 19.3 cms. Max. width 6.9 cms.

Form. Rim broken, mouth pinched, neck narrowed, slightly sharp shoulder, convex tapering sides, slightly pointed base. Single coil handle from below rim to shoulder.

SCARABS

Fig.73c.1 (e.v.22/5 BPI Pl.XXII,216)
Length 2.1 cms. Breadth 1.5 cms. Height 1.0 cms. Steatite, faded green. Vertical twisted design flanked by unreadable antithetic hieroglyphs.

CATALOGUE ANOMALIES

i) The usual discrepancy is to be noted in the typing of the storage jars; the Tomb Card records 43R4 and R6 whereas BPI substitutes 43D5 and D6.

ii) The Institute catalogue which duly lists the four vessels also lists the scarab illustrated here and in BPI Pl.XXII,216. Ironically there is no number 216 appearing on the plate mentioned, although there is an un-numbered scarab followed by the toggle pin 217. Both are attributed to this tomb, but no record of these two objects appears either on the Tomb Card or in the BPI catalogue Pl.XIV. This may well suggest that the objects have been misplaced. The pin is now completely missing.

Tomb 587 is one of the tombs which Petrie feels he can place in a chronological system (Pl. XV). In so doing, he is bound to publish any scarab from that tomb

in the order he has established, i.e. between tombs 569 & 547 and tomb 563. In that case, the illustration of the 587 scarab would have appeared on Pl.XII after No. 124. The fact that it does not would further reinforce the notion that this scarab, together with the toggle pin with which it is clearly coupled, do not belong to this group at all.

iii) The Tomb Card marks the provenance of this tomb as Heidelberg. Since the group is in the Institute, that apportionment should be ignored.

iv) BPI Pl.XIV suggests that the chamber (77") is wider than the shaft (66"), but the Tomb Card sketch gives the measurements of the chamber as 32½" + 32½" which would make the chamber 65" wide. It is clear that the Tomb Card should read 3'2½" plus 3'2½" for the chamber measurement, which would then accord with BPI as 77".

F590 Institute of Archaeology, London
(e.v.21/ BPI Pl.XIV & XV)

The tomb(s) lies in the southern part of the cemetery. (See Fig.17)

PLAN (Fig.74a)

The plan illustrates a series of oval depressions surrounding a central pit. The depressions are all about two metres below the surface, but no section is possible because the depth of the central pit is not given. From the drawing on BPI Pl.LXIV it might be that the depressions represent three collapsed chambers around a central shaft, a view perhaps borne out by the description on the Tomb Card, "Three descending chambers".

CONTENTS

The tomb preserved no skeletal remains. The grave goods consisted of six pots: one bowl, one dipper juglet, two jugs and two storage jars. Together with the pottery were three scarabs and a fragmented toggle pin. One of the jars and the dipper juglet were marked NTH. The two jugs and the bowl are catalogued in the Institute of Archaeology with the three scarabs. The remaining storage jar and the toggle pin are not accounted for. One of the catalogued jugs is currently missing.

POTTERY

Bowls

Fig.74b.1 Small carinated bowl (e.v.21/1 F590E 18J12)
Max. height 7.2 cms. Max. width 18.5 cms.

Form. Everted rim, vertical upper wall, marked carination, slightly convex lower wall, turned disk base.

Ware. Grey-buff ware with buff finish.

Fig.74b.2 Large single-handled jug/jar (e.v.21/3 F590F 38B4)
Max. height 47.2 cms. Max. width 31.8 cms.

Form. Everted rim, high neck, globular body, stub-pointed base. Single handle on shoulder.

Ware. Orange ware, grey finish, clear turning marks all the way from shoulder to base.

SCARABS

Fig.75.1 (e.v.21/6 BPI Pl.X,76)
Length 1.5 cms. Breadth 1.0 cms. Height 0.6 cms.
Faience, white. Twisted strand border; two udjet eyes. (The two eyes of Ra).
Petrie maintains this scarab is " ... too good for Palestinian work". BPI p.3.

Fig.75.2 (e.v.21/5 BPI Pl.X,73)
Length 2.1 cms. Breadth 1.4 cms. Height 0.9 cms. Steatite, whitish. Interlocking twisted strand design.

Fig.75.3 (e.v.21/4 BPI Pl.X,77)
Length 2.2 cms. Breadth 1.5 cms. Height 0.8 cms. Steatite, yellow. Above and below, two opposed lotus(?) plants. Centre: four alternately facing hen signs, for majesty.

CATALOGUE ANOMALIES

i) The storage jar typology is changed slightly from the Tomb Card. 43E6 and 43S of the Tomb Card are changed to 43E6 alone in the BPI catalogue.

ii) The toggle pin which is mentioned on the Tomb Card is not catalogued in BPI Pl.XIV nor is it illustrated. The pin is not preserved in the collection.

F593 University Museum, Manchester
(BPI Pl.XIV & XV)

The tomb lies in the extreme south of the cemetery. It is not illustrated in BPI Pl.LXIV, but it has been restored to its position by the distance and bearing given on the Tomb Card. (See Fig.17)

PLAN (Fig.76)

The plan is that of a shaft and chamber tomb, the chamber stepped down considerably. There would appear to be a form of ramp-like face to the single step. The roof has been reconstructed hypothetically from the Tomb Card, though it had probably collapsed before excavation. The tomb was entered from the north.

CONTENTS

There were no skeletal remains recorded. The tomb contents included six vessels comprised of three bowls, one cylindrical juglet, one jug and one lamp. The small objects included one toggle pin and 'two' scarabs, together with five beads. All the small objects and an extra plain scarab are preserved. Five of the six vessels were sent to Manchester and are still preserved. The jug is missing. (See Catalogue Anomalies).

POTTERY

Bowls

Fig.77a.1 Small carinated bowl (8638A F593C 18J19)
Max. height 7.7 cms. Max. width 15.8 cms.

Form. Everted rim, upright upper wall, marked carination, convex lower wall, marked turned disk base.

Ware. Light brown ware, grey slip, turning marks below shoulder to base.

Fig.77a.2 Small carinated bowl (8640 F593E 23J3)
Max. height 6.5 cms. Max. width 15.9 cms.

Form. Everted rim, concave upper wall, rounded carination, slightly convex lower wall, turned disk base.

Ware. Thickly made yellow buff ware, traces of red slip, badly worn; turning marks from shoulder to base.

Fig.77a.3 Large carinated bowl (8641 F593F 18J8)
Max. height 13.6 cms. Max. width 31.8 cms.

Form. Upright rim with internal thickening; upper wall slightly sloping inwards. Slightly overfolded shoulder; convex lower wall, turned ring base.

Ware. Grey-brown drab ware, drab brown finish, turning marks from shoulder to base.

Juglets

Fig.77a.4 Cylindrical juglet (8637B 593B 74016)
Max. height 11.1 cms. Max. width 10.4 cms.

Form. Everted bulbous rim, narrowed neck, wide shoulder with marked carination, convex walls, rounded base; double coil handle from rim to shoulder WITHOUT button.

Ware. Grey-brown ware, grey finish; traces of vertical burnish.

Lamps

Fig.77a.5 Single spouted lamp (8639 F593D 91A1)
Max. height 4.5 cms. Max. width 12.3 cms.

Form. Spout missing, slight folding towards nozzle. Rounded walls and rounded base.

Ware. Brown ware and finish; burning marks at nozzle; concretions on the outside, visible scraping marks all around the base; (presumably this is part of the reduction process of the base - it is hand done, not turned).

SCARABS

Carved

Fig.77b.1 (8677 BPI Pl.XII,118)
Length 1.2 cms. Breadth 0.8 cms. Height 0.5 cms.
Steatite, yellow. Geometric design, within which is a single hatched loop.

Fig.77b.2 (8643 BPI Pl.XII,119)
Length 1.2 cms. Breadth 0.9 cms. Height 0.6 cms.
Steatite, yellow. Veined leaf or chevron design.

