

approximately HWC inventory catalogue by HVT  
Where are the plates?  
The Glass Beads

Beads hitherto scarce on excavations at Aksumite sites, were numerous from the excavations of 1973-74. About 1800 in all were recovered of which the great majority (1352) were of glass. Of the remainder, stone beads were dominant. These consisted mainly of semi-precious beads of carnelian, Agate, beryl, amazonite, crystal-quartz and malachite beads occurred in small numbers. Of the four hundred carnelians most were well-polished and were probably from India;<sup>(1)</sup> the four roughly fashioned ones were ~~per~~ perhaps locally made. Beads of less valuable stone, such as soapstone, kaolin, chlorite-schist, talc-schist and siltstone occurred in lesser numbers. They were crudely made and ~~per~~ are assumed to be locally produced. Metal beads in copper had occasional appearances; three gold beads and two of silver were the only specimens of precious metal. Three terra-cotta beads and one of wood complete the assemblage of beads in materials other than glass. The glass beads are of great interest as a collection deriving chiefly from the necropolis of Aksum during its ascendancy as a trading partner in the late Roman Empire. It is not surprising that these beads display a great variety; their origins are difficult to trace. Their importance in the trade will be dealt with later.

The Limitations of the Study

The difficulties encountered in assessing the collection of beads are manifold. Unlike the glass objects from which certain deductions can be made on stylistic grounds as to the dating and sometimes as to the origin of such objects, beads

on stylistic grounds remain elusive. Certain styles may remain current in certain areas for long periods of time. On the other hand, the same fashions in beads may appear and re-appear at a much later date in diverse areas.

Chemical analysis of the beads themselves has its limitations in regard to tracing their origin or dating them, for without the supporting evidence of ~~f~~ glass from datable glass factories<sup>(2)</sup>, little as yet can be deduced from such analyses.<sup>(3)</sup> The multiple difficulties and uncertainties encountered when trying to interpret the ~~f/f~~ results of scientific analyses of the beads are fully explained by Dekówna.<sup>(4)</sup> The fact that old glass was bought up to be re-melted into new ~~f~~ glass<sup>(5)</sup> further complicates the task of analysis.

The beads have been subjected to an ocular examination which admittedly has its deficiencies; but in collaboration with dated objects and with comparisons to beads from other sites much can be deduced.

Many beads from the excavations of 1973-74 derive from deposits which have been much ~~f~~ disturbed and therefore stratigraphically mixed. In many cases however they resemble beads from the dated ~~f/f~~ tombs. In these cases the beads have been considered as being contemporary with the beads from the dated contexts.

No evidence was found of local manufacture of beads. Hence it is assumed that they were imported.

#### Methods of Manufacture

Various techniques of bead-making were represented at Aksum. These are as follows, drawn, wound, plain-moulded, hand-moulded with pinched ends, faceted, mould-faceted, folded beads and gold-in-glass beads. Certain of these have been well described.



Chittick has set forth the methods of making drawn, wound and folded beads which may be applied to the Aksum beads of the same forms and have been useful in describing the beads below.<sup>(6)</sup> Guido has written of the methods involved in making moulded and certain faceted beads<sup>(7)</sup> and Boon has dealt with the manufacture of gold-in-glass beads<sup>(8)</sup>; both of these have been relevant to the beads of Aksum.

The diverse methods of manufacturing the beads found at Aksum are the following:

Drawn beads: These were made from a matrix of glass which has been blown into a hollow ball, which is then drawn  $\Delta$  out while hot into a  $\frac{1}{8}$  tube and snapped or cut-off into smaller or larger pieces. These constitute the beads. Nearly always they are reheated to form rounded ends. If untreated by reheating, they are called snapped drawn  $\Delta$  beads.<sup>(9)</sup> The drawn beads are referred to as cane beads in some publications.<sup>(1)</sup>

Wound beads: This method consisted in taking a strand of glass from a molten matrix and winding it around a mandril. The ends were then cut off and marvered together, or a thin strand may be drawn out of the matrix and wound many times around the mandril afterwards being marvered smoothly together. The striations are always visible. The perforations are always wide and usually conical, since the beads was often wound on the conical end of the mandril.<sup>(11)</sup>

Plain moulded: The beads are formed by pouring molten glass into a mould which gives them their shape. A wire core causes the perforation.  $\Delta$  The contraction of the metal when cooling is greater than the contraction of the glass thus facilitating disengagement of the bead. There is a great variety of moulded

shapes. These are as follows: bicones, category IIa (p. 00); cylinders, category IV a (p. 00); discs, category V (p. 00); ellipsoids, category VIId (p. 00); flattened diamond-shaped, category VIII (p. 00); piriform, category IX (p. 00); ring-beads, category XII (p. 00); spheroids, category IXb (p. 00). The uncommon beads of categories XXII - XXIX (p. 00) were also moulded beads.a

Hand-moulded with pinched ends: These beads were formed by threading a drawn-out tube of glass while hot upon a wire core, then crimping it at intervals to form segments of the length desired. In so crimping it, certain forms were given such as biconical, category IIb (p. 00); cylindrical, category IV c (p. 00); spherical, category XIXb, (p. 00); and that of oblates, category Xb (p. 00). The beads that were broken off retain a narrow collar which eventually gets worn away. The perforation of such beads always broadens noticeably at the centre as a result of the crimping.

When a bead consisting of two or more crimped segments has been broken off with its jagged collar at either end, it is called a longitudinally segmented bead as in category ~~IX~~ IX (p. 00).

Faceted: These beads were first pressed while still half molten into a rectangular or triangular shape, the perforation being formed by a wire or other similar object. The faceting was then done by hand with an instrument that ~~gave~~ gave it ~~its~~ its final shape. There were many styles of faceting these beads giving rise to various shapes as is shown in categories XXIII - XXVIII (pp.00 - 00).

Faceted by moulding: This method applies to beads that are faceted hexagonally, the few tetragonally faceted beads as well as to the polyhedrally faceted spheroids. Their faceted shape is due entirely to the moulds into which the half-molten glass

is pressed. In some cases there may have been some amelioration by marvering. The categories Ib (p. 00), IIa (p. 00), IIId (p. 00), IVb (p. 00), VIIc (p. 00) illustrate this method.

Folded beads: The method of manufacturing these beads has been fully described by Chittick<sup>(12)</sup>: The folded bead consists of a matrix upon which several strands of different coloured glass have been trailed. Then the whole mass is pressed into moulds of various shapes. In the case of the Aksum beads the moulds are spherical. The resulting moulding gives the effect of a folding of the colours into the background colour of the bead. A sectional fragment shows that the application of the colours is superficial. [The folded bead here described in category XXI (p. 00) is quite different from the examples from Kilwa.]

Gold-in-glass beads: The method of manufacturing these beads is described by Boon.<sup>(13)</sup> The beads were made of sections of colourless glass tube that have been covered in gold foil and then dipped into molten colourless glass for protection and added brilliancy. The ensemble was then threaded upon a narrower wire to be crimped into segments that could be used singly or in multiple units. These ~~xxxx~~ variously took the form of spheroids, cylinders, ellipsoids, collared cylinders or longitudinally segmented beads. Whatever the form of the beads, they all have a characteristic perforation which narrows  $\frac{1}{2}$  at either end, caused by the wire of smaller diameter upon which the crimping takes place. The jagged edges of the collar gradually wear away. In some of the  $\frac{1}{2}$  Aksum beads this collar is  $\frac{1}{2}$  barely visible.

#### Definition of terms used in describing the beads

The work that is most commonly consulted in describing beads of all times and of all periods is that of H.C. Beck<sup>(14)</sup>. Some of his terms have been modified to suit the Aksum collection of



beads, some of which were of shapes not included in the classification put forth by Beck. The explanation of the terms used to describe each form of bead is included in each of the various categories. There are, however, a few terms which are used that have a particular meaning in regard to the beads. (15)

Patina or patination: This refers to the difference in colour caused by decay and chemical action to the surface of the glass of the bead. This may eventually change the entire composition of the bead or simply confine itself to the surface. The various colours of the beads display their own characteristic chemical changes which may be as extreme as that of Indian-red beads appearing yellow on the surface and even to the interior of the bead sometimes; to the less ~~of~~ dramatic iridescent patina of the deep-blue translucent beads which does not affect the colour of the bead much. Some colours of beads, such as the medium-light-blue are not ~~sub~~ subject to this ~~of~~ effect and appear in perfect condition.

Weathering: This has to do with the change in the texture of the glass giving it a dull appearance which is due to chemical action from the soil. (16)

Snapped: This term applies to the manufacture of drawn beads and refers to the breaking off of the hollow rod into small pieces that are not further treated and become beads.

Re-heated: This term applies to drawn beads and means that after being snapped off, the bead is re-heated to smooth the surface, and round off the ends. These beads are always irregular.

Marvered: This term applies to shaping the bead while hot upon a slab in order to give a smoother appearance to the surface of the bead as in the case of wound beads or beads decorated with a secondary colour or colours.

Trail: This applies to a strand of glass that is wound around a bead of a different colour.

Layered: This applies to drawn beads which have an outer coat of a different colour than the core of the bead.

Striped: This term applies to drawn beads that have a discontinuous outer coat of a colour different from the core. The stripes are usually vertical and ~~may~~ may be of more than one colour.

#### The sizes of the beads

These are the terms used in describing the sizes of the diameter of the drawn beads, category VI (p. 00).

Minute	-	diameter less than 2.5 mm
Small	-	diameter 2.5 mm to 4.5 mm
Medium	-	diameter 4.5 mm to 8 mm
Large	-	diameter greater than 8 mm

The abbreviations used are:

min	-	minute
S	-	small
M	-	medium
L	-	large

The length of the drawn beads is determined by the following definition:

**Short:** the length is less than four-fifths of the diameter.

**Medium:** the length is the same  $\pm$  one-fifth either way.

**Long:** the length is greater than one and one-fifth of the diameter.

The abbreviations for the terms above are:

SHT	-	short
M	-	medium
LGE	-	large

The diameter of drawn beads is always given first followed by the length, using the abbreviations set out above.

The dimensions of the beads of all the other categories are stated in millimetres giving the diameter or width first followed by the length and the abbreviations for these dimensions being, D, W and L.

#### The Colours of the Beads

The colours of the beads are determined by eye and are classified according to the Munsell scale at full chroma. This is indicated by the letters and numbers following the colour named. The list of colours of the beads are as follows:

**White:** This is always opaque. These beads are chiefly moulded and sometimes faceted. There are a few wound ellipsoids of small diameter from a fourth century context.

**Greenish-white: (7.5 BG 9/1):** These are translucent though with dull appearance caused by weathering. They are commonly found in the tombs of the fourth century. They are always moulded and nearly always faceted in many different styles.

**Grass-green: (5 G 5/8):** These are either opaque or translucent. Beads of the translucent colour are from fourth century contexts and are usually moulded with some occurrences of faceting in various styles.



- Light-green:** (10 GY 6/9): These are always opaque and nearly always small. They form the commonest colour amongst the drawn beads. Medium-sized discs, faceted bicones, spheroids moulded with pinched ends and wound ellipsoids of small diameter are common in this colour from the catacumbs. A few beads of flattened diamond shape occur in the same tombs.
- Blue-green:** (5 BG 7/7): These ~~may~~ may be opaque or translucent. They occur occasionally amongst the drawn beads with rare appearances amongst the moulded, faceted and the wound.
- Moderate-blue-green:** (10 BG 4/6): This colour is either opaque or translucent. Beads of this colour were uncommon and were either drawn or moulded, a few of which were tetragonally faceted with one occurrence of a rectangular faceted bead.
- Blue-grey:** (2.5 PB 7/7): There were very rare occurrences of this colour, always opaque amongst the drawn beads.
- Light-blue:** (2.5 B 6/6) The beads of this colour were all opaque and occurred mainly amongst the drawn beads. There were a few moulded and a few faceted beads also.
- Medium-light-blue:** (10 B 6/7) This was a very popular colour and always opaque. The majority of beads of this colour were found amongst the drawn beads and the hexagonally faceted bicones from fourth century contexts. A few moulded beads appear in this colour also.

Royal-blue: (5 PB 4/9) This colour was always opaque. It appeared frequently amongst the beads in most categories. It is characteristic of the ellipsoids of small diameter, the discs and the flattened diamond-shaped beads of the 'batacombs'. Drawn beads, faceted bicones, cylinders and rectangular beads occur in this colour, as well as a few moulded and wound beads.

Deep-blue: (5 PB 3/8) This colour was always transparent and often developed a silvery patina from weathering. It occurred more frequently than any other. The ring beads were of this colour with one exception; the plain barrels, the moulded bicones, cylinders and spheroids, the oblates 'moulded' with pinched ends and the faceted bicones and ellipsoids were numerous. Less frequently discs and faceted rectangular beads occur.

Purple: (5 RP 5/10) This colour was always translucent and sometimes developed a silvery patina due to weathering. There were not many occurrences of beads of this colour except amongst drawn beads. A few examples of faceted beads, and of hand-moulded beads with pinched ends; there was one wound specimen.

- Pink:** (10 RP 7/8, low chroma) This colour is always translucent, sometimes with a yellowish patina caused by weathering. The beads of this colour were either faceted ellipsoids, faceted bicones or discs and occurred in the area of the 'Catacombs' with one example from the area of the Tomb of the False Door.
- Red-translucent:** (5 R 4/12) Very few beads appeared in this colour. They were found amongst the moulded cylinders, with a rare occurrence amongst the spheroids of wound and moulded.
- Indian-red:** (7.5 R 4/11, low chroma) This colour always appears as opaque and was common amongst various categories of beads, including drawn beads, disc beads and ellipsoids of small diameter (the latter two from the 'Catacombs'). A few examples of moulded beads and variously faceted beads also occurred.
- Orange:** (2.5 YR 6/12) This colour was always opaque and occurs rarely except in the catcomb C amongst the drawn beads and the moulded cylinders, with an occasional faceted cylinder and hand-moulded ~~cylinder xpxxixid~~ spheroid with pinched ends.
- Yellow-orange:** (7.5 YR 8/8) This colour ~~xxx~~ is always opaque. Amongst all beads of this hue are



**Yellow:** (7.5 Y 9/8) This colour is usually opaque though there are a few occurrences of translucent beads. It was a very common colour amongst drawn beads, especially from the catacomb area and the fourth century tomb of the Brick Arches. Isolated examples of faceted bicones, wound spheroids, moulded cylinders and piriforms occurred.

**Vivid Yellow:** (5 Y 8/12) This colour always opaque differs from the preceding one in that it is of a very intense shade of yellow. It is very rare.

**Greenish-yellow:** (10 Y 7/9) This colour may be translucent or opaque. Its occurrence was amongst the wound cone-lenticular and the drawn beads.

**Colourless; with a white patina:** These beads form a group and resemble each other in texture and tone. They are wound beads either as spheroids, ellipsoids or oblates of large size. They are chiefly from the area of the Tomb of the False Door, the Stele Park and a few from the Enda Sem'on house.

**Colourless:** This always appears as translucent with dull weathering. The longitudinally segmented beads, bicones faceted and moulded, cylinders, ellipsoids and spheroids moulded all appeared in this tone. Nearly all the polyhedrally moulded spheroids were of this shade.

**Black:** This is always opaque. It had rare occurrences amongst the drawn beads, the moulded cylinders and spheroids, the wound spheroids, ellipsoids and oblates.

The chart (p. 00) shows the frequency of the beads of the various colours.

ORGANISATION OF THE CATALOGUE

The collection of beads has been divided into thirty categories; twenty-nine of these have to do with the form of the bead. Category XX deals with the 'gold-in-glass' beads of all shapes, since their method of manufacture is very particular, it seems logical to consider them as a group. The first nineteen categories deal with the beads that have the most frequent occurrence and the last twenty have to do with the beads whose form appears very infrequently, but which are worth consideration in order to complete the presentation. The categories are subdivided when necessary.

A description of each form of bead in each category and its subdivisions giving relevant information, precedes the listing of the bead in its proper category. Information from comparisons to dated beads elsewhere from excavations relevant to those of Aksum, as well as from collections of beads in museums, has been made use of. This will be found at the end of each category.