Plain.

Fig.77b.3 (8645A Not illustrated BPI)
Length 1.3 cms. Breadth 0.9 cms. Height 0.6 cms.
Green Jasper, (with silver (?) ring which does not fit). Plain seal, carving rudimentary.

BRONZE

Pins

Fig.77b.4 (8646A & B BPI Pl.XI,64)
Length 8.6 cms.

Form. Square sectioned twisted upper shaft, plain lower shaft with point. (BPI illustration not twisted).

Analysis. Not available.

BEADS

Not illustrated (8642 BPI Pl.XI,65)

Five carnelian beads, two large barrel shaped and three plain round beads.

CATALOGUE ANOMALIES

i) The Tomb Card mentions 'two small scarabs'. They are probably the two carved examples, omitting the plain example which is still preserved in the catalogue.

ii) The vessel that is now missing from the group is F593A, a large jug 38B2. The Tomb Card mentions that this is the one pot kept at University College, London when the remainder of the tomb was sent to Manchester, It has since disappeared. There is a large jug with one handle on the shoulder in Manchester which could not be located at the moment because of the revision of the collection. Therefore, "8636, large jar with one loop handle" is probably F593A.

F594 Institute of Archaeology, London
(e.v.20/ BPI Pl.XIV & XV)

The tomb is situated at the southern end of the cemetery. (See Fig.17)

PLAN (Fig.78a)

The plan is reconstructed from the sketch and measurements on the reverse of the Tomb Card. It illustrates a simple grave some 54" deep (138.5 cms.), its long axis lying north west - south east.

CONTENTS

No skeletal remains are recorded. The grave goods included six vessels: two bowls, one cylindrical juglet, one dipper juglet, one jug and one storage jar. Of these, three are marked NTH, leaving the two bowls and the cylindrical juglet. These three vessels are currently in the Institute collection. The small finds recorded on the Tomb Card should include a toggle pin, and ambiguously there may also be a scarab in the group. Neither of these are present in the collection.

POTTERY

Bowls

Fig.78b.1 Small bowl (e.v.20/1 F594C 18P1)
Max. height 6.5 cms. Max. width 14.0 cms.

Form. Plain rim, slightly concave upper wall, profile rounded towards base, base missing.

Ware. Light brown ware, grey core, turning marks from shoulder.

Fig.78b.2 Small carinated bowl (not catalogued F594B 23P4)
Max. height 7.6 cms. Max. width 18.0 cms.

Form. Everted rim, concave upper wall, slight carination, straight lower wall, turned disk base.

Ware. Orange ware, buff slip both inside and out, clear turning marks from shoulder to base.

Juglets

Fig.78b.1 Cylindrical juglet (e.v.20/2 F594D 70021)
Max. height 13.0 cms. Max. width 9.5 cms.

Form. Thickened rim, narrow neck, angular shoulder, slightly convex sides, rounded base, double coil handle from rim to shoulder WITHOUT button.

Ware. Dark grey-brown ware, dark grey worn and pitted surface, traces of buff slip.

CATALOGUE ANOMALIES

i) The bowl F594B which is present in the collection at the Institute of Archaeology is not in fact catalogued. Its original excavation number however is still clearly marked.

ii) The scarab illustrated in BPI Pl.X,88 would seem to be missing at this time. The Tomb Card does not actually record its excavation, and it is not catalogued in the Institute collection, although it probably should belong to this group.

iii) The Tomb Card mentions a toggle pin which does not appear either in the BPI catalogue Pl.XIV and associated illustrations or in the collections of the Institute of Archaeology.

iv) The Tomb Card apportions this whole group to Heidelburg, though since allthe available pottery is catalogued at the Institute, it is unlikely that any material found its way there. This is not the only instance of this anomaly.

F595 Institute of Archaeology, London
(e.v.15/ BPI Pl.LXIX)

The tomb is the most southerly in the whole cemetery. (See Fig.17)

PLAN (Fig.79a)

The plan and section are reconstructed from the sketch and the measurements on the reverse of the Tomb Card. The roof is of a conjectural height but it is so shown on the sketch section. Although Petrie describes this tomb as a grave with side recess (BPI Pl.LXIV) the better description, as with a number of this type, is a single stepped shaft and chamber or alcove tomb. The axis of entry is east-west.

CONTENTS

The grave was disturbed, but the skeletal remains (presumably representing one person) were recovered from the chamber. The Tomb Card records that the head was 'to the West', which would have been difficult in such a confined space unless the body was flexed. (The term 'to the West' does not speak of the facial position but of the whole body; the Tomb Card has a separate space for this detail if it is available.

The body was accompanied by only six vessels; one bowl, one cylindrical juglet, one dipper juglet, one lamp and two storage jars. The lamp, cylindrical juglet and both of the jars are marked NTH, leaving one bowl and one dipper juglet

remaining, both of which are in the Institute of Archaeology collection.

POTTERY

Bowls

Fig.79b.1 Small carinated bowl (e.v.15/1 F595A 23K3)
Max. height 8.9 cms. Max. width 18.6 cms.

Form. Everted rim, concave upper wall, rounded carination, convex lower wall, turned disk base.

Ware. Brown ware, buff-grey slip; turning marks from below shoulder to base.

Juglets

Fig.79b.2 Dipper juglet (e.v.15/2 F595F 51G12)
Max. height 16.5 cms. plus. Max. width 7.7 cms.

Form. Mouth and neck missing, slightly marked shoulder, tapering convex sides, rounded base. Handle missing but clearly once a single coil from rim to shoulder.

Ware. Orange-brown ware with grey core, worn light buff slip with traces of vertical burnish.

CATALOGUE ANOMALIES

i) The bowl F595A marked 23K3 on the vessel and the original Tomb Card has been altered to 23K14 in the BPI catalogue and the Corpus, then later changed in ink ontthe Tomb Card.

ii) The storage jars F595B & E are typed as 43T4 and V6 on the Tomb Card but predictably changed to 43E5 & F3 in the BPI catalogue.

iii) The Tomb Card gives the distribution of this tomb as Leicester, but the only two remaining vessels are in the collection at the Institute of Archaeology.

F596 Institute of Archaeology, London
Rockefeller Museum, Jerusalem (one piece)
(e.v.12/ BPI Pl.XIV & XV)

The tomb lies in the extreme southern part of the cemetery. (See Fig.17).

PLAN (Fig.80)

The plan is reconstructed from the sketch on the reverse of the Tomb Card, and the section similarly is taken from the depth measurements given there. The width of the lowest of the four steps is ambiguous on the Tomb Card plan, but the overall distance of the length of the eastern side of the dromos given in BPI Pl.XIV restores this measurement. Likewise, the depth of the chamber, which does not appear on the sketch, is taken from BPI Pl.XIV. The section shows a conjectural roof on the analogy of the other tombs in the area, though presumably since no height is given, it had collapsed before excavation.

The plan illustrates a shaft and chamber tomb with five steps. The chamber is almost circular instead of the usual semi-circular or eliptical chambers. As usual, the chamber is entered from the north.

CONTENTS

The tomb is described as a disturbed tomb. There would seem to be no evidence of skeletal remains. The grave goods consisted of a group of nine vessels, comprising five

bowls, one cylindrical juglet, one dipper juglet and two storage jars. Three of the vessels, the storage jars and the cylindrical juglet, are marked NTH. Of the remaining six, five are presently in the collections of the Institute of Archaeology, and one is to be found in Jerusalem. Accompanying these vessels were a bronze dagger, some amethyst beads and a number of flint flakes. The beads have since been lost.

POTTERY

Bowls

Fig.81a.1 Small dish (e.v.12/6 F596J 22W)
(used as a lamp)
Max. height 4.8 approx. Max. width 10.1.

Form. Rim curved inwards, profile rounded, base broken but probably flat. The rim is chipped and burning marks here show that it had been used as a lamp.

Ware. Orange ware, dirty deposit inside, heavy concretions outside.

Fig.81a.2 Small dish (e.v.12/5 F596D 22W)
(used as a lamp)
Max. height 4.4 cms. Max. width 11;3 cms.

Form. Rim curved inwards slightly, rounded profile concave at base, base flat. The rim is chipped and burning marks here show that it has

been used as a lamp.

Ware. Roughly made red ware; concretions on the exterior surface.

Fig.81a.3 Small bowl (e.v.12/4 F596D 22F)
Max. height 6.8 cms. Max. width 11.8 cms.

Form. Plain rim, vertical upper wall, round shoulder, convex lower wall, turned disk base.

Ware. Brown ware, surface badly worn and discoloured, turning marks near base.

Fig.81a.4 Large carinated bowl (e.v.12/3 596H 23K9)
Max. height 12.3 cms. Max. width 27.5 cms.

Form. Everted rim, short vertical upper wall, marked carination, slightly convex lower wall, turned disk base.

Ware. Dark brown ware, traces of a buff surface, badly concreted, turning marks below shoulder to base.

Not illustrated Platter (I4422 F596F 21B1)
(Rockefeller Museum, Jerusalem)
Not measured

Form. Plain rim, thickened internally, convex walls, turned ring base.

Juglets

Fig.81a.5 Dipper juglet (e.v.12/2 F596G 51G11)
(Tomb Card refers to it as 'bil-bil')
Max. height 18.2 cms. Max. width 6.7 cms.

Form. Slightly pinched mouth, narrow neck, slight shoulder, convex tapering sides, slightly pointed base, single coil handle from just below rim to shoulder.

Ware. Orange-brown ware, exterior surface badly worn and pitted.

SCARABS

Fig.81b.1 (e.v.12/9 BPI Pl.X,93)
Length 1.5 cms. Breadth 1.0 cms. Height 0.6 cms.
Steatite, white. Ring and dot design.

Fig.81b.2 (e.v.12/8 BPI Pl.X,92)
Length 1.8 cms. Breadth 1.2 cms. Height 0.8 cms.
Steatite, yellow. Horned animal (possibly a ram or antilope) with head upraised; above: a branch.

BRONZE

Daggers

Fig.81c.1 (e.v.12/7 BPI Pl.IX,56)
Max. height 9.4 cms. Max. width 3.6 cms.

Form. Small flat blade with rounded point and straight sides. Two rivet holes near widened base of blade.

Analysis. Not available for analysis.

MISCELLANEOUS

Fig.81c.2 (British Museum Asiatic Dept. L770 BPI Pl.IX,57) Twenty three small flint blades with a maximum length of 3.0 cms. and a minimum of 1.8 cms. They are somewhat lunate or lenticular in shape, and their section is frequently triangular. The use of these blades is obscure, but they could have been barbs. Whether they are contemporary with the tomb itself is difficult to judge.

CATALOGUE ANOMALIES

i) The small bowl F596C is marked 22F, but the tomb card has been altered from that number to 20F, following the Corpus.

ii) The dishes F596 D & J are marked 22W on the vessels, but the illustration of this form given in the Corpus is from tomb 205 and dated to the XXVII Dynasty - clearly this cannot be the same vessel.

iii) An alteration on the Tomb Card in ink adds three extra vessels to this tomb: 2402, 24011 and 24016. Since these vessels are not original to the Tomb Card, and as

they are not mentioned in BPI catalogue, the Corpus or the Institute catalogue and in any case are of the wrong date, they have been ignored.

iv) The Institute catalogue gives e.v.12/2 as a knife blade, and e.v.12/1 as a dipper juglet. According to the marks on the dipper juglet (e.v.12/2), these numbers should be reversed in the catalogue, making the blade e.v.12/1.

v) The Institute catalogue mentions two bronze implements,- a 'knife blade, bronze' and 'a bronze knife' e.v.12/2 and e.v.12/7 respectively. As the Tomb Card and the BPI catalogue and illustrations only mention one, it is more than likely that this blade has been catalogued twice, particularly in view of the fact that on the I.A. catalogue the first entry of the knife is in the middle of the pottery catalogue, and the second entry of the knife was made later in a different hand at the end of the catalogue.

vi) The twenty three flint flakes clearly belong to this tomb, being mentioned on the Tomb Card and catalogued as such in the British Museum. BPI Pl.XIV attributes them incorrectly to F565, an error easily made by slipping down one line. The illustration of the flakes BPI Pl.IX,57 corrects this error to F596. There are no flakes recorded under the Tomb Card for F565.

vii) The two scarabs are not recorded on the Tomb Card.

CHAPTER FOUR

A COMPARISON OF THE FARA AND THE JERICHO TOMBS

THE CONCLUSIONS THAT MAY BE DRAWN FROM FARA AND A COMPARISON WITH JERICHO

INTRODUCTION

In the previous two chapters it has been shown that the interpretation of typological variation is a complex and, perhaps, an unattainable goal. The relative chronological system of division based upon the tomb material from Jericho is difficult to prove even though one may intuitively believe that it approximates the real situation. In an attempt to shed further light upon the hypothesis, a new set of information has been assembled from Fara. It has been introduced, described and reviewed to act as a potential extension of the Jericho hypothesis.

The Fara material has, since its excavation, assumed a rather amorphous air, presumably because its publication was not given the systematic approach accorded to more modern publications. Now that a discrete selection of these tombs may be viewed in a fuller and more understandable format, there are three steps that remain to be covered if this information is to be put to good use.

a) An attempt must be made to search for a system in the Fara tombs whereby the tombs may be grouped or in some way sub-divided. To complete this analysis, consideration will be given to any possibility of attributing absolute dates to any of the tombs or groups of tombs.

b) Having brought some degree of system into these tombs, a direct comparison must be made between the tombs at Fara and those from Jericho, highlighting not only their similarities, but also the difficulties experienced in making certain important comparisons in the light of the differences between the two sets of information.

c) An explanation based upon the previous discussions should be put forward, with a brief mention of other sites of the period which may support the conclusion.

A. A SEARCH FOR A SYSTEM IN THE FARA TOMBS

It has already been stated several times that the pottery from the tombs has not been directed into any typological scheme partly because one is not sure what these schemes might mean, and partly because the variety of types against the smallness of the sample precludes any incisive scheme having numerical backing. On the other hand, one of the most distinctive features of the tombs at Fara is that its MBII tombs originated in the MBII period; they are not tombs of an earlier age which were reused. It is the tomb architecture and plans that provide an obvious criterion for dividing the tombs into different groups.

In the MBII cemetery at Fara forty three tombs may be classed according to five distinct tomb styles or types:

i) Grave
ii) Shaft and stepped alcove
iii) Stepped shaft and chamber
iv) Stepped shaft and bilobate chamber
v) Stepped shaft and double chamber.

Tomb Type 1: GRAVE (Fig.82)

558, 579, 581 and 594. (Unpublished: 548, 549, 572 and 588).

The form is a rectangular vertical pit cut from the surface to a depth of between one and two metres. In only one case in the 500 cemetery were skeletal remains preserved, but it is assumed from the size of these graves that they are

only intended for individual burials, or at most two persons, rather than large communal interments. (The graves of the 1000 cemetery, where the remains are better preserved, confirm the presence of only one or two burials per grave.) The associated grave goods would re-enforce the opinion that the graves were intended for single burials since none of the groups was large, ranging from the jug and dipper pair in F548 and F581 to the fuller groups in F558 and F579 which included up to five pots, (a bowl, a cylindrical juglet, a jug and dipper juglet together with a pin and scarab. Four of the five above contained at least one scarab.

The size of each grave was similar, about two metres in length and one metre in width, but the orientations of the axes of these graves varied to encompass all the cardinal points. Within the cemetery there was no particular area favoured above another - graves were found in both the northern and the southern part of the cemetery. (See Fig.17)

Tomb Type 2: SHAFT AND STEPPED ALCOVE TOMB (Fig.83)

567, 571, 574, 575, 576, 577, 578, 584, 586, 587, 593 and 595. (Unpublished: 547, 560 and 591.)