# The Catalogue of Beads

## Category I Barrels (Pl. 00)

The beads in this category generally conform to the shape of a bead and may appear in two forms (a) (Pl. 00) and (b) (Pl. 00), the latter being faceted, the former not.

## Category Ia Plain Barrels (Pl. 00)

Form (a) has rounded sides whose ends are deliberately flattened. The perforation is conical and wide, often as much as 5 mm. These beads appear in two sizes, medium and large with a range in diameter of 7.5 mm to 12 mm, the majority being in the 10 mm to 12 mm range. These specimens are wound and are all of a deep-blue transparent metal which takes on a silvery patina. None appear in the two dated graves of the third and fourth century but in the catcomb A, and in a trench to the east of it from which a radio-carbon date of the fourth century was obtained. In later contexts it appears in the Enda Sem'on building, the Kaleb Tomb and the mixed area of the Tomb of the False Door. The details of the beads in this Category Ia are as follows:

# The Catalogue of Beads

①

## Category I

## Barrels (Pl. )

①

The beads in this category generally conform to the shape of a barrel and may appear in two forms a (Pl. ) and b (Pl. ) the latter being faceted, the former not.

## Plain barrels (Pl. )

Ia.

Form a. has rounded sides whose ends are deliberately flattened. The perforation is wide, often 5 mm and conical. These beads appear in two sizes, medium and large with a range in diameter of 7.5 mm - 12 mm, the majority being in the 10 mm - 12 mm range. These specimens are wound and are all of a

deep-blue transparent metal which takes on a silvery patina.

None appears in the two dated graves of the third and fourth century but in the catcomb A and in a trench to the east of it from which a radio-carbon date of the fourth century was obtained. In later contexts it appears in the Enda Sem'on building, the Kaleb Tomb and the mixed area of the Tomb of the False Door.

The details of the beads in this category Ia, are as follows:

## Deep-blue

2, THA XVII ②, translucent, silvery patina, wound, conical perforation.

D 7 mm, L 11 mm.

THA I ③ translucent, silvery patina, wound, conical perforation.

D 10 mm, L 11 mm.

THA XVI ④ translucent, silvery patina, wound, conical perforation.

D 12 mm, L 11 mm.

ES IV ⑤a translucent, silvery patina, wound, conical perforation.

D 8 mm, L 8 mm.

NM III ① translucent, silvery patina, wound, conical perforation.

D 8 mm, L 11 mm.

2, KAL I ③a, translucent, silvery patina, wound, conical perforation.

D 12 mm, L 11 mm; D 8 mm, L 11 mm.

AX ST XX ⑩ translucent, silvery patina, wound, conical perforation.

D 10 mm, L broken. Fragments of many other beads.

AX ST XX ⑪ translucent, silvery patina, wound, conical perforation.

D 8 mm, L 7 mm.

2, AX ST XXII ⑫ translucent, silvery patina, wound, conical perforation.

D 10 mm, L 8 mm; D 10 mm, L 12 mm (PL, P.)

BP 1600 ± 40; 4D 390 ± 40

The striations in radio-carbon dated to

< add ref from file



Category Ib                      Faceted Barrels (Pl. 00)

The beads in this group are hexagonally faceted barrels, with deliberately flattened ends. Their diameter varies from 10 mm to 13 mm. They appear in a greenish-white translucent metal which ~~was~~ in all cases weathers to a dull finish. They are found in the fourth century Tomb of the Brick Arches and the robber trenches of the Catacomb A.

Greenish-white

AX ST dump, D 10 mm, L 10 mm

AC ST XII F (4a), D 10 mm, L 10 mm

AX ST XII E (9a), D 10 mm, L 11 mm

DA (13), D 10 mm, L 10 mm (Pl. 00)

AX ST IX (5a), D 13 mm, L 18 mm (Pl. 00)

Comparisons

One example of a barrel bead from an unstratified location at Taxila, (18) resembles the form Ia of the Aksum bead.

Category II                      Bicones (Pl. 00)

The beads in this category were of symmetrical shape in the form of two cones with a common base. There were four types of bicon, the first type (a) consists of plain moulded bicones (Pl. 00), the second, type (b) moulded bicones with pinched ends (Pl. 00) and the third, type (c) consists of hexagonally faceted bicones ~~the first type (a) consists of plain moulded bicones (Pl. 00), the second, type (b) moulded bicones with pinched ends (Pl. 00) and the third, type (c) consists of hexagonally faceted bicones~~ ~~the first type (a) consists of plain moulded bicones (Pl. 00), the second, type (b) moulded bicones with pinched ends (Pl. 00) and the third, type (c) consists of hexagonally faceted bicones~~ which are moulded also and accounts for most of the bicones (Pl. 00), the fourth type, (d), is a tetragonally faceted bicone which ~~has~~ has few occurrences.

IIa                      Plain-moulded Bicones (Pl. 00)

The plain moulded bicones vary in size from D 5 mm to D 11 mm, but are commonly in the D 5 mm to 8 mm range. They occur in deep-blue translucent metal which takes on a silvery patina. A conical perforation is sometimes present. There are also occurrences in

moderate-blue-green, grass-green, medium-light blue, royal-blue, light-green, colourless and opaque-white. These beads are found in the third century Gudut Tomb, the fourth century Tomb of the Brick Arches, the Stele Park area, the Enda Sem'on house, the IW house and the Kaleb area.

## Category II

### Bicones (PL)

The beads in this category were of symmetrical shape, in the form of two cones with a common base. There were four types of bicone, the first type, a, consists of plain moulded bicones (PL), the second, type b, moulded bicones with pinched ends (PL) and the third, type c, consists of hexagonally faceted bicones, which are moulded also and accounts for most of the bicones (PL), the fourth, type d, is a tetragonally faceted bicone which has few occurrences.

II a. The plain moulded bicones (PL) vary in size from 5 mm -

11 mm, but are commonly in the 5 mm - 8 mm range.

They occur in deep-blue translucent metal which takes on a silvery patina. A conical perforation is sometimes present. There are also occurrences in moderate-blue-green, grass-green, medium-light-blue, royal-blue, light-green, colourless and opaque-white. These beads are found in the third century Gudut Tomb, the fourth century Tomb of the Brick Arches, the Stele Park area, the Enda Sem'on house, the IW house and the Kaleb area.

### Moderate-blue-green

THA dump, 5 mm x 4 mm

THC VIII ②, 6 mm x 4.5 mm

KAL dump, 5 mm x 6 mm

3, Shaft C, 6 mm x 5 mm

3, Shaft C, 6 mm x 5 mm

GT II ①, 5 mm x 4 mm conical perforation

Deep-blue

THA XVI ①, translucent, silvery patina, 36 mm x 13 mm

2, THA VII ⑦, Translucent, silvery patina, 5 mm x 5 mm

ES IV ⑤a, translucent, silvery patina, conical perforation 6 mm x 5 mm

WC ③, translucent, silvery patina, conical perforation 6 mm x 5 mm

KAL I ②a, 6 mm x 6 mm

10, DA ⑬, translucent, 5 mm x 5.5 mm

GT II ⑩, conical perforation: 5 mm x 6 mm

### Medium-light-blue

IW IV ③a, 6 mm x 5 mm

### Light-green

AX ST x x II A ④b, 10 mm x 5 mm

Shaft A, 11 mm x 11 mm

3, GT II ⑨, 5 mm x 5 mm

Category IIb Bicones hand-moulded with pinched ends.

This ~~f~~/ form has been moulded in the manner which has previously been explained. (p ) The diameters vary from 7mm \_ 4mm. Deep blue, translucent is the most common colour, with occurrences in medium - light blue, Indian Red, grass-green and royal blue.

Most of the ~~f~~/beads are found in the fourth century, Tomb of the Bride<sup>ok</sup> Arches, with two examples from the area of the Tomb of the False Door.

Deep - blue

- 1 DA (13) I translucent, D 4 mm, L 2 mm  
THA (2) II Translucent D 6 mm, L 5 mm

Medium light - blue

THA dump, D 7 mm, L 5 mm

~~Br~~

DA (13), D 7 mm, L 5 mm

Grass - green

DA (13), D 5 mm, L 5 mm

Royal - blue

DA (13), D 7 mm, L 4 mm

- 2 DA (13), D 5 mm, L 2.5 mm

Category IIc Bicones hexagonally faceted. (Pl )

These beads are moulded and occasionally have a conical perforation. There is a wide range from 4 mm to 16.5 mm in diameter, but it is most commonly 5 mm to 8 mm. The most popular colours are greenish - white, medium light - blue, Indian red and deep - blue. Other occurrences are in ~~f~~/ colourless, light - green, royal - blue, light - blue, grass - green, greenish - blue, pink and blue -green, These are found in great numbers in the Tomb of the Brick Arches, the catacombs A, B, C, the robber trenches, the Geza



Agmai extension of the Stele Park, the area around the Tomb of the False Door, the Enda Semion house and the Godit field, but not in the third century Godit Tomb. The four beads from Enda Semion in greenish-white and medium-light-blue differ slightly in the nuance of ~~slightly~~ colour from those in the Tomb of the Brick Arches in the same colours, and possibly do not belong to the same era.

The greenish-white, deep/blue, grass-green and pink are always translucent.

- Colourless (5)
- THA VIII (12), D 10 mm, L 9 mm  
 THA VII (7), D 9 mm, L 8.5 mm  
 THC XV (3), D 5 mm, L 5 mm  
 AX ST NW dump, D 7 mm, L 6 mm  
 AX ST XII E (10), D 8 mm, L 6 mm  
 AX ST XII E (11), D 8 mm, L 7.5 mm  
 GA II (4), D 11 mm, L broken  
Light-green  
 10, AX ST XV (3), D 5 mm, L 5 mm  
 DA (8), D 9 mm, L 6 mm  
 GA II W (3), D 5 mm, L 5 mm  
 1, GA II W (4), D 4 mm, L 4 mm  
Royal-blue  
 NM XII (1), D 6 mm, L 6 mm  
 AX ST XII E (5), D 8 mm, L 7  
 6, DA (13), D 4 mm, L 4 mm  
 GA I (5), D 11 mm, L 26 mm  
light-blue  
 AX ST XXII E (4), D 6 mm, L 5 mm  
 THC XII (2), D 5 mm  
 Shaft Tomb A, D 11.5 mm, L 10 mm  
 AX ST XXII G (5), D 7 mm, L 10 mm  
 Shaft Tomb C, D 7 mm, L  
 GT VI (2), D 6.5 mm, L 5 mm  
Greenish-blue  
 AX ST V (12), D 5 mm, L 5 mm  
Pink  
 THC XVI A (4), fragment  
 AX ST XXIII (5), D 8 mm, L 8 mm  
 Shaft Tomb A, D 8 mm, L 8 mm  
Blue-green  
 AX ST XXI (2), D 6 mm, L 6 mm  
Indian-red  
 30, DA (13), D 8 mm, L 8 mm yellow patina.  
Medium-light-blue  
 ES IV (52), D 8 mm, L 8 mm  
 ES V (10), D 8 mm, L 8 mm  
 AX ST V [2.50 M - 4 M], D 5 mm, L 5 mm  
 AX ST XVI, D 10 mm, L 10 mm  
 AX ST XVII (2), D 10 mm, L 11 mm  
 AX ST XXIII (6a), D 8 mm, L 8 mm  
 AX ST XXIII A (4c), D 8 mm, L 8 mm  
 AX ST XXIII A (6a), D 8 mm, L 8 mm  
 Shaft Tomb C, D 6 mm, L 6 mm yellow patina  
 DA (2), D 9 mm, D 9 mm, L 11 mm  
 2, DA (12), D 7 mm, L 8 mm  
 35, DA (13), D 8 mm, L 9 mm  
 DA (15), D 9 mm, L 9 mm  
 GA II (4), D 8 mm, L 7 mm  
 GA II (6), D 7.5 mm, L 8 mm  
 GA IV (3), D 8 mm, L 8 mm  
 GT IV (1), D 6 mm, L 5 mm

- Deep-blue (6)
- bicore, THA VIII (16), fragments  
 bicore, THC XV (4), D 10 mm, L 13 mm  
 AX ST dump, D 11 mm, L 11 mm  
 2, AX ST XII E, (4c) D 11 mm, L 11 mm  
 AX ST XII E, (9a) D 3.5 mm, L 4 mm  
 AX ST XII E, (10) D 13 mm, L 10 mm  
 AX ST XV (3), D 5 mm, L 5 mm  
 AX ST XXIII (6), D 8 mm, L 8 mm  
 AX ST XXIII (4), D 8 mm, L 8 mm  
 GT II (1), D 10 mm, L 8.5 mm  
 DA (13), D 4 mm, L 4 mm  
Greenish-white  
 THA XIII (2), D 7.5 mm, L 10 mm  
 THA VI (5), D 7 mm, L 11 mm  
 RW IV (2), D 8 mm, L 5 mm  
 2, Shaft Tomb A, D 9 mm, L 11 mm  
 AX ST XIII (6), D 9 mm, L 7 mm  
 AX ST XVII G, D 8 mm, L 7 mm  
 AX ST XXIII (5), D 16.5 mm, L 18 mm  
 AX ST XXIII (4d), D 9.5 mm, L 10 mm  
 AX ST XXIII A (3), D 6 mm, L 6 mm  
 12, AX ST XXIII A (6a), D 9.2 mm, L 10 mm  
 Shaft Tomb B, D 10 mm, L 10 mm  
 3, bicore, 25, DA (13), D 8 mm, L 8 mm  
 2, DA (15), D 9 mm, L 9 mm  
 GA II (6), D 9 mm, L 8 mm  
 4X ST XXIII (6a) translucent, D 7.5 mm, L 6 mm  
 GT VII (2), translucent, D 7 mm, L 6.5 mm  
 THA dump, translucent, D 7 mm  
Bicore faceted tetragonally. (PL)  
 This type of bicore is rounded tetragonally. It is always of small dimensions, the width at its greatest varying from 4 mm - 7 mm and is either a medium or a long bicore. It appears in the following colours:  
Yellow-translucent  
 AX ST XXII (4) max. W 6 mm, L 4 mm  
Light-blue  
 THC III (2), max. W 5 mm, L 6 mm  
 Shaft Tomb B, max. W 5 mm, L 4 mm  
Indian-red  
 6, Shaft Tomb C, max. W 5 mm, L 6 mm, yellow patina  
 THA dump, max. W 9 mm, L 12 mm  
Medium-light-blue-translucent  
 GA II (4), max. W 5 mm, L 7.5 mm  
 GA III (2), max. W 5 mm, L 4 mm  
Royal-blue  
 AX ST XXII G (4g), max. W 7 mm, L 14 mm  
 THA VIII (2), max. W 5 mm, L 5 mm  
 THC VIII (2), max. W 4 mm, L 5 mm  
Colourless  
 THA IX (2), max. W 6 mm, L 8 mm  
 THC VC 35 (2), max. W 6 mm, L 8 mm  
Purple

Petrie Collection, UC 198.  
 Petrie Collection, UC case W  
 Guido the Great, fig 37, 39  
 Ashmolean Museum, UC 254 PL  
 Petrie Collection  
 Oxford Expedition

Many bicores of 5 mm from Ghayta (19) of late Roman date resemble those from Aksum. One described above in Catagom (24) and small bicores from Koptos were similar to the small ones from the Tomb of the Brick Arches. Three sizes of biconical Roman beads of the fourth to fifth century, with diameters of 4 mm - 6 mm found in Britain (25) resemble those from Aksum. Hexagonally faceted bicores were common at Ghayta (26) and at Firkia (27) in the fifth century and may be compared to the Aksum ones. Those from Ghayta resemble the medium sized hexagonally faceted bicores.