This is by far the largest group of tombs within the cemetery. Petrie described this type as "grave with recess", but "shaft and alcove" or "chamber" tomb is a more apt description since in thirteen of the fifteen cases above two separate components may be found - a shaft of up to two metres deep and, at the bottom, a step down of about half a metre into

the alcove or chamber. (The exceptions are F577, which has no step, and F574 which has no step either but has two opposed alcoves.) In F567 the shaft and the stepped alcove had in addition a second alcove flush with the base of the shaft. In nearly every case, the shaft and the alcove/chamber width are more or less the same.

The tombs contained between two and eight vessels of the available repertoire (F547 two and F571 eight). Most of the tombs contained five or six vessels. Most also contained both a dipper juglet and either a storage jar or jug. In some cases there were two jugs (F584) or two storage jars (F560, F571, F575, F587, F585) which might imply, on the analogy of the single graves with single jugs or jars, that these tombs were intended for double occupancy. Of the fifteen tombs, all but three contained at least one cylindrical juglet.

The distribution of the small objects is singular. Only four of the fifteen contained scarabs (F567, F574, F584 and F593). F547 may have, but it is suspect (see "Anomalies"). All of these four tombs contained toggle pins as well as scarabs, but nine of the remaining eleven tombs without scarabs were also without toggle pins. (This is one of the reasons for the scarab/pin equation.) F584 should be pointed out as unusual in the group in that it contained five scarabs as well as a pin and a dagger and a kohl pot. No other daggers occurred in this group and only one other tomb contained faience (F575).

In the majority of cases the shaft lay to the north of the alcove/chamber. The tombs of this type are

widely scattered throughout the cemetery, although the largest concentration of them is grouped in the southernmost part of the area. (See Fig.17)

Tomb Type 3: STEPPED SHAFT AND CHAMBER TOMB (Fig.84)

545, 563, 570, 582, 596.

This is an enlargement of the previous type of tomb with a distinctly separate shaft. The shaft itself ran down at an angle of about 45° in a series of between four and six steps forming a staircase which was as a rule much narrower than the chamber into which it led. The first step from the surface was usually the steepest (over a metre in most cases), followed by a series of smaller steps (about twenty five centimetres). The step treads of these lower steps were often very narrow (twenty centimetres) and the steps themselves were usually rectangular in shape, though curvilinear steps do occur (the lowest steps of F570).

The chambers varied in shape from the elipses of F563 and F582, to the circular chambers of F545 and F596 and the almost bilobate chamber of F570. The depth of the chamber was about three metres below the surface, covered by a roof of about one metre in thickness. In most cases this roof had collapsed.

The grave goods consisted of between seven and nine pots, together with scarabs and toggle pins. All the tombs contained bowls, cylindrical juglets, dipper juglets and two jars. They also all contained at least two scarabs.

Two of the tombs contained inlay work (F570 and F582) and all but one (F596) had toggle pins. (F596 contained a bronze dagger.

In every case, the shaft approached the tomb from a northerly direction. The five tombs in question lay in a line across the western edge of the cemetery (see Fig.17).

Tomb Type 4: STEPPED SHAFT AND BILOBATE CHAMBER TOMB (Fig.85)

551, 554, 555, 564, 565, 566, 569. (The plan of F564 is missing completely, but see BPI Pl. LXIV)

This type is perhaps an enlarged version of Type Three. The shafts of all these seven tombs had from five to seven steep steps leading down in a separate stairway of some two metres or so. Although the sections of four of the seven are missing, it is clear that the top step was the steepest and then small shallow steps led further down. The treads of these steps were never very wide (twenty five centimetres). Whilst most of the steps were rectangular, both F565 and F566 have a curvilinear step at the base. At the bottom of the staircase the steps were usually constricted to provide a doorway into the chamber and in at least one case (F551) this doorway was blocked with stone slabs.

The chambers of these tombs are distinguished as bilobate, or 'kidney-shaped' chambers. They have a central support or buttress which gives the chamber the appearance of having two curvilinear lobes to it, but both on the same level. One presumes that the plan is a successor, at least in size, to the Type three stepped shaft and small chambered tomb, and that with the increased floor area the central support was

necessary to hold up the roof in this soft sandy soil. These supports ranged from the barely visible example of F569 to one which almost divides the chamber into two - F551.

The tombs contained up to twenty-four pots: bowls, cylindrical juglets, dipper juglets with jars or jugs and lamps. All but one tomb (F566), contained three or more scarabs and there were a number of daggers, faience and gypsum vessels and toggle pins. In all, the goods were varied and prolific.

Where evidence has been preserved and recorded (F551 & F555), the distribution of the objects may be seen to be scattered throughout the chamber. The storage jars had been placed either side of the entrance on the north wall of the chamber and the smaller objects had accompanied the bodies over the main floor area of the chamber. Although there is no conclusive evidence as to how many persons were buried in each tomb, it is assumed that a number of bodies, possibly five or more, (1021 has twelve) would have been placed in the tomb at one time or another. Since the evidence is not sufficiently accurate, it is not possible to ascribe suites of objects to particular individuals within any one tomb.

All the tombs of this type were entered via the staircase from the north. The total chamber depth was about three metres below the surface. These tombs are clearly distributed in the central and northern sectors of the cemetery. (See Fig.17)

Tomb Type 5: STEPPED SHAFT AND DOUBLE CHAMBER TOMB (Fig.86)

550, 556, 559.

These three tombs are designed specifically as stepped shaft and double separate chamber tombs; as such they are the largest in the cemetery. Tomb F559 has a surface area in its two chambers of twelve square metres. (This makes them larger than any of the reused EBMB/MBII tombs from Jericho, where the largest are only some nine square metres.) From the design, it well might be that this type of tomb is a larger version of the bilobate tombs of Type Four, which have a lesser area.

The shaft approach was three metres long, with about four or five steep steps leading to a constricted doorway (sixty centimetres in the case of F559). A sixth step through the threshold of the doorway gave access to a rectangular landing stretched between the doorway and the central dividing wall of the tomb. One more step on either side of this landing led into one or other of the chambers.

Each of the two chambers tended to be rectangular in plan, separated from one another by the dividing wall and the landing.

Owing to the paucity of skeletal remains, it is difficult to be certain of the function of these large tombs as distinct from the smaller ones. Certainly tomb F550 contained five individuals and there may have been more in other tombs. The plethora of grave goods certainly implies numerous burials, with the storage jars placed against the walls and the smaller objects scattered about among the burials.

Up to thirty vessels of the complete range occurred within these tombs. F550 contained five scarabs (and five bodies) but F556 and F559 contained twelve and nine scarabs respectively; each contained at least two pins and a dagger.

Entry to the tombs was from the north. The group is very close together in the north eastern part of the cemetery. (See Fig.17)

As a unique tomb of this kind, one should note F568 which is a bilobate and double chamber tomb.

Miscellaneous

557, 561, 583 and 590.

In the first three cases a group of material was found "below the surface", implying no recognisable architectural plan. Whether this was a deliberate form of burial, or simply the result of erosion and overwhelming disturbance, is difficult to ascertain. The groups may well form recognisable units of grave goods, for example, all three contain a jug with a dipper juglet, frequently construed as a pair. On the other hand, these groups may be fortuitous finds thrown up by the method of large area probing, or even pots ejected from a reused tomb. (Note: F561 has the only piriform juglet, here unprovenanced.) The depth of these groups varies; F583 was 12" below the ground, whilst the other two were 24" (60 cms.) below. A point in favour of these deposits being disturbed is that they contain no small objects.

F590 has an unusual plan of three shallow pits with a central depression. It does not look complete, and it bears little resemblance to any of the other plans discussed a above.

(The 1000 cemetery, with twenty five tombs of the MBII period, also fits into the mould of the types of tombs mentioned above.[1]

Type 1.	1001, 1003, 1006, 1010, 1011, 1012, 1013, 1015, 1016.
Type 2.	1002, 1007, 1008, 1009, 1014, 1017, 1018, 1019, 1020, 1024, 1026 A & B.
Type 4.	1021.
Miscellaneous.	1004, 1027 - shallow pits. 1023 a destroyed grave.)

Discussion

In many ways the five types of design are a progression from the simple rectangular grave to the shaft grave with stepped alcove or rudimentary chamber. The deepest shaft then follows in Type three, necessitating a staircase leading down to the enlarged chamber. With an even larger chamber still in Type four, it assumes a bilobate buttressed appearance, and finally in Type five the larger area still, requires a shaft and a double chamber.

That these plans were designed in advance of construction and not simply later enlargements of earlier simple tombs is shown by the deliberate way in which in the tomb staircase and the axis of the chamber in the larger tombs is so placed to give the tombs a balanced plan. What these separate designs mean is more difficult to assess. The most obvious explanation is that the different designs are simply a function of their size - a larger area tomb cannot be cut with a single circular chamber like a smaller one might owing

to the danger of roof collapse, hence the development in these larger tombs of the bilobate buttress or the double divided chamber. Likewise, the larger the tomb the deeper it would have to be to gain the necessary added stability of the earth of the roof and the greater chamber height, hence the small chambers are near the surface and can be entered by a one step shaft, whereas the deeper chambered larger tombs would need the stepped approach.

If the tomb shape, both vertically and horizontally, is a function of size, one must then ascertain, of what is size the function; whether it is burial custom, the number of required interments, differences in class of burial, the area of the cemetery in which the tomb is cut or possibly even a difference in time?

There can be little doubt that large tombs were used to house more people than small tombs - graves only tend to contain single burials whereas large tombs had five or more bodies placed in them. (Some of the graves in the 1000 cemetery have evidence of two bodies, whereas the bilobate tomb 1021 contains twelve bodies at least.[2]) The number of items of grave goods also indicates this size difference; graves contained two or three objects on average, small tombs contained under ten objects, but the large tombs contained up to fifty objects.

The difference between the various types of tomb can be noted to be a result of more or fewer bodies. It cannot, however, be readily explained as a difference in class. There is very little real qualitative difference in the material of a small or a large tomb; the difference seems

solely to be quantitative. (Possibly on a per capita basis.) Both small and large tombs contained basically the same units of goods - bowls, a jar or jug with a dipper juglet, a scarab and toggle pin etc. - only that the large tombs contained more units because they had more burials. (The exception may be the lack of scarabs in so many of the Type two tombs, but this could be sex rather than class.) In fact, class is a difficult criterion of variability to apply to such a small sample of each type. It is true that only the larger tombs tended to contain daggers, but only one or two specimens were found despite the comparatively large size of the deposits. Necessarily, with such a sparse distribution, small graves would only infrequently contain such 'rare' objects. As for scarabs, with or without toggle pins, the Type one graves have as many per capita as do the large tombs.

It might be argued that there are different customs of burial evidenced by the varied architectural forms of the tombs, with the suggestion that the large tombs are 'family vaults' representing perhaps a complex and more elaborate form of burial. Certainly the amount of earth that would have had to have been dug out would require considerable organization and effort. The small graves on the other hand might be seen as the individual and perhaps even the 'poorer' graves of the district, since they require very little work. It is debatable whether such a modern concept can be transposed into an MBII context on such slender evidence, particularly when one might argue that the single graves show individual attention whereas the larger tombs were hardly more than common charnel houses, unless of course they had begun their use as elaborate tombs for very few people and then later just been reused and robbed

uncaringly as seems to have happened at Jericho.

The area of the cemetery does seem to have some significance in the different types of the tombs, for example the Type three tombs lay along the western edge of the cemetery, whilst the Type four tombs were distributed in the central and northern areas. The Type five tombs are close together in the north eastern area. Having said that, its meaning in real terms is no more readily understood, whether certain types of tomb were only cut, or even could only have been cut, in certain areas of the cemetery because that particular form suited the ground in that part, or whether the forms of the tombs are progressive and changed during a period of time as the cemetery gradually changed its ground.

There are certain comparisons with these five styles which might give some chronological basis for the differences, although such comparisons tend only to complicate the problem rather than to simplify it. The Type one grave is a common enough form of burial. One might perhaps usefully compare grave F581 with a similar grave at Lachish dated by Tufnell between 1750 and 1700 B.C.[3] (Incidentally they are both child burials.) Type two, the shaft and chamber tomb, is similar to other examples at Lachish, for example 1502 dated between 1700 - 1650 B.C. by Tufnell.[4]

It is perhaps the bilobate tombs which have received the most comparative study, occuring as they do not only at Fara but also Tell Ajjul,[5] Jerusalem,[6] Lachish Tomb 153[7] and even in Cyprus at such sites as Lapithos - tombs 316 and 320.[8] They have even been compared to the Mycenaean chamber tombs in Greece.[9] As far as Lachish is concerned, Tufnell maintains

that the earliest examples of bilobate tombs occur at the end of the EBMB period to be seen at Lachish in tombs 2100 and 2101.[10] Similar types of tomb occur also in the Late Bronze Age at Tell Fara in such tombs as F935, 960 etc.[11] Stiebing[12] points out that in Cyprus:

> " ... the closest parallels to the Palestinian bilobate chamber tombs are dated to the Middle Cypriot II and III periods (roughly contemporaneous with MBII B & C in Palestine)" (his brackets).

The result of these comparisons is to allow the date of the bilobate and other tombs to be anywhere within the MBII period.

Relative and Absolute Chronology.

Chronology having been discussed in broad terms for these tombs, one should now consider what views have been expressed for a refined absolute dating for the tombs.

1) Scarabs

In his analysis of the MBII tombs, Petrie expressed no doubt that absolute dating could be achieved by analysing the scarabs and placing them in a typological and hence chronological order by comparison with known Egyptian styles:

> "The groups (of scarabs) give sufficient scope for sorting them into a probable sequence, by noting the successive introduction of fresh types and variations of style side by side with what was already established. (Similarly, the pottery

> in a lesser degree marks the changes by the introduction of fresh varieties during expansion and the falling off of types during decay)"[13]

(How much of the last part of that statement was an expression of Petrie's general philosophy and how much it was related to the particular problem in hand is difficult to judge.)

Of the forty three tombs under discussion, he published twenty seven of them in an order assessed according to the scarabs;[14] the remainder are published numerically.[15] The analysis of the scarabs from the twenty seven tombs is very thorough, comparing each scarab with Egyptian equivalents, particularly the scarabs from Tell el Yahudiyeh. He illustrates the gradual degradation of types, the philosophic centre of his approach, from their Middle Kingdom echoes in tomb F570 to the fully degraded forms of tomb F554, the last in his sequence.

The range of time covered by these scarabs would be the periods of the XVth and XVIth Dynasties, stretching then from the early part of the 17th Century (ca. 1670 B.C.) to the end of the Hyksos period, a total of some 100 years or more. It must have been this dating of Petrie's which has enabled Kenyon to state:

> "Of the numerous MBII Age tombs (at Tell el-Fara'h) excavated, sixty can be closely dated, and of these fifty-eight seem to equate with Jericho Phase V".[16]

for according to Kirkbride, Jericho Phase V,

> " ... can most probably be assigned to the period covered by the 15th Dynasty."[17]

If then Petrie maintained that the scarabs of these tombs at Fara are XVth Dynasty, then they must per se be equated chronologically with the last phase of the Jericho tombs.

In his paper on the origin of the Philistine tombs at Tell Fara, Stiebing notes:

> " ... that the bilobate chamber tombs (at Fara) all date to MBIIC, approximately 50-100 years later than the presumed Hyksos invasion of Palestine".[18]

One can only assume that since no reference is given to this statement, the evidence adduced for these dates must be from Petrie's original dating system.