Category II d      Bicones faceted tetragonally      (Pl      )

This type of bicone is moulded tetragonally. It is always of small dimensions, the width at its greatest varying from 4mm - 7mm and is either a medium or a long bicone. It appears in the following colours:

Yellow-translucent

AX ST XX4 (4) max w 6 mm l 4 mm

Light-blue

THC III (2), max W 5 mm L 6 mm

Shaft Tomb C, max W 5mm L 4mm

Indian-red

6, Shaft Tomb C, max W 5mm L 6mm, yellow patina

THA dump, max W 9mm L 12mm

Moderate Blue-green translucent

GA II (4), max W 5mm L 7.5mm

GA III (7), max W 5mm L 11mm

Royal Blue

AX ST XXIIG (4g), max W 7mm L 14mm

Deep Blue

THA VIII (2), max W 5mm L 5mm

THC VIIIC (2), max W 4mm L 5mm

Colourless

THA X (2), max W 6mm L 8mm

Purple

THA VC ss (3), max W 6mm L 8mm

Comparisons

Many bicones of D 5mm from Gheyta (19) of late Roman date resemble those from Aksum described above in category IIa, and

/small/bicones/ from /Aksum/ were /small/ to

small bicones from koptos<sup>(20)</sup> were similar to the small ones from the Tomb of the Brick Arches. Three sizes of biconical ~~Roman~~ Roman beads of the fourth to the fifth ~~century~~ century, with diameters of 4mm-6mm found in Britain (21) resemble those from Aksum. Hexagonally faceted bicones were common at Faras and Gheyta (22) and at Firka (23) in the fifth century and may be compared to the Aksum ones. Those from Gheyta resemble the medium sized hexagonally faceted bicones.

X10X///P6X1L6/C6X1L6C6X1L6H/V6/198

X20X///P6X1L6/C6X1L6C6X1L6H/V6/C6X1L6/V6/

X21X///6/

Category III                      Cone - lenticular                      (Pl                      )

These beads have one side which is lenticular and the other which is a low cone. Their diameters range from 5mm to 8mm. All of the specimens were wound. The particulars of the beads are as follows:

Greenish-yellow

THA VIII (2), wound, D 8mm L 4mm

Deep Blue

THC III/VI (2), wound, D 5mm L 2.5mm

AX ST XII A (2), wound D 6mm L 4mm                      (PL                      )

Blue-Green

ES III (1a), wound D 7.5mm L 3mm

Comparisons

These beads were rare and found only in late contexts. They have a common occurrence on the East African coast in Islamic settlements such as Manda, Kilwa, Mafia and Songo Songo.

Category IV                      Cylinders                      (PL                      )

The beads in this category are cylindrical in form and are



all moulded. They fall into three groups. In the first, a., are the plain-moulded cylinders (PL), in the second, b., are the hexagonally faceted cylinders, (PL), in the third, c., are the cylinders hand-moulded with pinched ends (PL). They vary in size from 2mm in diameter to 13mm, and were commonly found on all the sites.

Category IV a. Plain-moulded cylinders (PL)

These are the most numerous of the cylindrical beads. They occur in all sizes from D 2.5mm to 10mm. Deep-blue, light-green, grass-green, medium-light-blue, Indian-red and black were the popular colours. There were a few occurrences of royal-blue, moderate-blue-green, colourless, purple and opaque white. Layered beads of orange, orange over dark-green and orange over indian-red were found in Catacomb C. One bead was striped from the Catacomb A.

The details of the beads are as follows:-

Plain-moulded cylinders (PL)

These are the most numerous of the cylindrical beads. They occur in all sizes from D 2.5mm to 10mm. Deep-blue, light-green, grass-green, medium-light-blue, Indian-red and black were the popular colours. There were a few occurrences of royal-blue, moderate-blue-green, colourless, purple and opaque white. <sup>Layered beads</sup> of orange, orange over dark-green, and orange over Indian-red were found in Catacomb C. One bead was striped from the Catacomb A.

The details of the beads are as follows:-

Deep-blue

- 3, THA dump, D 6mm L 8mm; D 8mm L 5mm; D 8mm L 6mm  
 THA VII ③, broken, impossible to obtain measurements  
 THA VIII ②, conical perforation, D 3.5 mm L 10 mm  
 THA VIII ①b, D 5 mm L 3.5 mm  
 THA XVI ②, D 5 mm L 5 mm  
 THA VI/II, D 5 mm L broken  
 THA III ⑤, translucent, silvery patina, D 3 mm L 2 mm  
 THA IV ③, D 7 mm L 7 mm  
 ES IV ④, D 5 mm L 9 mm  
 2, ES V ⑤, D 9 mm L 5 mm; D 7 mm L 5 mm  
 JW IV ②, D 5 mm L 5 mm  
 KAL dump, D 6.5 mm L 6 mm  
 AX ST NW, D 7 mm L 6 mm  
 AX ST XII E, D 4 mm L 4 mm  
 AX ST XII E tip, D 5 mm L 4 mm  
 AX ST XX ③, D 3 mm L 2 mm  
 AX ST XX ④, D 4 mm L 4 mm  
 AX ST XIII ①, D 10 mm L 5 mm  
 AX ST XXII E ④, D 8 mm L 6 mm  
 Shaft A, D 4 mm L 7.5 mm

Royal-blue

- THA X ②, D 4 mm L 5 mm  
 ES II ④, D 3 mm L 3 mm  
 ES IV ③, D 7 mm L 7 mm (PL)  
 DA ⑬, D 4 mm L 4 mm

Medium-light-blue

- THA XVI ②, D 6 mm L 3.5 mm  
 THA XVI E ②, D 8 mm L 9 mm  
 2, THA XVI E ④, D 9 mm L 6 mm; D 2 mm L 2 mm  
 ES V ⑤, D 2.5 mm L 2 mm  
 AX ST VIII ②, D 13 mm L 10 mm  
 AX ST XII E, D 5 mm L 4 mm  
 AX ST XII F ④a, D 4 mm L 3 mm  
 AX ST XX ③, D 4 mm L 3 mm  
 GA II ⑥, D 5 mm L 3.5 mm

Light-blue

- IW, IA ⑤, D 3 mm L 4 mm  
 GT II ③, D 5 mm L 3 mm  
 GT VII ①, silvery patina, D 2.5 mm L 2 mm

Moderate-blue-green

- THA IX ④ c1, D 6 mm L 5 mm

Grass-green

- THA VIII ①b, D 3 mm L broken  
 THA XVI ②, D 7 mm L 5 mm  
 THA III/VI, D 3.5 mm L 3 mm  
 THA VII C ⑤, D 4 mm L 11 mm  
 THA XV ⑤, D 6 mm L 4 mm  
 IW II ④, golden patina, D 5 mm L 5 mm  
 AX ST XX ②, D 7 mm L 6 mm  
 DA ⑬, translucent D 2 mm L 2 mm  
 GT VII ①, D 3 mm L 2 mm

Light-green

- THA VI ③, D 4 mm L 2 mm  
 2, THA VIII ②, D 6 mm x 3.5 mm; D 3 mm x 2.5 mm  
 ES II ④, D 3 mm L 3 mm  
 AX ST XII F ④, D 4 mm L 3 mm  
 AX ST XXII E ⑤, D 7 mm L 7 mm  
 Shaft B, D 4 mm L 5 mm  
 GT 8 ①, D 3.5 mm L 3 mm

Yellow

- THA III ④, D 6 mm L 4 mm  
 AX ST VII ③, D 12 mm L 11 mm  
 AX ST XX ⑤, D 5 mm L 4 mm  
 Shaft C, D 5 mm L 7 mm

Opaque-white

- TH great pit, D 6 mm L 5 mm  
 Shaft A, D 6 mm L 6 mm  
 DA III ③, D 10 mm L 10 mm

Colourless

- THA VI ③, D 5 mm L 11 mm

Indian-red

- THA XIII ①b, D 9 mm L 7 mm  
 THA IX c1 ⑥, D 6 mm L 5 mm  
 THA VII C ⑤, D 4 mm L 7 mm  
 THA XVII ④, D 4 mm L 5 mm  
 ES I ⑦, D 3.5 mm L 9 mm  
 AX ST XII E ④a, D 3.5 mm L 4 mm  
 GT II ③, D 4 mm L 5 mm

Purple

- IV II ④.5, D 8 mm L 8 mm

Black

- THA XVI ①, D 9 mm L 8 mm  
 ES II ④, D 4 mm L 3 mm  
 ES IV ⑤a, D 6 mm L 5 mm  
 GT II ③, D 6 mm L 7 mm

Orange

- 2, Shaft C, D 5 mm L 3 mm; D 5 mm L 4 mm

Orange over dark-green

- 2, Shaft C, D 6 mm L 5 mm; D 5 mm L 3 mm

Orange over Indian-red

- 2, Shaft C, D 5 mm L 4.5 mm; D 4 mm L 4 mm

Striped

- AX ST XX ⑥, black and colourless, D 9 mm L 9 mm (PL)



Category IVb      Cylinders faceted hexagonally      (PL. 00)

These cylinders were rare. They were always large and occurred in the greater area of the Stele Park as follows:-

Grass-green

THA dump, translucent, L 9mm W 8mm

GA II W (3), translucent, L 16 mm, W 6 mm

Deep-Blue

AX ST XXV (3), translucent silvery patina

L 10 mm, W 5mm

GA II (2), translucent, L 16 mm, W 9 mm (PL. 00)

Orange

GA II (2), L 10 mm, W 9 mm

Category IVc      Cylinders hand-moulded with pinched ends (PL. 00)

These cylinders were manufactured by the process ~~described~~ described already (P. 00). The few cylinders of this sort came from the area of the Tomb of the False Door, the houses of IW and Enda Semion and the Catacomb C. Their sizes ~~xxx~~ were in the small to medium range, appearing in Indian-red, colourless and black. Further details are listed below:-

Indian-red

THA dump, D 4 mm, L 4 mm

THC VIII N (2), ~~D 8 mm, L 6 mm~~ D 8 mm, L 6 mm

3, IW IA (4), D 7 mm L 6.5 mm (PL. 00), D 8 mm L 6.5 mm;  
D 7.5 mm, L 6 mm.

Shaft Tomb C (1), D 5 mm, L 5 mm

Colourless

THC XVI B (3), iridescent patina D 5 mm, L 7 mm

Black

ES V (11a), D mm, L 9 mm

Comparisons

Hexagonally faceted cylinders ~~xxx~~ were common at



Illahun, (25) a coptic site; was approximately of the same size of the one illustrated (PL. 00) from Aksum. These were found at Taxila, (26) and amongst the Roman beads in Britain (27). The cylinders of category IVc (PL. 00) had parallels at Illahun (28) and in the colour of Indian-red, as most of the Aksum specimens, in the Roman-Coptic period. These beads also were found at Firka (29) and Faras (28), both sites having cylindrical beads of the same Indian-red with yellow patina as at Aksum, and of the same dimensions.

Category V Discs (PL. 00)

The beads in this category have been moulded in the shape of a disc whose diameter is two, though more frequently three times its height. They are moulded, and with few exceptions are a homogeneous contemporary group.

They occur in royal-blue, light-green, indian-red, pink and yellow. Others appear in deep-blue, blue-green and medium light-blue. They all occurred in grave contexts. One of them was found with material dated b.p. 1610  $\pm$  40: AD 390  $\pm$  40. The details of the beads are as follows:-

Category V Discs (PL. 00) (12)

The beads in this category have been moulded in the shape of a disc whose diameter is two though more frequently three times its height. They are moulded, and with few exceptions are a homogeneous contemporary group. They occur in royal-blue, light-green, Indian-red, pink and yellow. Others appear in deep-blue, blue-green and medium-light-blue. They all occurred in grave contexts. One of them was found with material dated b.p. 1610  $\pm$  40: AD 390  $\pm$  40. The details of the beads are as follows:-

Royal-blue

- ES IV (2), D 9 mm Ht 4 mm  
 NM XXIII (2), D 10 mm Ht 5 mm  
 B, AX ST XII E (9a), D 10 mm Ht 3 mm (PL. 00)  
 AX ST XII E (11), D 9 mm Ht 4 mm  
 2, AX ST XX (8), D 8.5 mm Ht 4 mm  
 AX ST XX (9), D 10 mm Ht 4 mm  
 AX ST XXII H (5d), D 11 mm Ht 4 mm. b.p. 1610  $\pm$  40: AD 390  $\pm$  40

Light-green

- ES IV (5a), D 4 mm Ht 2 mm  
 AX ST XX (3), D 8 mm Ht 4 mm  
 AX ST XX (3), D 9 mm Ht 4 mm  
 AX ST XX (4), D 8 mm Ht 4 mm  
 AX ST XXII G (4), D 7.5 mm Ht 4 mm  
 3, AX ST XXII G (4), D 8 mm Ht 5 mm  
 GT II (1), D 4 mm Ht 2.5 mm

Indian-red

- AX ST Park D 8 Ht 4 mm  
 13, AX ST XII E (9a), D 8 mm Ht 2.5 mm, disintegrating yellow appearance  
 AX ST XX (3), D 11 mm Ht 3 mm  
 Shaft Tomb A, D 7 mm Ht 3 mm

Pink

- AX ST XII A (2), D 8 mm Ht 3.5 mm (PL. 00)  
 AX ST XXII G (4), D 8 mm Ht 4 mm

Yellow

- Shaft Tomb A, D 8 mm Ht 3 mm

Blue-green

- Shaft Tomb C, D 8 mm Ht 4 mm

Deep-blue

- AX ST XXIII (5), D 10 mm Ht 4 mm  
 THA V (4), fragment  
 THA dump, D 10 mm Ht 3.5 mm

Medium-light-blue

- GT I (3), D 6 mm Ht 3 mm  
 GT I (4), D 6 mm Ht 3 mm

Purple

- THA dump, D 8 mm Ht 1.5 mm  
 GT VII (3), D 8.5 mm Ht 2 mm

These last two do not conform to the homogeneous group but are included since they are discs, but they may not be beads but part of an inlaid pattern set in bronze or gold as the pieces of glass inlay described above (page 1).

Comparison

These beads had parallels at Taxila, where they occurred in yellow in the second century. Illahun also had occurrences in yellow and light-green. At Faras there were numerous disc beads, but of blue-green. A collection of beads at Marseille contained disc beads of blue-green and Indian-red which resembled the Aksum ones. There were occurrences of these at Arikamedu in the second century.

Category VI Drawn beads (PL. 00)

The techniques necessary in making drawn beads have been set out already (p. ) and account for the irregular appearance of the beads. In this category is found a greater number of beads than in any other. They may be divided into two groups, viz. those found in tombs or their robber trenches, which probably date to the fourth century, and those which occur in the later contexts of the houses of IW and Enda Sem'on, the mixed area of the Tomb of the False Door and the Kaleb area.

The drawn beads from the tombs are nearly all small, that is D 2.5 mm - D 4 mm, while those from the later period tend to be larger. It is interesting to note that the beads from the IW house were practically all drawn beads ranging in diameter from 2 mm - 5 mm with the majority in the middle range. The colours of the majority of the beads in these two groups are similar. Light-green was the most popular with medium-light-blue in second place; together they accounted for over half the number of drawn beads. Yellow and Indian-red were in the third and fourth places respectively, followed by deep-blue, light-blue, purple, royal-blue, opaque-white, blue-green and orange. The other eleven colours

(39) Ancient India, 1946, 4: Pl. 17. (34) Petrie Collection, UC 6745 (31) Ashmolean, 1912: 23

(32) Musée Borély INV 2075-3, 5525, (34) Ancient India, 1946, 2, p. 24

These last two do not conform to the homogeneous group but are included since they are discs, but they may not be beads but part of an inlaid pattern set in bronze or gold as the pieces of glass <sup>inlay</sup> ~~inlay~~ described above (page ).

#### Comparisons

These beads had parallels at Taxila, (30) where they occurred in yellow in the second century. Illahun also had occurrences in yellow and light-green (31). At Faras there were numerous disc beads, but of blue-green (32). A collection of beads at Marseille (33) contained disc beads of blue-green and Indian-red which resembled the Aksum ones. There were occurrences of these at Arikamedu in the second century (34).