It has already been discussed that the evidence from scarabs of this period in particular, when so many of the scarabs are little more than 'blundered' (sic Petrie) imitations, is highly suspect. Kenyon and Kirkbride have amply expressed their doubts upon the usefullness of the method at Jericho, yet this critical approach does not seem to have extended to Petrie's own work, which has remained unchallenged.

It is not the intention here to extend the analysis of scarabs beyond a brief discussion, but one should mention one or two scarabs from the tombs which might be construed to have some meaning of absolute dating, namely F551 Fig.27a.7 and F550 Fig.23a.2 These two scarabs may

contain Royal names, though in neither case is the reading clear. F551 (Fig.27a.7) is read 'Son of the Sun, Ma-neb-re'. According to Petrie[19] this is "a new name of a Hyksos King". Petrie places the tomb very early in his sequence at the beginning of the XVth Dynasty (second of twenty seven) and it may well have been his belief that the name was to be equated with the other named scarab in F550. It might be pointed out however that this scarab in F551 does not come from the chamber, but clearly is an intrusion in the staircase on the outside of the door-blocking.

F550 (Fig.23a.2) is read 'Ma-ib-re'. Of this Petrie states that it is a well known king's name Maot-ab-re[20]. On this basis, Petrie places this tomb fourth in the sequence. According to some authorities Maibre/Maotepre is the king Mayebre, the prenomen for Sheshi,

> " ... whose seals and seal impressions, of early Hyksos types, are both numerous and widely distributed".[21]

Hayes[22] equates this king with the 'Salitis' of the Manethonian Canon, that is the founder of the XVth Dynasty in about 1674 B.C. If then Mayebre/Maibre/Maotepre is accepted as a prenomen for Sheshi, and if Sheshi is accepted as the alternative for Salitis of the XVth Dynasty, then the equation may also be made between this scarab in Fara tomb F550 with the 'Son of Re-Sheshi' class scarab in Jericho tomb H13 which is a Phase V tomb.[23] If all that is then accepted, then it would appear that one of the earliest tombs in the Fara sequence, fourth in the system, would be of the same date as one of the latest at Jericho. The Fara cemetery then would

surely equate with Phase V and later at Jericho and thus as a whole be late MBII.

The weakness of this type of direct time equation has already been demonstrated. The prenomen Mayebre for Sheshi is in dispute, and particularly Sheshi as founder of the XVth Dynasty is opposed by Gardiner.[24] Furthermore, since scarabs themselves are such an unreliable dating procedure, since also the relative dating of these tombs at Fara as decided by Petrie is equally in doubt, and since the real meaning of a "Phase V" tomb at Jericho as a mark of lateness or earliness has been discussed and questioned elsewhere, it would be unfair to the evidence to rely upon such an equation. In fact, the evidence has here been used to generate the same self-supporting argument that has been previously judged unsafe.

If the pottery of the two equated tombs, Fara tomb 550 and Jericho tomb H13 is compared, it will be seen that there is a resemblance in the lamps, the dipper juglets and the one handled jug which one might expect from any two tombs of the MBII. Two of the four cylindrical juglets of F550 however are a miniature form not seen at Jericho and also, Jericho H13 contains four pedestal vases not found at Fara. The outstanding difference would be in the comparison of the bowls of the two tombs; none of the F550 bowls bears any true typological resemblance in the strict terms of the Jericho typology to any of the bowls in H13.[25] Also, apart from the one scarab mentioned, none of the remaining scarabs bears resemblance one tomb with the other.

Returning to other scarabs from Fara that may have some bearing upon absolute chronology, Rowe, whilst dating

many of the Fara scarabs to the XVth and XVIth Dynasties, dates some of them earlier, e.g. F559 (Fig.41a.3) which he describes as "XIIIth Dynasty or later". This scarab could be interpreted to be pre-XVth Dynasty, though Petrie puts the tomb in which it was found fifteenth in the succession of the twenty seven tombs and as such, the XVIth Dynasty.

Another anomaly would be the scarab in tomb F556,[26] which Petrie would date to the reign of Thutmosis III in the 15th Century; he explains its presence as an intrusion from a later burial.[27]

In the matter of straightforward typological comparisons of the scarabs between Jericho and Fara, one might suggest on the same basis as the typological one mentioned above:

F545 (BPI Pl.VII,46) equals B51 (JTII Fig.291,14) Phase III
F551 (BPI Pl.VII,14) equals J54 (JTII Fig.283,2) Phase II early
F556 (BPI Pl.X,66) equals B51 (JTII Fig.291,4) Phase III
F559 (BPI Pl.X?87) equals J54 (JTII Fig.283,4) Phase II early
F565 (BPI Pl.X,106) equals J3 (JTII Fif.282,2) Phase I
F584 (BPI Pl.VII,20) equals J3 (JTII Fig.282,2) Phase I
etc.

These are some of the obvious direct typological comparisons of the seal carvings; there are others but the above are sufficient to illustrate that some of the scarabs may typologically be compared to scarabs at Jericho which appear well before 'Phase V'.

ii) Pottery

Turning to the pottery from Fara one finds that it is all MBII in date. The lateness or earliness of the distribution of piriform juglets has been discussed elsewhere. If it is believed that piriform juglets tend to be an early feature of MBII whereas cylindrical juglets tend to be a late feature, then since only one unstratified piriform juglet was found at Fara (F561) and one dubiously stratified (F579), the remainder of the narrow necked juglets being cylindrical, one might conclude that these tombs at Fara are late in the MBII sequence. The weakness of this argument has also been pointed out.

One piece worthy of note is the large globular jug in tomb F551 (Fig.25.17) which is a Cypriot Black on Red hand made vessel. The occurence of this form might indicate for part of the deposit of this particular tomb a late point in the MBII period.

> "MBIIC is the period when Cypriot imports become common in Palestine and they continue to increase in volume during LBI".[28]

Other than this one piece, there is nothing inherent in any of the tombs that might suggest an absolute date within the MBII period.

B. COMPARISON OF FARA WITH JERICHO

Burial Custom

In comparing the two sites, there are certain pieces of evidence which are more fully represented at Fara than at Jericho. One overwhelming difference between the two sites is that at Jericho the burials are interred successively in the tombs of an earlier period, whereas at Fara the cutting of the tombs is a crucial part of the character of the MBII burials. If one considers that in the MBII period there are two potential areas of evidence which display the characteristics of burial custom, namely tomb design and tomb equipment, then Jericho lacks the evidence of contemporary tomb design which the Fara tombs provide. Whatever the meaning of the various styles of tomb at Fara, at least they indicate differences - differences that would not be obvious if one had to judge only from the tomb equipment. It is true that the large tombs have more equipment than the small graves, but they do not really have different equipment; in the main, the typology of both the large and the small groups of material is the same. The difference in tomb architecture at Fara, coupled with the position of groups of the same style of tomb in particular parts of the cemetery, must be a criterion for sub-dividing the tombs and therefore these criteria are not available at Jericho.

Quite why the two sites differ in tomb construction is difficult to tell. It may reflect,

a) a fundamental difference in burial custom which allowed the inhabitants of Jericho to reuse old tombs over and over again instead of cutting their own new ones.

b) the fact that since Fara itself was not inhabited until the MBII period there were no tombs available for reuse and so new graves and tombs had to be cut, but had there been an EBMB cemetery at Fara then it would most certainly have been reused as at Jericho.

c) the difference in the earth from which the tombs are cut, the hard limestone at Jericho as opposed to the softer marl/sandstone at Fara, which prompted the Jerichoans to abandon grave construction at that site in favour of reusing the ready cut tombs.