#### Category VI

##### Drawn Beads

(PL. 00)

The techniques necessary in making drawn beads have been set out already (P. 00) and account for the irregular appearance of the beads. In this category is found a greater number of beads than in any other. They may be divided into two groups, V:3, those found in Tombs or, their robber Trenches, which probably date to the fourth century, and those which occur in the later contexts of the houses of IW and Enda Semion, the mixed area of the Tomb of the False Door and the Kaleb area. The drawn beads from the Tombs are nearly all small, that is D 2.5 mm - D 4 mm, while those from the later period ~~these~~ tend to be larger. It is interesting to note that the beads from the IW house were practically all drawn beads ranging in diameter from 2 mm - 5 mm with the majority in the ~~the~~ middle range. The colours of the majority of the beads in these two groups are similar, Light-green was the most popular with medium-light-blue in second place; together



they accounted for over half the number of drawn beads. Yellow and Indian-red were in the third and fourth places respectively, followed by deep-blue, light-blue, purple, royal-blue, opaque-white, blue-green and orange. The other eleven colours occur grass-green, strong-medium-light-blue, black, moderate-blue-green very seldom and are as follows; blue-grey, greenish-yellow, vivid yellow, layered beads of Indian-red over green and opaque white over royal-blue.

The measurements of the drawn beads will be indicated by the following symbols; S for small diameter (2 mm - 4.5 mm), M for medium diameter (4.6 mm - 8 mm), lge for large diameter (over 8 mm). The length will be indicated by sht for short length (less than  $\frac{4}{5}$  of the diameter), M for medium length (similar to the diameter  $\pm \frac{1}{5}$  either way), L for long length (greater than  $1\frac{1}{5}$  of the diameter).

had very infrequent occurrences and are as follows, grass-green, strong-medium-light-blue, black, moderate-blue-green blue-grey, greenish-yellow, vivid yellow, layered beads of Indian-red over green and opaque white over royal-blue.

The measurements of the drawn beads will be indicated by the following symbols; S for small diameter (2mm - 4.5 mm), M for medium diameter (4.6 mm - 8 mm), lge for large diameter (over 8 mm). The length will be indicated by sht for short length (less than  $\frac{4}{5}$  of the diameter), M for medium length (similar to the diameter  $\pm \frac{1}{5}$  either way), L for long length (greater than  $1\frac{1}{5}$  of the diameter). This method was used by Chittick in dealing with the Kilwa beads.

### Light-green

- |                      |                          |
|----------------------|--------------------------|
| 2, THA VI (3), M SHT | AX ST II A (4), SM       |
| THA VII (3), M M     | AX ST VA (2), SM         |
| THA VIII (3), M M    | 4, AX ST VIII (2), SM    |
| THA VIII (16), SM    | 15, AX ST XII E, SM      |
| THA IX (7), SM       | 12, AX ST XII E S, SM    |
| THA XVII (2), SM     | AX ST XII E (14), SM     |
| THA VI/VII, M M      | AX ST XXII H (12), MM    |
| ES II (2), M SHT     | 8, AX ST XII E (2), SM   |
| 2, ES III (10), MM   | 2, AX ST XXII H (12), SM |
| ES IV (1), SM        | DA (12), SM              |
| 2, ES IV (2), SM     | 10, DA (13), SM          |
| ES IV (4), MM        | DA (15), SM              |
| ES IV (6), SM        | GA II W (4), M, SHT      |
| 9, IW IA (50), SM    | GA II (2), M SHT         |
| 4, IW I (50), SM     | GA II (6), M SHT         |
| 2, NM VII (1), MM    | GA IV (3), M SHT         |
| WC, MS               |                          |

### Medium-light-blue

- |                      |                          |
|----------------------|--------------------------|
| 3, THA dump, SM      | 2, KAL I (30), M SHT     |
| THA VIII (1), MM     | KAL I (50), MM           |
| ES dump, M SHT       | AX ST NW, MM             |
| ES I (7), SM         | 6, AX ST XIE S, SM       |
| ES II (4), MM        | AX ST XIE (10), SM       |
| ES III (4), S L      | AX ST XIE (5), LGE M     |
| 2, ES IV (10), S SHT | AX ST XII F (8), MM      |
| ES IV (10), M SHT    | AX ST XIII, M SHT        |
| ES IV (6), M SHT     | AX ST XXII H (12), S SHT |
| 2, ES V (4), MM SHT  | SHAFT B, MM              |
| ES V (5), MM         | 6, SHAFT C, MM           |
| 2, ES V (10), MM     | DA (1), SM               |
| ES V (15), SM        | 48, DA (15), SM          |
| NM VI, SM            | DA (15), SM              |
| ML I (2), SM         | GA II W (4), S SHT       |
| KAL (2), MM          |                          |

### Yellow

- |                   |                      |
|-------------------|----------------------|
| THA dump, MM      | KAL dump, SM         |
| THA XVI (1), SM   | AX ST NW, SM         |
| THA XVII (2), SM  | 5, AX ST VII (3), SM |
| THC IV, M SHT     | 4, AX ST XII E, SM   |
| THC V cut (4), SM | AX ST XIE S, SM      |
| ES V (6), MM      | AX ST XIE C, SM      |
| 2, IW IA (5), MM  | AX ST XII E (5), SM  |
| 3, IW IA (50), SM | Shaft C, MM          |
| IW IA (6), SM     | 30, DA (13), SM      |
| IV IA (7), SM     |                      |

### IR

- |                  |                     |
|------------------|---------------------|
| THA dump, SM     | AX ST XIE (12), SM  |
| THC I, SM        | AX ST XXIV (16), SM |
| THC III/VI, MM   | 2, SHAFT C, MM      |
| THC V SS (1), ML | 15, DA (13), SM     |

### Deep-blue

- |                     |                          |
|---------------------|--------------------------|
| THA VII (7), MM     | AX ST XIE, SM            |
| THC II (2), SM      | AX ST XII E S, SM        |
| ES IV (1), LGE L    | 5, AX ST XII E (9), SM   |
| ES V (15), SM       | AX ST XXII H (12), S SHT |
| 2, IW V (3), MM     | 2, DA (13), SM           |
| 2, IW VI (1), S SHT | DA (15), SM              |
| AX ST NW, MM        | GA I (5), MM             |

### Light-blue

- |                   |                    |
|-------------------|--------------------|
| THA VII (1), SM   | THC II (1), SM     |
| THA VIII (3), SM  | THC VII (3), M SHT |
| THA XVI (1), SM   | 3, IW IA (50), SM  |
| RY III (4), SM    | 3, IW I (5), SM    |
| TH GT P, SM       | NM III (2), SM     |
| 3, THA VI (7), SM |                    |

### Purple

- ES IV (4), SM  
10, AX ST XII E, SM  
4, AX ST XIE, SM

### Royal-blue

- |                     |                  |
|---------------------|------------------|
| 3, THA dump, SM     | THA XVII (1), SM |
| 2, THA VIII (1), SM | ES I (7), SM     |
| THA VIII (16), SM   | 2, DA (13), SM   |
| 4, THA XVI (1), SM  |                  |

### Blue-green

- |                     |                  |
|---------------------|------------------|
| 2, THA dump, SM     | ES dump, L SHT   |
| THA V (4), MM       | AX ST XX (5), SM |
| THA VIII (16), SM   | 4, Shaft C, MM   |
| THC XVII (4), M SHT |                  |

### Opaque-white

- |                          |                         |
|--------------------------|-------------------------|
| THA dump, MM             | AX ST XII E (12), M SHT |
| AX ST NW, MM             | 3, DA (13), SM          |
| 6, AX ST VIII (3), S SHT |                         |

### Orange

- |                |                 |
|----------------|-----------------|
| 6, DA (13), SM | GA II W (4), SM |
| GA II (2), SM  | GA II (6), SM   |

### Grass-green

- |                    |                |
|--------------------|----------------|
| THC IV (1), MM     | NM XIV (1), MM |
| THC VII (2), SM    | 2, DA (13), SM |
| THC VIII C (6), MM |                |

### Moderate-blue-green

- |                 |                            |
|-----------------|----------------------------|
| THA dump, M SHT | THA XVII (2), MM           |
| THA VII (3), MM | AX ST XII E (1), SM        |
| ES V (10), MM   |                            |
| ES IV (3), MM   | AX ST NW, SM               |
| ES IV (5), MM   | AX ST XXII E (50), MM (PL) |
| ES IV (50), MM  |                            |

### Black

- |                  |                |
|------------------|----------------|
| 2, IW I (50), MS | 2, DA (13), SM |
|------------------|----------------|

### Blue-grey

- |                     |              |
|---------------------|--------------|
| THA XVII (2), M SHT | AX ST NW, MM |
| ES IV (3), MM       |              |

### Indian-red over green

- THA IX (7), LGE SHT

### Vivid-yellow

- Shaft C, MM

### Greenish-yellow

- AX ST NW, MM

### Comparisons

The form of drawn beads is so imprecise that it is difficult to make comparisons on that basis alone, except for instance, in the case of the Indian Ocean drawn beads of the Middle Ages, which have a consistency of colour and appearance indicating a common provenance. Hundreds of blue-green drawn beads of 3.5 mm occurred at Faras in the second to the third century AD. At Virampatnam many black drawn beads of 2 mm of the first century AD and at Southoukien many Indian-red drawn beads of 3 mm of the second century AD testify to the wide distribution of these small drawn beads along with those from Aksum at this time. Guido states that the late Roman beads of the third or fourth century were very small and very common.

(35) Ashmolean, 1912. (36) Guido, The Glass Beads p. 38  
(37) Musée Guimet,



### Comparisons

The form of drawn beads is so imprecise that it is difficult to make comparisons on that basis alone, except for instance, in the case of the Indian Ocean drawn beads of the Middle Ages, which have a consistency of colours and appearance indicating a common provenance. Hundreds of blue-green drawn beads of D. 5 mm occurred at Faras in the second to the third century AD. (35) At Virampatram (36), many black drawn beads of D 2 mm of the first century AD and at Souttoukeny (36) many Indian-red drawn beads of D 3 mm of the second century AD testify to the wide distribution of these small drawn beads along with those from Aksum at this time. Guido states that the late Roman beads of the third or fourth century were very small and very common. (39)

#### Category VII      Ellipsoids      (PL. 00)

These beads are spherical in shape in which the long axis is greater than four-fifths of the diameter. There are four types of ellipsoid. The first type is of small diameter, (PL. 00); the ellipsoids in the second are wound, (PL. 00); those in the third are faceted hexagonally (PL. 00). Ellipsoids were not numerous amongst the beads.

#### Category VIIa      Ellipsoids of small diameter      (PL. 00)

These ellipsoids are of 4 mm to 5 mm in diameter and are between 7 mm to 16 mm in length. They are moulded and occur in opaque-white, royal-blue, light-green, Indian-red and opaque-white with royal-blue spiral decoration. Catacomb A and the robber trenches nearby were the sources of these grave beads except for one occurrence from the Kaleb area.



The details of this type are as follows:-

Opaque-white

AX ST XX (10), D 4 mm. L 11 mm

AX ST XXII G (4), D 4 mm. L 11 mm

Royal-blue

KAL I (5a), D 4 mm. L 7 mm

AS ST XII ES, D 5 mm. L 7 mm

10, AX ST XII E (9a), D 5 mm. L 10 mm

AX ST ~~XX~~ XX (9), D 4 mm. L 10 mm

Light-green

AX ST IX (5a), D 5 mm. L 11 mm

2, AX ST XII E (9a), D 4 mm. L 10 mm

AX ST XX (9), D 4 mm. L 10 mm

Shaft Tomb A D 5 mm. L 16 mm

Indian-red

5, AX ST XII E (9a), D 4 mm. L 7.5 mm, yellow patina

Opaque-white with royal-blue decoration

2, AX ST XII E (9a), D 4 mm. L 7 mm

AX ST XII E, D 2 mm. L 3 mm

Category VIIb      Wound Ellipsoids      (PL. 00)

These ellipsoids were rare on the excavations. They were all large. Two occurred in the Enda Semion house, the other in the area of the Tomb of the False Door. The latter belonged to a type of spherical bead of colourless glass with milky white tinge which appeared more commonly as spheroids and oblates. The ellipsoids from the Enda Semion house were black, ~~one had a white~~ as decoration. The details of these beads are as follows:-

Black

ES dump, D 11 mm L 15 mm

ES V (11a), D 8.5 mm L 10 mm      (PL.00)

Category VIIc Hexagonally faceted ellipsoids (PL. 00)

This type of ellipsoid was always large. It is characteristic of the beads from the Catacomb A. There were a few occurrences from the area of the Tomb of the False Door, the Enda Sem'on house and the Geza Agmai area in the northern extension of the Stele Field. The most common colours were greenish-white and deep-blue, with a few examples opaque-white, pink, Indian-red and colourless. These are their details:-

vii b

Round ellipsoids (PL )

(19)

These ellipsoids were rare on the excavations. They were all large. Two occurred in the Enda Sem'on house, the other in the area of the Tomb of the False Door. The latter belonged to a type of spherical bead of colourless glass with a milky white tinge which appeared more commonly as spheroids and oblates. The ellipsoids from the Enda Sem'on house were black.

of these beads are as follows:-

Black

ES dump, D 11 mm L 15 mm

ES V (11a), D 8.5 mm L 10 mm (PL )

Hexagonally faceted ellipsoids (PL )

c.

This type of ellipsoid was always large. It is characteristic of the beads from the Catacomb A. There were a few occurrences from the area of the Tomb of the False Door, the Enda Sem'on house and the Geza Agmai area in the northern extension of the Stele field. The most common colours were greenish-white and deep-blue, with a few examples opaque-white, pink, Indian-red and colourless. These are their details.

Greenish-white

AX ST IX (5a), D 13 mm L 18 mm

4, AX ST XII E (4a), D 8 mm L 13 mm-16 mm

AX ST XII E (5), D 9 mm L 12 mm

7, AX ST XII E (9a), D 8 mm-9 mm, L 11 mm-18 mm.

GA II (6), D 12 mm L 17.5 mm, flattened

Deep-blue

(20)

2, AX ST IX (5a), D 9 mm L 16 mm

4, AX ST XII E (9a), D 8.9 mm L 15 mm plus frags of 21 others

Pink

2, AX ST XII E (9a), D 8 mm L broken.

Indian-red

AX ST XX (9), D 15 mm L 44 mm.

Opaque-white

THA XI (3), D 11 mm L 15 mm.

ES dump, D 9 mm L 14 mm.

Colourless

AX ST XIII E extension (9), D 10 cm, L 4 mm.

d. Plain-moulded ellipsoids (PL )

There were a few examples of moulded ellipsoids of varying diameters from the area of the Tomb of the False Door and the Enda Sem'on house. Two occurred in an opaque-white metal that became luminescent upon excavation; one in blue-green and the other two ellipsoids were black with white stripes, and colourless under medium-blue with opaque white and yellow stripes. The details are as follows:

Opaque-white

THA II (2), D 11 mm L 13 mm, luminescent

THA VII (12), D 12 mm L 14 mm, luminescent

Blue-green

THA XV (3), D 7 mm L 9 mm, translucent

Black with white-stripes

ES IV (3), D 4 mm L 4 mm (PL )

Medium-blue over colourless with opaque-white and yellow stripes

GT II (11), D 8 mm L 11 mm (PL )

Comparisons

The small ellipsoid of royal-blue with white spirally chevron decoration in Category VII a is somewhat similar to the dark-blue biconical bead with white chevrons which occurred amongst the Roman beads in Britain of the third to fourth century and is also found in Libya (21). The hexagonally faceted ellipsoid of Category VII c have parallels at Qau in late Roman times (22) and in crystal quartzite at Hastinapura.

(20) Guido, The Glass Beads, Fig 37, No 16 p. 92

(21) The Patrizi Collection, U.C. London, 600

(22) Ancient India, 1954-55, 10-11, 19.



Category VIId      Plain-moulded ellipsoids      (PL. 00)

There were a few examples of moulded ellipsoids of various diameters from the area of the Gudut Tomb, the Tomb of the False Door and the Enda Sem'on house. Two occurred in an  $\frac{1}{2}$  opaque-white metal that became luminescent on excavation, one in blue-green and the other two ellipsoids were black with white stripes and colourless under medium-blue with opaque, white and yellow stripes. The details are as follows:-

~~Opague-white~~

Opague-white

THA II (2), D 11 mm L 13 mm, luminescent

THA VIII (1a), D 12 mm L 14 mm, luminescent

Blue-green

THA XV (3), D 7 mm. L 9 mm, translucent

Black with white stripes

ES IV (3), D 4 mm. L 4 mm      (PL. 00)

Medium-blue over colourless with opaque-white and  
yellow stripes

GT II (11), D 8 mm. L 11 mm      (PL. 00)

Comparisons

The small ellipsoid of royal-blue with white spirally chevron decoration in category VII a is somewhat similar to the dark-blue biconical bead with white chevrons which occurred amongst the Roman beads in Britain of the third to fourth century and is also found in Libya (38). The hexagonally faceted ellipsoid of category VIIc have parallels at Qau in late Roman times (39) and in crystal quartzite at Hastinapura. (40)



Category VIII     Flattened elongated diamond-shaped Bead

(PL. 00)

The beads in this category were shaped like thin elongated diamonds pierced vertically. They were only found in the Catacomb B and an adjoining area. The beads appear in royal-blue with one example in light-green. The particulars of these beads are as follows:-

Royal-blue

Shaft B, L 10 mm. W 4 mm

Shaft B, L 9 mm, W 5 mm

Shaft B, L 10 mm. W 4 mm

Light-green

AX ST XXII (3) L 12.5 mm. W 12 mm

Comparisons

This shape was found at Virampatram for carnelian beads of the first century AD. <sup>(41)</sup> At Faras in the second to the third century, glass beads of this shape occurred. <sup>(42)</sup> In the fifth century at Firka, this kind of bead was found in tombs. <sup>(43)</sup>

Category IX     Longitudinally segmented     (PL. 00)

This bead is formed by drawing out a tube from a small ball of glass into which a bubble of air has been introduced. The tube can then be pinched at roughly regular intervals. Afterwards, it is cut or snapped to form beads of various numbers of segments. Those from the excavations were either of two or four segments of diameters varying from 4 mm to 6.5 mm. They appear in deep-blue, ~~col~~ colourless and opaque-white. They were found in the area of the Tomb of the False Door, in the area near the Catacombs and from the fourth century Tomb of the Brick Arches. The details of these beads are as follows:-

Colourless

THA dump, (2 segments), D 6 mm. L 6 mm (PL. 00)

THA XXV (2), ( 2 segments), D 5 mm. L 6 mm

THA XVII (2), (2 segments), D 5 mm. L 6 mm, silvery patina

Deep-blue

AX ST XXII 4 (5d), translucent, (2 segments) D 6mm, L 9mm

Radio Carbon date B.p. 1820  $\pm$  50:

AD 150  $\pm$  50 (PL. 00)

Opaque-white

DA (15), (4 segments), D 4 mm. L 12 mm

Comparisons

Guido testifies to this sort of bead from Roman sites in Britain <sup>(44)</sup> in the form of four segments. Those at Qau <sup>(45)</sup> have three segments. The parallels from Faras of the second to the third century have two segments and a very thick buff patina. <sup>(46)</sup>

Category X                      Oblates                      (PL. 00)

The beads of this shape belong to the spherical group in which the length is less than two-thirds of the diameter. there were two types of oblate, those that were wound (PL     ) and those that were hand-moulded with pinched ends (PL     ).

Xa                      Wound oblates                      (PL. 00)

Amongst the oblates there were more wound oblates than any other. The diameter of these beads was large, with one exception. It most commonly appeared in colourless with a milky white patina and is related to the ellipsoids already described (P.     ) and the spheroids (P.     ). Deep-blue, purple, Indian-red, yellowish-orange and black with a white trail appeared. These oblates were found chiefly in the Stele Park, the area of the Tomb of the False Door and the

Enda Sem'on house. The details of the beads are as follows:-

25

Wound oblates (PL)

a.

Amongst the oblates, there were more wound oblates than any other. The diameter of these beads was large with one exception. It most commonly appeared in colourless with a milky-white patina, and is related to the ellipsoids already described (p. ) and the spheroids (p. ). Deep-blue, purple, Indian-red, yellowish-orange and black with a white trail appeared. These oblates were found chiefly in the Steele Park, the area of the Tomb of the False Door and the Enda Sem'on house. The details of the beads are as follows:-

Colourless with a milky white patina

THA dump, D 11 mm L 6 mm  
 THA VIII ①, D 12 mm L 8.5 mm  
 EY II ①, D 11 mm L 6 mm  
 THA III ①, D 14 mm L 7 mm  
 THA XV ③, D 11 mm L 8 mm  
 THA XVI ④, D 10 mm L 8 mm  
 ES V ⑪, D 10 mm L 6 mm (PL)  
 AX ST NW dump, D 10 mm L 6 mm  
 AX ST VIII ②, D 12 mm L 5 mm  
 AX ST XX ⑪, D 11 mm L 8 mm  
 AX ST XXII C ②, D 10 mm L 7 mm  
 AX ST XXIII ③, broken

Deep-blue

AX ST XV ③, D 13 mm L 5 mm

IR

AX ST XIII ①, D 15 mm L 10 mm (PL)

Purple

AX ST NW dump, D 7 mm L 5 mm

Yellow-orange

THA IX ①, D 12 mm L 6.9 mm

Black with a white trail

AX ST XXIII ⑤, D 14 mm L 12 mm, wide perforation (PL)

THA dump, D 12 mm L 10 mm, wide perforation



Xb

Hand-moulded oblates with pinched ends

(PL. 00)

A small number of oblates belong to this group. The method of manufacture has been explained (PL. 00). Nearly all are of small diameter and are found in the fourth century Tomb of the Brick Arches and the Catacomb C. The third century Tomb of Gudit, the Gaza Agmai area in the northern Stele field and the area of the Tomb of the False Door accounted for others of medium diameter. The colours were deep-blue, grass-green, purple and Indian-red. The details are as follows:-

Deep-blue

THA dump, D 5 mm L 4 mm

2, Shaft Tomb C, D 5 mm. L 4 mm

11, DA (13), D 3 mm. L 2 mm

10, GA II W (4), D 7.5 mm. L 5.5 mm

Grass-green

6, DA (13), D 3 mm. L 2 mm

GT II (11), D 8 mm translucent (PL. 00)

Purple

DA (13), D 3.5 mm L 2 mm

Indian-red

AX ST XII E (4a), fragment

Comparisons

No parallels for these beads were found.

Category XI

Piriform

(PL. 00)

The beads in this category conformed to a spherical shape, but with one half of the bead distinctly narrowing towards the base. Generally the beads were moulded, but there were a few examples of wound piriforms. Some of them had wide perforations. The preferred colour was deep-blue; beads appeared in light-green, grass-green, royal-blue, Indian-red

yellow, ~~colorless~~ colourless and black with white circles with light-green and Indian-red centres. These beads occurred chiefly in the area around the Tomb of the False Door, the Kaleb area, the Catacomb A, the Tomb of the Brick Arches and the Stele Park. The details of the beads are as follows:-

Category XI

Piriform (PL)

(25)

The beads in this category conformed to a spherical shape, but with one half of the bead distinctly narrowing towards the base. Generally the beads were moulded, but there were a few examples of wound piriforms. Some of them had wide perforations. The preferred colour was deep-blue; beads appeared in light-green, grass-green, royal-blue, Indian-red, yellow, colourless and black with white circles with light-green and Indian-red centres. These beads occurred chiefly in the area around the Tomb of the False Door, the Kaleb area, the Catacomb A, the Tomb of the Brick Arches and the Stele Park. The details of the beads are as follows:-

Deep-blue

THA II ②, conical perforation D 6 mm L 5 mm

THA VI ③, D 6 mm L 7 mm

THC III / VI ②, D 4 mm L 4 mm

KAL I ③f, translucent, D 5 mm, L 5 mm, (PL)

KAL I ③g, translucent, D 5 mm, L 5 mm

AX ST XXII E ④, translucent, D 6 mm, L 7 mm

Light-green

ES IV ⑤a, yellow patina, wound, D 6 mm L 6 mm

ST II ⑪, D 4 mm, L 4 mm.

Grass-green

THA VIII / XVII ①, wound, D 6.5 mm L 6 mm

Royal-blue

JA ⑬, D 4 mm L 5 mm

Indian-red

AX ST XIII ①, wound, D 15 mm L 13 mm (PL)

Yellow

3, AX ST XX ⑤, D 4 mm L 5 mm

AX ST XX ⑤, D 4 mm L 5 mm, wound

Colorless

THA VIII ②, conical perforation, D 5 mm L 6 mm

Black with white circles with light-green and Indian-red centres

AX ST XU F backfill, D 7 mm L 9 mm (PL)

Comparisons

No beads were observed similar to these elsewhere.



Comparisons

No beads were observed similar to these elsewhere.

Category XII

Ring Beads

(PL. 00)

These beads were moulded. Their perforation was greater than half the overall diameter. They were of a deep-blue translucent metal, with the exception of two which were in royal-blue. The majority came from the area of the Tomb of the False Door; The Stele park accounted for nearly all the rest, with a single occurrence from the Enda Sem'on house and a double ring bead from the Gudat Tomb. The diameters ranged from 9 mm to 15 mm. The double ring bead was of 8 mm in diameter. These beads occur throughout the Aksumite period. the details are as follows:-

Category XII

Ring Beads

(PL

)

(26)

These beads were moulded. Their perforation was greater than half the overall diameter. They were of a deep-blue translucent metal, with the exception of two which were in royal-blue. The majority came from the area of the Tomb of the False Door; the Stele park accounted for nearly all the rest, with a single occurrence from the Enda Sem'on house and a double ring bead from the Gudat Tomb. The diameters ranged from 9 mm to 15 mm. The double ring bead was of 8 mm in diameter. These beads occur throughout the Aksumite period. The details are as follows:-

Deep-blue

- 3, THA dump, D 12 mm
- THA I tip, D 13 mm
- 4, THA II (2), D 12 mm
- 6, THA VIII (1), D 13 mm
- 2, THA VII (16), D 12 mm-15 mm
- THA XIII (3), D 12 mm
- 5, THA XVI (1), D 10 mm-13 mm
- 6, THA XVII (2), D 11 mm
- EX IX (2), D 13 mm
- THA IX (3), D 9 mm
- THC I (20), D 12 mm
- THC III (1), D 13 mm
- THC IV (2), D 11 mm
- THC VIII, D 15 mm
- 2, THC XV (1), D 13 mm
- 4, THC XVI (4), D 14 mm
- ES III (2), D 14 mm
- NM V (1), D 10
- 2 NM VII (1), D 11 mm-15 mm
- 2 NM XI (2), D 11 mm
- DA (9), D 12 mm (PL)

- PW I, D 13 mm
- 2, AX ST NW dump, D 12 mm
- AX ST I (3), D 13 mm
- AX ST II tip, D 10 mm
- AX ST IV (2), D 10 mm
- AX ST VII (3), D 10 mm
- AX ST IX (20), D 11 mm
- AX ST XII E S, D 11 mm
- AX ST XII E (4), D 15 mm
- AX ST XIV (3), D 12.5 mm
- AX ST XIX (4), D 9 mm
- AX ST XX (11), D 11 mm
- 3, AX ST XII FW (2), D 12, D 14
- 2, AX ST XII F back fill, D 11 mm
- AX ST XIII (1) N II, D 12 mm
- AX ST XIII/XIV, D 13 mm
- AX ST XXII G (1), D 10 mm
- AX ST XXII H (3)
- 2, AX ST XXIII (20), D 12, 13 mm
- AX ST XXIII (20), D 13 mm
- 2, AX ST XXIV (1), D 13 mm
- 2, GT I (10), D 8 mm (PL)

Royal-blue

- AX ST XII FW (40), D 6 mm
- GA I (5), D 7.5 mm

Comparisons

Beads similar to these appear at Gaza. (47)



### Comparisons

Beads similar to these appear at Gaza. (47)

### Category XIII Rectangular tube with chamfered corners (PL. 00)

The chamfered corners of these beads result in a diamond-shape on each of the four faces. They vary in size from 3 mm in width by 5 mm in length to 10 mm in width by 20 mm in length. The perforation on the larger bead is quite wide, 4 mm - 5 mm. These beads appear in royal-blue, deep-blue, greenish-white, grass-green, Indian-red, purple, blue-green and colourless with a milky white patina. The greater number comes from the Tomb of the Brick Arches, followed by the Stele Park with its northern extension, the Gaza Agmat area; occasional occurrences come from the area of the Tomb of the False Door and the Enda Sem'on house. The details of the beads are as follows:-

### Category XIII

### Rectangular tube with chamfered corners (PL. 00)

(27)

These beads give the appearance of being diamond-shaped, in their mode of decoration. The chamfered corners result in a diamond-shape on each of the four faces. They vary in size from 3 mm in width by 5 mm in length to 10 mm in width by 20 mm in length. The perforation on the larger bead is quite wide, 4 mm - 5 mm. These beads appear in royal-blue, deep-blue, greenish-white, grass-green, Indian-red, purple, blue-green and colourless with a milky white patina. The greater number comes from the Tomb of the Brick Arches, followed by the Stele Park with its northern extension, the Gaza Agmat area; occasional occurrences come from the area of the Tomb of the False Door and the Enda Sem'on house. The details of the beads are as follows:

#### Royal-blue

AX ST XII E (9a), W 3.5 mm x 5 mm  
11, DA (13), W 5 mm L 11 mm

#### Deep-blue translucent

THA II (2), W 10 mm L 14 mm  
THA VIII (2), W 10 mm L 12 mm (broken)  
2, AX ST XII E 5, W 3 mm L 5 mm  
AX ST XII E (9), W 7 mm fragment  
GA II (6) fragment

#### Grass-green

THA XVII ext (1), W 9 mm L 14 mm  
AX ST I (6), W 6.5 mm L 12 mm  
AX ST XII G (6a10), W 11 L 14 mm  
DA (13), W 3.5 mm L 4 mm  
GA II (2), fragment, translucent

#### Blue-green

AX ST XII FW (4), W 8 mm L 14 mm

#### IR

ES IV (4a)  
AX ST XII G (5), W 7 mm L 11 mm

### Purple

THA IX (3), W 8 mm L 18 mm

### Greenish-white

MS clearing, W 11 mm L 17 mm  
AX ST NW dump, W 8 mm L 8 mm  
AX ST IX (5a), W 9 mm L 11 mm (PL. )  
AX ST XII E (9a), W 5 mm x L 8 mm  
AX ST XII E (9a), W 9 mm x L 17 mm  
AX ST XII E (9a), W 10 mm x L 18 mm  
AX ST XII E (9a), W 10 mm x L 20 mm

### Colourless with a milky white patina

THA dump W 8 mm, L 5 mm, broken.

### Comparisons

This shaped bead was found in many collections. At Faras there were numerous blue-green specimens with a buff enamel patina, L 10 mm and width 12 mm, during the second to the third century. (48) These occurred at Taxila in the second century. (49) In late Roman times at Illahun there were examples of this type of bead, which had a width of 10 mm and a length of 10 mm, others had a width of 6 mm and a length of 5 mm. (50) At Qau (51) and at Koptos (52) there were specimens in royal-blue with a width of 11 mm and a length of 10 mm. (53) In the third and fourth centuries this type of bead was found in Britain on Roman sites. (54) In tombs at Firka this kind of bead was found in the fifth century. (55)

(48) Ashmolean, 1912. 399  
(49) Ancient India, 1948, 4, PLX. 21.  
(50) Petrie Collection, UC 6779 and UC 6781.  
(51) Petrie Collection, 700  
(52) Petrie Collection, case x  
(53) Guido, The Glass Beads, Fig 37, 20. p. 92  
(54) The Oxford Expedition PLXX, 156.