Accepting that at Fara the tombs were cut as required and were designed to the tastes and the customs of the burier whereas this option cannot have been excercised at Jericho, how then does this affect the presentation of the evidence at Jericho? The actual decision to reuse the tombs at Jericho may have obscured or even removed the subtler differences which the period exhibited at Fara. That is, at Fara small tombs were used for individual burials and large tombs were used for multiple burials. If, however, only large reused tombs had been available, as at Jericho, then the distinction between the two types of burial would at best have been made less conspicuous and probably would not have been distinguishable at all. Paradoxically, it is the outstanding size of the deposits and the number of burials in the Jericho tombs which among other features have attracted recent attention to them. The small deposits, like those at Fara, have not evoked the same degree of interest and yet their

smallness might make the Fara tombs more representative of specific points in time during the MBII than the larger deposits at Jericho where their very size makes them unrepresentative, indicating a long period of use.

Pottery

Perhaps the most important area of comparison between the two groups of tombs is the typology of the pottery and the small objects. Kenyon believes that the Fara tombs are all to be placed at the end of the MBII period because their pottery is best pottery to her Group V at Jericho.[29] According to Kenyon's typology, the most significant feature at Fara which indicates lateness is the almost total absence of piriform juglets. If one accepts Kenyon's system, this single factor would then be such a strong indicator that there would be little room left for doubt. Other features of the Jerichoan system which would support this view of lateness would be the appearance of faience in some of the tombs at Fara, the use of decorated headed toggle pins and the lack of pedestal vases and small globular bowls. All these features would indicate a late rather than an early phase.

There are other features which argue against too simplistic a conclusion:

1) The typology of bowls is both important and significant at Jericho - there are many sub-divisions of the small carinated bowls, Types B, C and D. At Fara, small carinated bowls are also amongst the commonest items buried in the tombs. It is remarkable therefore that there is no real point of comparison between the typology

of these items in the two sites, for the form of small carinated bowl which is so common at Fara does not occur at Jericho. At Fara, every tomb has an example of the bowl, with its everted rim, short vertical upper wall, simple carinated shoulder, longer convex lower wall and small turned disk base. In F550 there are four preserved, in F555 five preserved, F565 four, F569 three and so on. This does not account for others that have been lost. At Jericho, the nearest type of bowl to this form is type C2a which is described as a 'wide carinated bowl with upright upper wall and oblique ring base'. The dimensions are about the same, with a maximum width of about 16 cms. and a maximum height of about 8 cms. However, amongst the hundreds of bowls at Jericho, there is only one example of this form found, in tomb A34,11.[30] The tomb is a Group III tomb. There is no cognate form of this type unless it is the form C1a, although the upper wall is angled inwards too strongly. Of this form there are only five examples in Groups I,III and three in Group II.[31] This lack of comparable bowls is a significant weakness in any typological comparison between the two sites, that a type so common among the small groups at Fara and thus representing a large percentage of its total pottery is rarely found at Jericho.

ii) It is said that one of the significant developments that takes place during the time span of the Jericho tombs is the change in base type, from the disk base of the earlier periods to the ring base of the later, being both stylistically and technologically different. It has

been pointed out in Chapter 3 that at Fara at least, the distinction between disk and ring bases is non-applicable since there is only one truly ring-based vessel in the whole cemetery (F578B Fig.64.2), that is, avvessel having an applied ring base. Other than this one vessel there is every shade of turned base from flat disk to ring, but essentially all these bases are technologically the same. The depth to which the turning will be taken, which in these cases determines the base profile, depends upon the amount of clay to be removed from the foot. If the inside bottom of the vessel is close to the outside before turning commences, then the turning cannot cut very deeply into the foot without breaking through the wall, whereas a thicker foot requires a deeper turning of the base. This is also a question of the angle of the inside profile. The variation between one base and another does not impy a strict division of type that the Jericho style is meant to imply, since the same system forms both the ring base and the disk base and all the interim forms. In any case, all varieties of these bases occur in equal quantity at Fara, with the emphasis, if anywhere, on the 'earlier' disk base.

iii) Slip, and more especially burnish, is said by Kenyon to be a feature which was already dying out in the MBI/MBII transition.[32] At first glance, the material from Fara apparently lacks the use of slip and burnish, which would accord with its 'lateness'. As has already been discussed in Chapter 3, close examination reveals

that nearly every juglet, both cylindrical and dipper, together with many of the bowls, exhibit traces of slip and burnish. Surface decay, slip cracking and over-zealous scrubbing have all acted to obliterate the burnish marks which careful observation can now restore. On many vessels the unmistakable vertical facets have remained after the surface has decayed; they may be assumed on many others. Further, at Fara, the proven incidence of this feature would seem to be greater than that of Jericho.

iv) It has been suggested that at Jericho the plain-shaft toggle pins are earlier in the sequence than those with decorated shafts. At Fara, some tombs have no pins at all, but those that do have an assortment of both the plain and the decorated shaft varieties, which might suggest their contemporaniety.

Whilst some features do suggest that a comparison with Jericho might be meaningful in a chronological sense, others do not. The monopoly of cylindrical juglets, the absence of pedestal vases and small globular bowls at Fara are indeed features of Jericho Group V, but the different bowls at Fara, the varied bases, the extensive use of slip and burnish and the differences in toggle pin distribution do not support such a comparison. Further, if as has been shown in Chapter 2 the subdivision of the Jericho typology itself is an unsafe system, then it would suggest that there ought to be alternative reasons perhaps for the differences between the Jericho typology and the Fara typology than considerations of date alone.

There are several strong reasons for supposing that the tombs at Tell Fara cannot be understood within the strict chronological interpretation which the divisions of the MBII at Jericho would involve. If they were so confined, then they would have to be 'very late' in the MBII period, as it were, in the last few decades of that period. First, from the variety of the Fara tombs which have been discussed, different burial systems have emerged - small and large burials, graves and shaft tombs etc. - and these different systems imply either that a variety of differing customs were practiced simultaneously or that with the passage of time tombs became more, or less, elaborate. The use of different parts of the cemetery may well suggest the same two possibilities - naturally there is no way of knowing which of these two possibilities is correct.

One assumes that the 500 cemetery does not represent anywhere near the total population of Fara in the MBII period; the number of interments evidenced can in no way relate to the length of time the period continued at this site. If one assumed that five persons had been buried in every grave, shaft tomb and large tomb, the burials in this cemetery would only total some 200 persons, and in fact the actual number may be less than half of that. On the other hand there is no reason for suggesting that the cemetery stretches over a short period only. The population of Fara is an unknown quantity at this time, nor is it known, more importantly, what percentage of the population was buried in this way, nor is it known if this is the only major cemetery for the site. Such a small number of burials for such a large site suggests much more that over a period of time only a small number of the

inhabitants were accorded burial of this kind. The variety of the burials might well suggest that this period of time was a protracted one particularly in view of the fact that at Jericho, supposedly, a small number of burials are said to span the whole of the MBII period.[34]

Regionalism

In examining the Jericho typological dating system, it should be asked whether or not typological variation must be a function of changing chronology and even if it is, whether one can define those features which represent this form of change rather than any other form of change. If this is problematic within one site, the problem of comparing the typology of one site with another totally different site will be even greater. The more will this difficulty be felt if the sites are in different regions, for at best the two sites are being served by two separate manufactories. It must be expected that there are bound to be unconscious regional variations even within synchronous groups but there may also be a conscious regionalism which further obscures the purely chronological variables.

There are two non-chronological aspects which might well promote varied typology during the same period or phase:

i) Different regions may produce variant forms which make detailed comparisons on the basis of date almost impossible.

ii) Conservatism within each region may well preserve deliberately the traits of local manufacture as characteristics of the region, leading not only to regional differences,

but the perpetuation of these differences over a considerable length of time as a mark of that area.

1) To examine the two areas of Fara and Jericho, it will be evident that the Western Negev, economically and strategically, is a different zone from the Judean Hills and the Jordan Valley. It forms a small semi-arid marginal agricultural buffer in the southern coastal plain, a clearly defined geographic area. Urban sites here are at the limit of agricultural viability. Sites like Jericho or El Jib, however, are sited quite differently topographically, lying as they do within the cordon of the hills.