(28)



### Comparisons

This shaped bead was found in many collections. At Faras there were numerous blue-green ~~specimens~~ specimens with a buff enamel patina, L 10 mm and width 12 mm, during the second to the third century. (48) These occurred at Taxila in the second century. (49) In late Roman times at Illahun there were examples of this type of bead, which had a width of 10 mm and a length of 10 mm, others had a width of 6 mm and a length of 5 mm. (50) At Qau (51) and at Kiptos there were specimens in royal-blue with a width of 11 mm and a length of 10 mm. (52) In the third and fourth centuries, this type of bead was found in Britain on Roman sites. (53) In tombs ~~at~~ at Firka this kind of bead was found in the fifth century. (54)

#### Category XIV Rectangular, flattened bead with bevelled ends

(PL. 00)

The beads in this category have ends bevelled in a circular form on each side of the two faces to form a long-semi-oval. The beads of this form occurred in grass-green ~~translucent~~ translucent which acquired a silvery patina, Indian-red and deep-blue. They appeared in the robber trenches of the Stele Park, the area of the Tomb of the False Door and the Geza Agmai extension of the Stele Park. The details are as follows:-

#### Grass-green, translucent with a silvery patina

THC IV extension (2) W 9 mm. L 13 mm

AX ST IX (5a) W 9 mm. L 3 mm

AX ST XII E dump W 10 mm. L 14 mm

#### Indian-red with a yellow patina

AX ST XII E (4a) W 8 mm. L 16 mm

#### Deep-blue translucent

GA III (6) W 8 mm. L 12 mm

# FOOTNOTES

- (1) Arkell, A.J. "Cambay and the Bead Trade" Antiquity Vol. 10  
pp 292 - 305
- (2) Harden
- (3) Davison, Claire, Thesis 1973
- (4) Dekówna, Maria, "Remarques sur les Methodes d'examen de  
verre du haut moyen age trouvres en  
Pologre, J IV 1967, p 77
- (5) Trowbridge, Philological Studies pp 99
- (6) Chittick, Neville, Kilwa, and Islamic Training City,  
Vol II p. 461-7
- (7) Guido, Margaret, The Glass Beads of the Pre-historic and  
Roman Periods in Britain p. 91 ff
- (8) Boon-Gorge, Gold-in-glass Beads from the Ancient World  
in Britannia VII. 1977.
- (9) Chittick, Neville, Kilwa, p. 461
- (10) Van der Sleen, W.G.N. "Ancient Glass Beads from East  
and Central Africa and the Indian  
Ocean", JRAI LXXXVIII, XXII, pp204 ff
- (11) Chittick, Neville, Kilwa. p. 461
- (12) Chittick, Neville, Kilwa. p.467
- (13) Boon, George, "Gold-in-Glass Beads from the Ancient  
World" in Britannia VIII 1977.
- (14) Beck, H.C. "Classification and Nomenclature of Beads and  
Pendants," Archaeologia LXVII, 1928, pp 1-76.
- (15) In this, I for the most part follow Chittick, Kilwa,  
VolIII, The Finds pp.460-461
- (16) Harden, D.B. Roman Glass from Karanis pp. XVIII pp. 6-20
- (18) Ancient India, No. 4, 1948, PLX. 29.



# FOOTNOTES

2

- (19) Petrie Collection, UC 198
- (20) Petrie Collection, UC case W
- (21) Guido, The Glass Beads, fig 37. p9212,13
- (22) Ashmolean Museum, 1912.399
- (23) Petrie Collection, UC 254 PL XX 16
- (24) Oxford Expedition
- (25) Petrie Collection UC 6798
- (26) Ancient India, 1948, 4 PLX.19
- (27) Guido, The Glass Beads, p. 92, fig 37, 9 & 10.
- (28) Petrie Collection, UC6809; U case 50
- (29) Ashmolean, 1935.450 and 1912.70
- (30) Ancient India, 1948, 4:PLX.9
- (31) Petrie Collection, UC 6798
- (32) Ashmolean, 1912:733
- (33) Musee Borely INV 2075-3, 5525
- (34) Ancient India, 1946,2, p.24
- (35) Ashmolean, 1912
- (36) Musee guimet
- (37) Guido, The Glass Beads, p.38
- (38) Guido, The Glass Beads, Fig 37, No. 16, p.92
- (39) The Petrie Collection, UC London, 600
- (40) Ancient India, 1954-55, 10-11, 19
- (41) Musee Guimet
- (42) Ashmolean, 1912.713
- (43) Oxford Expedition, PLXX 136
- (44) Guido, The Glass Beads, Fig 37, 2 p.92
- (45) Petrie Collection, UC London, 600
- (46) Ashmolean, 1018
- (47) Cambridge Museum of Archaeology and Anthropology. 26.316
- (48) Ashmolean, 1912.399

- (49) Ancient India, 1948, 4, PLX.21.
- (50) Petrie Collection, UC 6779 and UC 6781
- (51) Petrie Collection, 700
- (52) Petrie Collection, case x
- (53) Guido, The Glass Beads, Fig 37, 20 p.92
- (54) The Oxford Expedition. PLXX, 156  
1
- (55) Ashmolean Museum. Faras 1084
- (56) Petrie Collection, UC 254
- (57) Petrie Collection, UC 6809
- (58) Louvre, 634 Bj
- (59) Cambridge Museum of Archaeology and Anthropology
- (60) Louvre, BJ667
- (61) Musee de l'Homme, Caucase
- (62) Petrie Collection, UC and Saft 529
- (63) Fitzwilliam Museum, 6000
- (64) Ancient India. 1946, 2. p.24
- (65) Ancient India 1952, 8. p.60, 121
- (66) Ashmolean, 1912. 305
- (67)
- (68) Crawford and Addison Abu Geili and Sagodi
- (69) Petrie Collection, UC 6776-7
- (68) Musee Guimet,
- (69) Louvre Bj650
- (70) Petrie Collection. UC 600
- (71) Ashmolean, 1912.400
- (72) Oxford Expedition PLXX 21c
- (73) Guido, Glass Beads, p.92 Fig. 37.17



## FOOTNOTES

4

- (74) Guido, Glass Beads, p.92 Fig 37.19
- (75) Guido, The Glass Beads, p 102 and ff.
- (76) Guido, Glass Beads, p.38
- (77) Chittick, Azania XI, (1976), pp. 179 ff
- (78) Guido, Glass Beads, p.38

## Comparisons

No strict parallels have been observed elsewhere; but the faceted bead from Faras<sup>(55)</sup> from the second or third century AD has bevelled ends to its flattened rectangular form, but the ends are not bevelled in ovals. Its top view is similar to the Aksum beads.

Category XV      Triangular bead with bevelled end      (PL. 00)

These beads are triangular when viewed from the top. Each end of the three faces is bevelled in a circular fashion, as in the preceding category to form a long semi-oval. Each face resembles the face of the rectangular flattened bead described above. The rare occurrences were from the area of the Stele Park near the Catacombs and the Geza Agmai area. The colours of the beads ~~were~~ were Indian-red with a yellow ~~patina~~ patina and greenish-white. The details are as follows:-

Indian-red

2. GA II (6), yellow patina, W 6 mm L 10 mm

Greenish-white

AX ST XXII (4), W 9 mm. L 14 mm (PL. 00)

## Comparisons

No parallels were observed from elsewhere. (PL. 00)

Category XVI      Beads with four sides faceted to a low pyramid

(PL. 00)

The bead in this category has rectangular ends when viewed from the top. The four faces of the rectangular of the bead are faceted in such a way as to form a low pyramid. It is of the same family as the more numerous triangular beads that have three faces faceted which are described below in category XVII. This bead came from the Catacomb B and was in greenish-white.



The details are as follows:-

Greenish-white

Shaft B, W 7.5 mm. L 11 mm

Comparisons

No parallels have been ~~obs~~ observed from elsewhere for this bead.

Category XVII Beads with three sides faceted to a low pyramid  
(PL. 00)

These beads have triangular ends when viewed from the top. They differ from the bead described above only in the fact that the bead is triangular, thus there are only three sides faceted to a low pyramid. They occurred in the Catacomb B and the area of its robber trenches as well as from the Gaza Agmai area of the northern extension of the Stele Park. They appeared in greenish-white, grass-green and deep-blue translucent. The details are as follows:-

Greenish-white

AX ST V A (2), W 5 mm. L 7 mm

AX ST XXII (2), W 8 mm. L 10 mm

AX ST XXIIB (4a), W 7 mm L 10 mm

Shaft Tomb B, W 9 mm L 10 mm

Shaft Tomb B, W 8 mm L 10 mm (PL )

Shaft Tomb B, W 7 mm L 10 mm

Grass-green

Shaft Tomb B, W 8 mm. L 10 mm

Shaft Tomb B, W 7 mm. L 10 mm

Shaft Tomb B, W 8 mm. L 11 mm

Deep-blue translucent

GA II W (3), W 6 mm. L 10 mm (PL )

GA IV tip, W 6 mm. L 9 mm

Comparisons

No parallels were observed for these beads.

Category XVIII    Rectangular bead chamfered at both ends    (PL. 00)

These beads are rectangular. Alternate ends have been chamfered forming in all eight vertical facets of triangular shape. When viewed from the top, the bead is rectangular in shape. These beads occurred in the robber trenches surrounding the Catacomb area. They occurred in greenish-white. The details are as follows:-

Greenish-white

AX ST XXII A (4c), W 9 mm. L 11 mm

AX ST XXII B (2), W 9 mm. L 10 mm    (PL. 00)

Comparisons

No parallels were observed elsewhere for these beads.

Category XIX    Spheroids

Spherical beads were numerous in the excavations. There were four types of spheroids. The first was wound (PL    ), the second; hand-moulded with pinched ends (PL    ), the third was plain-moulded (PL    ) and the fourth was a polyhedrally faceted spheroid.

XIX a    Spheroids Wound    (PL. 00)

These beads included the ~~ppp~~ colourless spheroid with a milky white patina which is related to the wound ellipsoids (P. 00) and the wound oblates (P. 00) of the same metal. They are all large and appeared in the area of the Tomb of the False Door and the Enda Sem'on house. Other wound beads occurred in royal-blue, medium-light-blue, deep-blue, blue-green, grass-green, black, Indian-red and red-translucent. One spheroid had a wide conical perforation narrowing to a very small opening giving the effect of a petal shaped spheroid (PL. 00). They occurred in medium and large sizes, in the area of the Tomb of the False Door, the Enda Sem'on house, the Catacomb A, the Catacomb B and adjoining robber trenches, as well as one occurrence from the

Gudit Tomb. The details are as follows:-

One spheroid had a wide conical perforation narrowing to a very small opening <sup>(32)</sup> giving the effect of a petal shaped spheroid (PL). They occurred in medium and large sizes, in the area of the Tomb of the False Door, the E. 2a Sen'on house, the Catacomb A, the Catacomb B and adjoining robber trenches, as well as one occurrence from the Gudit Tomb. The details are as follows.

Colourless with a milky white patina

2, THA dump, D 8mm; D 9mm; L 8mm

THA VIII ②, D 9mm L 8mm

EST II ①, D 11mm L 9mm

ES IV ⑤, D 9mm L 9mm

Royal-blue

THA V ④, D 6mm L 5mm

Shaft Tomb A, D 5mm L 5mm

Medium-light-blue

THA VIII ①, fragment with a conical perforation

Deep-blue

THA VII/xvi ②, D 6mm L 6mm

2, Shaft Tomb B, D 10mm L 9mm; D 9mm L 7mm, wide perforation

Blue-green

AX ST XX backfill, D 8mm L 8mm

Grass-green

THC III/xi, D 7mm L 7mm translucent with a white trail

THC VII/xvii ②, D 6mm L 6mm

THC VIII ②, D 6mm L 6mm wide conical perforation petal-shaped (PL)

Black

THA VIII ⑬, D 11mm L 11mm

AX ST NW dump D 11mm L 8mm

Black with white circular blobs with grass-green, and Indian-red centres

THA dump, D 8mm L 8mm (PL)

AX ST NW dump, D 8mm L 6mm

Indian-red with an opaque-white trail, yellow patina

GT II ⑪, D 7mm L 7mm (PL)

Indian-red

AX ST XIII ① N. ext., D 15mm L 13mm

Red-translucent

THC IV ①, D 7mm L 5mm



XIX b Spheroids hand-moulded with pinched ends (PL. 00)

This group of spheroids is formed in the same manner as the bicones, cylinders and oblates hand-moulded with pinched ends. These spheroids were of small and medium diameter. Those of medium diameter came from the Catacomb area and its robber trenches; those of small diameter from the Tomb of the Brick Arches. There was a single occurrence from the area of the Gudit Tomb and the Enda Sem'on house. They appeared in light-green, Indian-red, grass-green, opaque-white, deep-blue and blue-green. The details of these beads are as follows:-

Spheroids hand-moulded with pinched ends (PL. ) (33)

b. This group of spheroids is formed in the same manner as the bicones, cylinders and oblates hand-moulded with pinched ends. These spheroids were of small and medium diameter. Those of medium diameter came from the Catacomb area and its robber trenches; those of small diameter from the Tomb of the Brick Arches. There was a single occurrence from the area of the Gudit Tomb and the Enda Sem'on house. They appeared in light-green, Indian-red, grass-green, opaque-white, deep-blue and blue-green. The details of these

Light-green

26, AX ST XII E (9a), D 7 mm L 7 mm (PL )  
2, AX ST XII E (10), D 7 mm L 7 mm  
AX ST XXII G (49), D 8 mm L 7 mm  
Shift Tomb A, D 6.5 mm L 6.5 mm

All these beads were identical and tended to have the effect of vertical grooves caused by deterioration.

Indian-red

AX ST XII E (9a) D 6.5 mm L 7 mm  
Shift C (1) D 5 mm L 5 mm

Grass-green

28, DA (13) D 2.5 mm L 3 mm  
DA (13) D 4 mm L 4 mm  
GT II (8) D 5 mm L 4.5 mm, translucent

Opaque-white

2, DA (13) D 3 mm L 2.5 mm

Deep blue

ES IV (5a) D 8 mm L 8 mm  
GA II (2) D 6 mm L 5 mm

Blue-green

AX ST IV B (2) D 4 mm L 4 mm



These beads were nearly all plain-moulded spheroids.

There were a few examples of these spheroids with a very wide conical perforation narrowing to a small opening of the base of the bead giving the effect of a flower shape (PL. 00) as in the example cited above amongst the wound spheroids (P. ). The sizes of these beads varied from 4 mm to 11 mm, though the majority of beads lay in the medium range of 5 mm to 8 mm. Some of them had a wide perforation. They appeared in deep-blue, royal-blue, strong-blue, light-blue, medium-light-blue, purple, black, colourless, yellow, yellow-orange, Indian-red, colourless with decoration of opaque-white circles with Indian-red or green centres, black with a white and red translucent trail, black with opaque-white and yellow decoration, grass-green, greenish-white and opaque-white. These beads occurred in the area of the Tomb of the False Door, the Enda Sem'on house, the Kalab area, the Catacomb area and its robber trenches, the Geza Agmai area and the Gudut Tomb where the deep-blue spheroid was the characteristic bead found. ~~The flower-shaped spheroid which occurred in the Catacomb C in deep-blue, appeared in the Enda Sem'on house, the Kalab area and the area of the Tomb of the False Door. The details of the beads are as follows:-~~

Moulded spheroids (PL. 00)

These beads were nearly all plain-moulded spheroids. There were a few examples of these spheroids with a very wide conical perforation narrowing to a small opening of the base of the bead giving the effect of a ~~flower~~ shape (PL. 00) as in the example cited above amongst the wound spheroids (P. ). The sizes of these beads varied from 4 mm to 11 mm, though the majority of beads lay in the medium range of 5 mm to 8 mm. Some of them had a wide perforation. They appeared in deep-blue, royal-blue, strong-blue, light-blue, medium-light-blue, purple, black, colourless, yellow, yellow-orange, Indian-red, colourless with decoration of opaque-white circles with Indian-red or green centres, black with a white and red translucent trail, black with opaque-white and yellow decoration, grass-green, greenish-white and opaque-white. These beads occurred in the area of the Tomb of the False Door, the Enda Sem'on house, the Kalab area, the Catacomb area and its robber trenches, the Geza Agmai area and the Gudut Tomb where the deep-blue spheroid was the characteristic bead found. The ~~flower~~-shaped spheroid which occurred in the Catacomb C in deep-blue, appeared in the Enda Sem'on house, the Kalab area and the area of the Tomb of the False Door. The details of the beads are as follows:

Deep-blue, translucent

- 2, THA dump, 36.5 mm L 6.5 mm
- THA VIII (6), 37 mm L 7 mm conical perforation
- THA XVI (2), 36.5 mm L 6.5 mm flower
- 2, THA XVII (2), 37 mm L 7 mm petal-shaped, wide conical perforation
- THC XVI E (4), 35 mm L 5 mm, silvery patina, wide perforation
- THC XVII (4), 34 mm L 5 mm, silvery patina
- ES III (10), 38 mm L 8 mm
- ES IV (5), 39 mm L 9 mm
- KAL I (5), 36 mm L 5 mm
- AX ST XII E (9), 35 mm L 5 mm flower
- 3, Shaft C, 35 mm, 6 mm, 7 mm L 5 mm, petal-shaped conical perforation
- GA II W (4), 37 mm L 7 mm
- 19, GT II (10), plus 33 fragments 38 mm L 8 mm

Royal-blue

- 3, AX ST XII E (9), 35 mm L 5 mm
- DA (13), 35 mm L 4 mm

Strong-blue

- ES IV (5), 39 mm L 8 mm, petal-shaped, wide conical perforation
- KAL I (6), 37.5 mm L 8 mm, petal-shaped, wide conical perforation

Light-blue

- NM III (2), 38 mm L 8 mm

Medium-light-blue

- KAL I (2), fragments

Purple

- ES IV (5), 39 mm L 8 mm

- GT II (6), fragments

Black

- 2, AX ST NW, 38 mm L 7 mm; 37 mm L 6 mm

Colourless

- THA dump, 37 mm L 6 mm
- AX ST XII E (9), 35 mm L 5 mm
- AX ST XX (7), 38 mm L 8 mm
- 2, GA II W (4), 38 mm L 8 mm

Yellow

- ES V (11), 35 mm L 5 mm, petal-shaped, wide conical perforation

Yellow-orange

- THA dump, 310 mm L 9 mm

Indian-red

- THC VII (3), 36 mm L 6 mm, petal-shaped, wide conical perforation
- ES III (2), 35 mm L 5 mm, petal-shaped, wide conical perforation

Colourless - with decoration of opaque white circles

- THA IX (P) (2), 310 mm L 9.5 mm with Indian-red or grass-green centres
- THC I (2), 310 mm L 10 mm (p.)

Black with opaque-white and red-translucent trail

- THA dump, 38 mm L 8 mm (p.)

Black with opaque-white and yellow decoration

- THA dump, 311 mm L 12 mm (p.)

Grass-green

- THC VIII N (2), fragment
- THC XVI E (4), 36 mm L 5 mm wide conical perforation
- AX ST XVII G (4), 38 mm L 8 mm
- AX ST XXVI, 38 mm L 8 mm (p.)

Greenish-white

- THA VII (7), 311 mm L 8 mm

Opaque-white

- THA VIII (2), 311 mm L 10 mm
- THA XVII (2), 39 mm L 8 mm
- ML I (2), 37 mm L 6 mm

XIX d                      Polyhedrally faceted spheroids                      (PL. 00)

This bead has the appearance of a spheroid, though it is composed of many polyhedral surfaces. They were all large. These beads appeared ~~in the Aksum~~ colourless with one bead of yellow-orange. There was one occurrence in the area of the Tomb of the False Door and the Enda Sem'on house with several in the Stele Park. The details of the beads are as follows:-

Colourless

THA VIII (1), D 11 mm. L 10 mm

ES IV (5), D 10 mm. L 9 mm

AX ST NW dump D 10 mm. X L 9 mm

AX ST XII F backfill, D 10 mm L 9 mm

Yellow- orange

AX ST XIII (4), D 10 mm. L 10 mm

Comparisons

Spheroids of Category XIX b were found at Gheyta in Indian-red in the fourth century, <sup>(56)</sup> and also at Illahun of the same colour. <sup>(57)</sup> Light-green spheroids <sup>(58)</sup> resemble the group of twenty-six from AX ST XIII (9a) in size and in colour as well as in their state of deterioration.

Spheroids of Category XIX d were found in Palestine in both of the colours and of the same sizes as those from Aksum. <sup>(59)</sup>

Category XX                      Gold-in-glass beads

This category (unlike the preceding nineteen) includes beads of diverse forms. They merit being put in a category of their own because they are fabricated in a particular manner as explained above (P.        ). There were thirty-one beads of this kind. The most common form was the spheroid (PL. 00), cylinders (PL        ) and ellipsoids (PL        ) were next. There were two examples of the collared cylinder (PL        ) and one of the segmented bead (PL        ). These beads occurred in the



Tomb of the Brick Arches, the Catacomb A and the robber trenches from the Catacombs, with one from the area of the Gudut Tomb. The sizes of the spheroids vary from 2.5 mm in diameter to 8 mm with one large one of 12 mm. The cylinders ranged from 10 mm-13 mm in diameter by 13 mm, with one medium sized-bead of 7 mm by 8 mm. The ellipsoids were all small of the same dimensions as the ellipsoids of small diameter, that is of 3.5 mm to 4 mm in diameter by 6 mm to 7 mm in length. The segmented bead was small as were the two collared cylinders. The latter were unique on the excavation. The details of the beads were as follows:-

from the area of the Gudut Tomb. The sizes of the spheroids vary from 2.5 mm in diameter to 8 mm with one large one of 12 mm. The cylinders ranged from 10 mm-13 mm in diameter by 13 mm, with one medium sized-bead of 7 mm by 8 mm. The ellipsoids were all small of the same dimensions as the ellipsoids of small diameter, that is of 3.5 mm to 4 mm in diameter by 6 mm to 7 mm in length. The segmented bead was small as were the two collared cylinders. The latter were unique on the excavation. The details of the beads were as follows.

Spheroids (PL)

- AX ST V (3) D 12 mm L 11 mm  
4, AX ST XII E (9a) D 5 mm L 5 mm  
AX ST XII FW (4a) D 4 mm L 4 mm  
AX ST XII (4) D 6 mm L 7 mm  
3, DA (13) D 7 mm-8 mm L 7 mm (PL)  
2, DA (15) D 12 mm L 12 mm  
DA (13) D 3 mm L 3 mm  
GT II (9) D 2.5 mm L 3 mm

Cylinders (PL)

- 8, DA (13) D 7 mm L 8 mm; D 10 mm-13 mm - 13 mm (PL)

Ellipsoids (PL)

- AX ST XII E tip D 3.5 mm L 6 mm  
2, AX ST XII E (9) D 4 mm L 7 mm; D 3 mm L 6 mm  
5, AX ST XII E (9a) D 4 mm L 6 mm (PL)

Collared cylinders (PL)

- 2, AX ST XII E (9a) D 4 mm L 7 mm (PL)  
DA (13) maximum D 4 mm L 6 mm

Segmented (PL)

- AX ST XII E S, (2 segments) D 3 mm L 6 mm

Comparisons

The gold-in-glass beads had a wide distribution from Hellenistic times until the fourth century, diminishing in the fifth to sixth. Several forms of the 'gold in glass' beads at Aksum have parallels in widely divergent areas. The spheroids from Kerch (60) and the Caucasus (61) resemble those from Aksum. At Illahun spheroids, cylinders and the small 'collared cylinder' were found amongst the late Roman beads. (62) The small ellipsoids and segmented bead of El-Badâri from a cemetery of the second to the third century (63) were similar to the Aksum beads. The segmented bead had many parallels. There were examples from Arikanadu, of the first century to the third century, (64) from Ahichhatra in the fourth century (65) and in the third century at Kaṣambi and Tripuri. At Faras the small segmented beads belonged from the second to the third century. (66) Amongst the Roman beads in Britain there are examples of this type. (67)

(60) Louvre, BJ667

(61) Musée de l'Homme, Caucase

(62) Petrie Collection, UC and SAFT 529

(63) Fitzwilliam Museum, 6000

(64) Ancient India, 1946, 2. p. 24

(65) Ancient India, 1952, 8. p. 60, 121

(66) Ashmolean, 1912. 305

(67) Guido, The Glass Beads, fig 57 p. 92. 3.

### Comparisons

The gold-in-glass beads had a wide distribution from Hellenistic times until the fourth century, diminishing in the fifth to sixth. Several forms of the gold-in-glass beads at Aksum ~~have~~ have parallels in widely divergent areas. The ~~spheroids~~ spheroids from Kerch<sup>(60)</sup> and the Caucasus<sup>(61)</sup> resemble those from Aksum. At Illahun spheroids, cylinders and the small "collared cylinder" were found amongst the late Roman beads.<sup>(62)</sup> The small ellipsoids and segmented bead of El-Badari from a cemetery of the second to the third century<sup>(63)</sup> were similar to the Aksum beads. The segmented bead had many parallels. There were examples from Arikamedu, of the first century to the third century,<sup>(64)</sup> from Ahichhatra in the fourth century,<sup>(65)</sup> and in the third ~~century~~ century at Kausambi and Tripuri. At Faras the small segmented beads belonged from the second to the third century.<sup>(66)</sup> Amongst the Roman beads in Britain, there are examples of this type,<sup>(67)</sup>

### Uncommon beads

There were nineteen beads of uncommon occurrence from the excavations. They are grouped below in eight categories which follow numerically the preceding ones. These are folded beads, collared lentoids, lentoids, truncated cones, transversely pierced cylinders, elongated cone-shaped pendants, triangular beads and divider beads.

Category XXI

#### Folded-beads

(PL. 00)

These beads belong to a special type of bead which is made in the manner explained above (PL. 00). Two of these were large spheroids, broken, one with a medium-light-blue matrix, the other with a yellow, the former having yellow, black and Indian-red intrusions, the latter ~~having~~ having black, grass-green and Indian-red intrusions. The fragmentary bead had a black matrix with yellow, white and Indian-red intrusions.

Their provenance was from the Stele Park and the area of the Tomb of the False Door. The details of the beads are as follows:-

Yellow matrix with black, grass-green and Indian-red

AX ST NW dump D 16 mm. L 15 mm, one half broken (PL. 00)

Medium-light-blue, matrix with Indian-red, yellow and black

(PL. 00)

AX ST D 13.5 mm L of fragment 10 mm (P. )

Black matrix with yellow, white and Indian-red

THA XVII (2) Fragment measures 15 mm by 17 mm (PL. 00)

#### Comparisons

Geili

The folded beads at Abu ~~Geili~~ <sup>Geili</sup>, which themselves are compared to specimens at Karanis, are akin to the Aksum ones. (68)  
The Abu Geili beads are ascribed to the third and fourth century. The same type of bead occurs at Illahun in late Roman times. (69)

Category XXII Collared lentoids (PL )

This bead of lentoid ~~form~~ form has a single trail of glass encircling the perforation at one end and a double trail encircling the other end. Both sets of trails give the effect of a collar at either end. The ~~bead~~ bead has been blown and hand-moulded, then the trails are added afterwards. there was only one bead found of this kind. It was of colourless metal with buff weathering. The dimensions were large and its perforation wide. The provenance was from the Enda Sem'on house. The details are as follows:-

#### Colourless

ES III(3b), W 15 mm. L 22 mm - buff weathering, wide  
perforation 2 mm (PL. 00)

#### Comparisons

Although no collared lentoids were observed, there were many collared spheroids from which the collared lentoid is



probably derived. Examples of the latter may be found at Virampatnam of the first century AD in the same colour as the Aksum specimens.<sup>(68)</sup> These may be found at the Louvre<sup>(69)</sup> and at Qau.<sup>(70)</sup> In the second to third century they occurred at Faras<sup>(71)</sup> with buff weathering as at Aksum. At Firka, they were found in a fifth to sixth century tomb.<sup>(72)</sup>

Category XXIII                      Lentoids                      (PL. 00)

The beads in this category are moulded. The two specimens of this kind are deep-blue and large with wide perforations. Their provenance was from the Enda Sem'on house and the Gudit field. The details of these beads are as follows:-

Deep-blue

ES IV (1), W 12 mm L 10 mm translucent, wide perforation  
(PL. 00)

GT X (1), W 8 mm L 8 mm, translucent, wide perforation  
(P. 00)

Comparisons

Lentoids similar to these were found amongst the Roman beads in Britain.<sup>(73)</sup> This form was very common in carnelian beads found at Aksum.

Category XXIV                      Truncated Cones                      (PL. 00)

This bead was in the form of a cone truncated at ~~both~~ either end, pierced vertically. It was moulded of light-green glass of large size. The provenance was from the ~~Stile~~ Stele Park. The details are as follows:-

Light-green

AX ST V (3a), maximum D 17 mm. L 26 mm (PL. 00)

Comparisons

No similar beads have been observed elsewhere.

Category XXV      Transversely pierced cylinders      (PL. 00)

The two cylinders in this category were moulded. They both were solid cylinders transversely pierced. One was hexagonally faceted and of deep-blue, with a silvery patina, the other was plain of colourless glass with an iridescent patina. Both were medium long cylinders which came from the area of the Tomb of the False Door and the Stele Park. The details are as follows:-

Colourless

THA XVI (2), D 7 mm L 15 mm, iridescent patina (PL. 00)

Deep-blue

AX ST XXV (3), D 5 mm. L 10 mm, translucent, silvery patina  
(P. 00)

Comparisons

No beads similar to these were observed elsewhere.

Category XXVI      Elongated cone-shaped pendants      (PL. 00)

These beads were composed of two adjoining cones, one being a medium-sized cone, the other a long truncated cone transversely pierced, approximately one millimetre below the top of the bead, forming a pendant. The three beads of this sort were moulded and of the same proportions and of medium diameter. Two were of light green and the other was of grass-green translucent. They came from the area of the Tomb of the False Door and the area near the Gudit Tomb. The details are as follows:-

Light-green

THA VIII (1), L 9 mm. max D of cone 5 mm

GT II (7), L 8 mm max D of cone 5 mm

Grass-green translucent

THC III (2), L 12 mm. max D of cone 8 mm

Comparisons

No parallels have been observed for these beads.

Category XXVII                      Triangular beads                      (PL. 00)

The two beads in this category were moulded in a triangular shape. Their perforation was irregular. The dimensions of these beads were medium and approximately the same. One appeared in light-blue and the others in deep-blue translucent. One was found near Catacomb C and the other from the area of the Tomb of the False Door.

Light-blue

AX ST XXII C, W 7 mm x 7 mm x 8 mm, th 5 mm

Deep-blue translucent

THC VII (3), W 7 mm x 7 mm x 7 mm, th 4 mm

Comparisons

No parallels have been observed for these beads.

Category XXVIII                      Rectangular beads                      (PL. 00)

The bead in this category was hand-moulded in a roughly rectangular form. It is transversely pierced causing a slight curve in the top side of the bead. This bead was in deep-blue translucent of medium width but of long length. Its provenance was from the area of the Catacomb A. The details are as follows:-

Deep-blue

AX ST XX (5) L 10 mm W 6 mm, th 4 mm                      (PL. 00)

Comparisons

No parallels have been observed for these beads..

Category XXIX                      Dividers                      (PL. 00)

The beads in this category were used in a necklace of several strings to divide various groups from each other. They were moulded. Three of them were rectangular in form;



two of which had four irregular perforations, the other had two irregular perforations. They appeared in colourless and in yellow translucent. The fourth bead was rectangular with the four sides of one face faceted to a low pyramid and was in royal-blue. They were all large in size. The provenance was from the area of the Tomb of the False Door and the ~~St~~ Stele Park. The details are as follows:-

Colourless with silvery patina

THC VIII C (5), (4 divisions) W 11 mm. L 25 mm. th 4 mm (PL.00)

AX ST NW dump, (4 divisions), W 18 mm. L 13 mm

Yellow translucent

THA dump, (2 divisions), W 11 mm. L 16 mm

Royal-blue

THA VIII (2a), W 10 mm. L 10 mm min th 3 mm (PL. 00)

Comparisons

No parallels have been observed for these beads elsewhere.

Category XXX

Gadrooned beads

Only fragments of three beads of this form were found. These came from the fourth century Tomb of the Brick Arches. Their details are as ~~follows~~ follows:-

Royal-blue

many fragments of 3 beads, gadrooned, L c 5 mm

Comparisons

Beads of this sort were found amongst the Roman beads in Britain<sup>(74)</sup> and the smaller ones, such as the Aksum ones, are probably third to fourth ~~cent~~ century.<sup>(75)</sup>

### Summary of the Beads

Certain observations may be made upon the foregoing catalogue of beads concerning the occurrence of their shapes, their sizes, their method of manufacture and their colours. The provenance of these beads and their dating will be discussed below. The comparisons of these beads with those from other sites will be considered.