These well-defined geographic areas may well be of great significance for typological comparisons. If one compares the pottery of the Jericho tombs with other sites, the most obvious direct comparison would be with the similar tombs from El Jib, a site in the hill country only twenty kilometres from Jericho. In both cases the tombs are reused EBMB tombs and they contain similar assemblages of pottery, including the piriform juglets, the pedestal vases and other forms which are typical of both of these sites but which are missing at Fara.

Similarly, the best comparison with the typology of the Fara tombs would be with a site such as Ajjul, some twenty kilometres to the north west. The two sites are both similar strategically, economically and topographically in the plains of the Western Negev. To take one case in point, one of the problems of typological comparison between Jericho and Fara was the small carinated bowls. (Corpus Types 18J4, 7, 8, 9, 12, 13, 14, 18K1, 2 etc.) At Ajjul, the MBII tombs, as

at Fara, all contain this style of bowl. Grave 36 at Ajjul has three examples, together with jugs, dipper juglets, a piriform juglet, two cylindrical juglets and a lamp.[34] The equid burials also have this form - A247 has an example of 18J8, and 407 18K1, this latter tomb with a cylindrical juglet and two piriform juglets. Whilst it might be argued that the form, found with both piriform and cylindrical juglets, is common throughout the MBII and therefore not important from a chronological diagnostic sense, more forcibly it can be illustrated that the form is not ubiquitous and the fact that it does not occur at Jericho presumes that, common or not, it is a local form in the Negev, although it is found in the single MBII/LB tomb at Jerusalem.[35]

To continue the comparison further, at Ajjul there are no pedestal vases found, a form popular at both Jericho and El Jib.

Within the vicinity of Fara, there is an MBII tomb at Gerar some ten kilometres north west which has four vessels in it, all reminiscent of the Fara groups.[36] The same is true of the large MBII tomb at Tell Nagila some twenty five kilometres north east of Fara which with one hundred and fifty vessels contained no pedestal vases and no piriform juglets except one Yahudiyeh piriform.

These four burial sites exhibit similar typology and they all lie within a twenty kilometre radius of one another, within the same geographic, social and economic area, just as the sites on the east side of the hill country, over one hundred kilometres distant, tend to exhibit similar typologies but different from that of the sites in the Negev. Whilst finally

it might be argued that the Negev as a whole was persistently not settled until a late phase of the MBII, several points temper such an interpretation, for example, the presence of the MBI cemetery at Tell Ajjul, the wide variation of tomb and grave styles at Tell Fara, the occurrence of the Fara type of carinated bowl with piriform juglets at Tell Ajjul and clearly also, even if the formal building of the cities is late, the graves and tombs need not date only to that period but may span a longer and earlier period of time.

ii) The conservatism of groups of people has been discussed in Chapter 2. Populations of the sort under consideration here may well have preferred rigid traditionalism to the fluctuations and variations of form. Amongst such a community, a matter of a hundred or more years within a stable period would be unlikely to be responsible for much discernable change. On the other hand, different localities may well illustrate differing traditions which are zealously preserved as a mark of the identification of that locality.

As an illustration of this phenomenon, one might quote a modern example which is surprisingly similar to the situation proposed above.[37] In the present day in the areas now considered there are two main zones of pottery manufacture producing the domestic vessels used by the regional inhabitants - the bowls, juglets, jugs, storage jars etc. The one group of potteries is situated in the Gaza area in the Western Negev and the other group is in the Hebron area in the Judean hill country. To a total outsider, used perhaps to many ceramic variations on a global scale, these two pottery areas are producing the same vessels - there is no mistaking these

forms as anything other than Arab pots. At the same time, however, there is a distinct variation between the two regions in the finer details of the profile, the rouletting, the handle form or whatever. Furthermore, there is an obvious and outstanding difference in the colour, for all Gaza ware is black, and all Hebron ware is white (buff/white).

A second point of comparison is that the extent of the sale and use of the products of these two potteries follows a similar line - Gaza ware is extant throught the Western Negev as far as Beer Sheba, some twenty kilometres radius, but it is not to be seen in the hill country. Conversely, the Hebron ware dominates the small village markets in the hill country as far as Bethlehem to the north or Dahriyah to the south, again a radius of twenty kilometres.

Finally it is noticeable that the Gaza Black ware has not changed materially over the last hundred years[38] and probably even over a longer period than that. The same is true of Hebron ware, and all this despite the world upheavals of the last century or so. (It should be pointed out that only in very recent years with the changing social order and the deliberate changes in population is any change beginning to affect the distributions mentioned.) Therefore, for long periods of time these two areas seem to have preferred traditionalism to change within one area, but variation between one area and another is seen as a mark of locality. One would not suggest that the MBII ceramic distribution was in any way a forerunner of this present distribution but it stands as an illustration of a possible phenomenon.

Summary

It has been demonstrated that the internal division of the MBII period as conceived by Kenyon and as applied by others is perhaps less convincing than it at first appears. Both subjectively and objectively analysis would tend to argue in favour of a much less stringent interpretation of the data at Jericho, since the meaning of typological variation is not as clear as it might have been. The further analysis of the tombs from Tell Fara has shown that they present a different set of information to those at Jericho; in many cases they are, by the terms of the Jerichoan typology, incomparable with Jericho itself. Finally, the possibility of typology reflecting regional variation rather than chronology has been put forward as a serious alternative.

In conclusion, one must certainly not deny the possible validity of the Jericho typologically based chronological system in general terms, for it contains much unmeasurable intuition which must be taken into account but it is possible that the typology of that system has been too refined and that the truth might lie more with its broader facets than the straitened interpretations which have been drawn from it. Further it is possible that there are several other dimensions to the structure of variable typology besides that of time, not the least of which is difering locale.

ABBREVIATIONS

Am.Anth.	American Anthropologist
Am.Ant.	American Antiquity
AJA	American Journal of Archaeology
AG	Ancient Gaza Vols I-IV Petrie, WM Flinders, 1931-1934 EES & Quaritch, London
APHL	Ancient Pottery of the Holy Land Amiran, R 1969 Massada Press.
AASOR	Annual of the American Schools of Oriental Research
AAA	Annals of Archaeology and Anthropology, Liverpool.
AHL	Archaeology in the Holy Land Kenyon, K.M. 3rd. ed. 1970 London
BASOR	Bulletin of the American Schools of Oriental Research.
Bull.Hist. Metal.Gp	The Bulletin of the Historical Metallurgy Group
BIA	Bulletin of the Institute of Archaeology,London.
Bull.I.S.I.	Bulletin of the International Statistical Institute.
BP	Beth Pelet Vols.I & II Petrie, W.M.Flinders 1928 & 1930 EES & Quaritch, London
CAH	Cambridge Ancient History Cambridge University Press, both in fascicles and in new editions.
Chronologies	Chronologies in Old World Archaeology ed. Ehrich, R 1954

Abbreviations cont.

Corpus	Corpus of Dated Palestinian Pottery Duncan, J. Garrow 1930 London
EEF	Egypt Exploration Society
IA Cat.	Registration catalogues of the Institute of Archaeology, London.
IEJ	Israel Exploration Journal
JT	Excavations at Jericho Vols I & II, dealing with the Jericho tombs. Kenyon, K.M. 1960 and 1965
Journ. Anthr. Inst.	Journal of the Anthropological Institute
MAHS	Mathematics in the Archaeological and Historical Sciences ed. Hodson, F.R., Kendall, D.G. and Tautu, P. 1971 Edinburgh
OIP	Oriental Institute Publication, Chicago
PEQ	Palestine Exploration Quarterly
Psych.	Psychometrika
QDAP	Quarterly of the Department of Antiquities of Palestine.
WA	World Archaeology
ZDPV	Zeitschrift des Deutschen Palästina-Vereins

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