### Occurrence of the shapes of the Beads

Various trends were noticeable in the popularity of the beads of some forms over others. About half of the beads (50%) were of two shapes only. On the other hand, the rest of the beads displayed great diversity in this respect. We find that amongst the later group about a quarter of them (25.7%) belonged to five different categories or their subdivisions; about a fifth of them (22.5%) were placed in twelve categories or their subdivisions; the remainder, mostly rare faceted and moulded specimens were dispersed amongst nine categories or their subdivisions. This is excluding the beads of uncommon occurrence (categories XXI - XXX PP. ) which did not seem to be relevant to the following analyses.

Drawn beads had the most frequent occurrence (37.6%). These (82%) were nearly all accounted for by the fourth century Tomb of the Brick Arches (58%), the shafts of Catacomb A and C, and the Geza Agmai area of the northern extension of the Stele Park, which all were within grave contexts. It is interesting to notice that none were found in the Gudit Tomb, ~~ppp~~ probably dating to the third century, nor in the area around it. The next significant group (14.4%) were from the Enda Sem'on and IW sites, believed to be dwellings of a later date, ~~ppp~~ possibly the fifth to the sixth centuries. The rest (3.6%)

were from the mixed area of the Tomb of the ~~F~~A False Door and the Kaleb area.

The other shape of bead (15%) was the hexagonally faceted bicone. This form was predominant amongst the faceted beads. Half of these (50%) came from the Tomb of the Brick Arches and with those (40%) from the catacombs and trenches surrounding them, as well as those from the Geza Agmai area, left a small number from the mixed area of ~~the~~ the Tomb of the False Door and a few from the Enda Sem'on House. A few faceted bicones were tetragonally faceted and ~~came~~ came from the Geza Agmai area and the catacombs B and C.

Ring beads came next in numbers of occurrences (6%). While these may be later than the beads of the period with which we are dealing and were usually found in mixed levels of either the Stele Park or the area of the Tomb of the False Door, they are nevertheless worth considering as part of the collection since a double ring bead was found in the Gudit Tomb. Though these were of a smaller diameter than the others, they do indicate that this form of bead was present at that time.

The next most frequent occurrence (6%) was that of the moulded cylinder. These were found chiefly in upper ~~levels~~ levels of the Stele Park and the area of the Tomb of the False Door. A few were distributed amongst tomb groups of beads in the Catacomb C and B, and the Tomb of the Brick Arches.

Hand-moulded spheroids with pinched ends were the next most numerous with occurrence (4.9%) only in tombs, chiefly that of the Catacomb A and the Tomb of the Brick Arches. These are characteristic of the beads of Catacomb A.

Moulded spheroids (4.9%) occurred also in Tombs, most especially in the Gudit Tomb. There were a few in the Catacomb A and C, and the Tomb of the Brick Arches, otherwise these were



confined to the area of the Tomb of the False Door.

Discs (3.9%) were characteristic of the beads of Catacomb A and the area near it. A few were found in the area of the Gudit Tomb.

The faceted varieties (4.2%) of bead (categories XIII - XVIII PL ) most commonly occurred in the form of the rectangular tube chamfered at the corners. These were found in the greatest numbers in the Tomb of the Brick Arches, but others including all the variants, were characteristic of the trenches associated with the tombs in the Stele Park and the Geza Agmai area. A few occurred in the area of the Tomb of the False Door.

Ellipsoids both of the faceted type (2%) and of the small wound type (2%) were only found in tomb contexts. The hand-moulded oblates with pinched ends (2.3%) were typical of grave beads from the Tomb of the Brick Arches, the Catacomb C and the Geza Agmai area.

The moulded bicones (2%) were chiefly to be found in the Tombs. Half of these were from the Tomb of the Brick Arches with others in the Catacombs and the area of the Gudit Tomb. The hand-moulded oblates with pinched ends (2.3%) were found in the Tomb of the Brick Arches in large numbers. These occurred in the Catacomb C, the Geza Agmai area and the Gudit Tomb. The hand-moulded bicones with pinched ends (1.3%) were to be found only in the Tomb of the Brick Arches. Hand-moulded cylinders with pinched ends were even rarer (1%) and occurred only in the Enda Sem'on and IW sites and the mixed area of the Tomb of the False Door. Piriform beads were rare (1.3%); one each occurred in the Tomb of the Brick Arches and the Gudit Tomb, otherwise in the area of the Tomb of the False Door and the Enda ~~ḥḥ~~ Sem'on and Kaleb areas. Barrel beads (1.6%) were ~~ḥḥ~~ chiefly found in the area of the Tomb of the False Door. One of the

specimens came from the Stele Park in a dated context of BP 1600  $\pm$  40: AD 390  $\pm$  40. Wound spheroids (1.6%) were rare, with one occurring in the Gudat Tomb, a few in the Catacomb A and B and the rest around the Tomb of the False Door. Oblates (1.3%), wound were few except for the type associated ~~/x~~ with the wound spheroids, and ellipsoids which will be discussed below. The longitudinally segmented beads, one of which occurred in a fourth century dated context as referred to above and another in the fourth century Tomb of the Brick Arches were rare, as were the flattened-diamond shaped bead only found in Catacomb B and allied trenches. The cone-lenticular was rare occurring only in upper levels and probably later than the other beads, possibly of early Islamic times, when this form was common on some sites.

#### The sizes of the Beads

The sizes of the beads varied a great deal. The drawn ~~beads~~ beads showed the widest variation with the smallest size (1.5 mm D) being found in the trench associated with the Catacomb A. The vast majority of the drawn beads, which included all those from the Tomb of the Brick Arches, were small (2 mm - 3 mm). The few medium-sized (5 mm - 8 mm) were accounted for by an assemblage from the Catacomb C and the beads from the Enda Sem'on site. Included in the latter size were occasional ~~few~~ medium-sized drawn beads from the Kaleb area and the IW site, though the majority of drawn beads from IW were small. Virtually no large-sized (9 mm and over) beads appeared and only from poorly stratified areas. In this ~~a~~ respect, most of the drawn beads were typical of those of a late Roman site (76).

The faceted bicones which came (chiefly from tombs) were between 5 mm - 10 mm ~~in diameter~~ in diameter with a few of 4 mm and occasionally some very large ones over 16 mm. The common ones were of 7 mm - 8 mm in diameter.

The ~~sph~~ spheroids had various sizes which were characteristic of the different tombs. The Gudit Tomb contained spheroids (moulded) of the largest size (8 mm) followed by the Catacomb A with spheroids (hand-moulded with pinched-ends) of smaller diameter (7 mm) with the spheroids (hand-moulded with pinched-ends) from the Tomb of the Brick Arches being the smallest (2.5 - 3 mm). Other spheroids (the polyhedral and certain wound) had greater dimensions (9 - 11 mm).

Cylinders were chiefly of medium diameter (5 - 8 mm) and of medium proportion. Ellipsoids (wound) were of small diameter (4 - 5 mm), others (faceted) tended to be large (10 - 12 mm). Discs were ~~all~~ all roughly of the same size (8 - 10 mm). Amongst the faceted varieties, the rectangular tube chamfered at the corners had the most variations in size, very small (W. 3.54 x L. 4 mm) to very large (W. 11 x L. 17 mm). More common were the ranges in between. The other faceted varieties (categories XIV - XVIII, PL ) were of sizes of less variance (W. 6-9 mm). Oblates (hand-moulded with pinched ends) tended to be small (3 mm - 5 mm) except for the wound ones which were large (10 - 13 mm).

The sizes of the gold-in-glass beads vary from spheroids (D. 2.5 mm), ellipsoids (D. 3.5 mm), segmented (D. 3 mm), collared cylinders (D. 4 mm) to cylinders (D. 8 mm) and spheroids (D. 12 mm). Barrel beads were within a medium to large range of sizes (D. 8 mm - 12 mm). Piriform beads were mostly medium sized (D. 5 - 7 mm). The ~~longitudinal~~ longitudinally segmented beads fell within the lower end of the medium range (D. 4 mm - 6 mm).



The flattened elongated diamond shaped beads were ~~f/x~~ fairly large beads (L.9 mm - 12 mm). The cone-lenticular beads were of medium size (D. 5 mm - 8 mm).

Thus it may be seen that the beads with the great exception of the drawn beads, fall within the medium range of size. Very few large beads occur.

#### Occurrence of beads according to methods of manufacture

If we consider the shapes of the beads from another point of view, that is from the manner in which they were made, we notice certain preferences emerging. Beads which were manufactured by the drawn bead method as explained above (p. ) predominated (39%). These were followed by faceted beads of all shapes (25%) and the plain moulded beads (22%). Hand-moulded beads with pinched-ends (12%) had very infrequent appearances. Wound beads (1%) were rare. Instances of other methods of bead manufacture such as that used for the gold-in-glass beads were uncommon. Folded beads were almost unknown at Aksum.

#### Occurrence of the Colours of the Beads

Amongst the collection of beads, twenty-three different shades of colours may be distinguished. Some colours were found only amongst certain shapes of beads; other colours occurred in a great variety of forms. Some of the colours were characteristic of the beads of certain tombs or sites.

A little over half the beads (50.6%) were of three colours <sup>included in</sup> categories only. Of these three, beads of deep-blue made up the greatest number (20%). Not only did beads of this colour outnumber every other, but they were to be found amongst beads of more categories than any other. Deep-blue was typical of the third century tomb group of spheroids from the Gudit Tomb, <sup>as were</sup> also the

barrel beads, one of which came from the dated context of the fourth century. The ring beads, too, were only to be found in Deep-blue. The faceted ellipsoids and bicones of Catacomb A, the hand-moulded oblates with pinched-ends from the Tomb of the Brick Arches and the Geza Agmai area, the moulded bicones of the Tomb of the Brick Arches, all appeared in deep-blue. Light-green was the next most ~~pp~~ popular colour (18.6%) with drawn beads being the most numerous, not only amongst the drawn beads of the Tomb of the Brick Arches but amongst drawn beads from all sites. Other tomb beads in light-green were the discs, small wound ellipsoids and hand-moulded spheroids with pinched-ends and the faceted bicones from the Geza Agmai area and the area near the catacombs.

Medium-light-blue was the third colour (12%) which made up the three most frequent colours amongst the beads. These were chiefly drawn beads, most of which came from the fourth century Tomb of the Brick Arches. The Enda Sem'on site contained a number of slightly larger drawn beads of this colour.

The next significant group of beads (33%) were divided amongst five different colours. Indian-red (9%) was found mostly amongst the hexagonally faceted bicones in the fourth century Tomb of the Brick Arches. Other faceted bicones (tetragonally) were characteristic of the beads of Catacomb C. Drawn beads from these last two ~~faceted~~ tombs were also in Indian-red. This colour was found amongst the disc beads and the small ellipsoids typical of catacomb A.

Beads of greenish-white followed as the next most popular colour (7%). Beads of this colour only appeared in graves and were always ~~faceted~~ faceted. They were most common as hexagonally faceted bicones from the Tomb of the Brick Arches, and next as faceted ellipsoids from the Catacomb A. There

were occurrences in the Geza Agmai area. Faceted barrel beads were also found in the Tomb of the Brick Arches and the Catacomb A. Some varieties of faceted rectangular and triangular shaped beads (categories XIII, XV, XVII, XVIII, PL ) occurred in greenish-white.

Slightly fewer beads were found in royal-blue (6%). These also were characteristic of beads from certain tombs, ~~small~~ Small ellipsoids, discs and the large faceted ellipsoids were typical of the beads from Catacomb A. The faceted rectangular beads (category XIII, PL ) of royal-blue formed part of the collection of beads in the Tomb of the Brick Arches. Beads of grass-green colour appeared in equal numbers (6%) with those of royal-blue. The greatest number of grass-green beads were from the Tomb of the Brick Arches. These were hand-moulded spheroids and oblates with pinched-ends. Faceted cylinders and other faceted varieties (categories XIII - XVI, PL ) commonly occurred from the Tomb of the Brick Arches and Catacomb A and B. Drawn beads as well in this colour, occurred in the Tomb of the Brick Arches. Yellow beads were slightly less numerous (5%) than the four previously mentioned colours. Drawn beads chiefly constitute the yellow beads. A few piriform and disc beads of yellow were found in the Catacomb A.

The gold-in-glass beads formed a small <sup>proportion</sup> number of the beads (2.4%). These were found only in tombs and trenches associated with them. The majority came from the Tomb of the Brick Arches and the Catacomb A. There was one occurrence in the entrance to the Gudat Tomb.

The next group of colours occurred very infrequently (14%) but are nevertheless significant of the wide variety of beads of many colours that constitute the Aksum collection. Beads



of opaque-white <sup>were</sup> ~~was~~ found in the Catacomb A amongst the small ellipsoids and in the Tomb of the Brick Arches amongst the drawn beads, the longitudinally segmented beads and hand-moulded spheroids with pinched-ends. Beads of colourless glass occurred amongst longitudinally segmented beads, faceted ellipsoids and faceted bicones in the Catacomb A, also as polyhedral spheroids. Light-blue beads were found chiefly amongst drawn beads, but not from tombs. The IW site and the area of the Tomb of the False Door were the chief sources of these. Purple beads were mostly all drawn beads from the Catacomb A. A few occurred in the Tomb of the Brick Arches as hand-moulded oblates with pinched-ends, and in the IW site as moulded cylinders in the fourth century approximately. Some few were found amongst the faceted bicones and the faceted rectangular bead (category XIII, PL ). Black beads were found amongst moulded cylinders and drawn beads, a few of which came from the Tomb of the Brick Arches. Wound spheroids and oblates accounted for several beads of black. Colourless glass beads with a milky-white patina occurred as wound spheroids, ellipsoids and oblates. One specimen of a faceted rectangular bead (category XIII, PL ) was also in this colourless glass with the milky-white patina. These all were found in the area of the catacombs and that of the Tomb of the False Door. Blue-green beads, those of moderate-blue-green and blue-grey were nearly all ~~drawn~~ drawn beads. There were occasional occurrences of disc beads, faceted bicones, wound spheroids and faceted rectangular beads (category XIII, PL ) amongst the blue-green and the moderate-blue-green ~~beads~~ beads. Orange beads were found either as drawn beads from the Catacomb C, the Geza Agmai area or the Tomb of the Brick Arches; or as cylinders faceted or layered with either green or Indian-red

underneath the orange, characteristic of the Geza Agmai area and the Catacomb C. Beads of pink glass occurred as faceted ellipsoids and bicones as well as disc beads. These were from the Catacomb A.

#### Provenance of the Beads

The greatest number of beads were derived from the tombs. Since all the tombs under consideration had been pillaged in antiquity and the Stele Park itself had under-gone much disturbance throughout the ages, beads from certain tombs, such as the Catacombs were found scattered throughout a wide area. This consisted of the mixed area of the Tomb of the False Door, for instance, as well as certain trenches of the Stele Park. This, however, did not occur with the many beads from the Tomb of the Brick Arches which were all found within the precincts of the Tomb. The same situation existed with the beads of the Gudut Tomb which were more or less contained within the area of the tomb. Very few beads were derived from the test trenches next to the building associated with Kaleb and ~~Ab~~ Gabra Masqal. These were not typical of the other beads from the graves, though one bead (a small ellipsoid of category VIIa PL ) occurred which is only found in association with Catacomb A. Each tomb had beads that were peculiar to it. A few types of beads were common to several. There was great variety in form and colour amongst the large numbers of grave beads, save for those from the Gudut Tomb.

The other source of beads was from the domestic sites, such as the Enda Se'mon, and IW houses. These beads were more or less contained within the living areas and not widely scattered. The variety of colours and shapes that were common

in many of the tomb assemblages of the Stele Park and its extended area, the Geza Agmai, did not occur amongst the beads of the domestic sites. Its beads were less elaborate and far fewer. Those from the IW site were nearly all drawn beads with an occasional cylinder bead. The Enda Sem'on collection contained a few decorated beads and faceted beads as well as a greater variety of moulded beads.

#### Dating of the Beads

Some beads were found with material that has been assigned a certain date according to radio-carbon dating.<sup>(77)</sup> The earliest of these were the beads from the Gudat Tomb (fig. ) with a date of b.p.  $1720 \pm 220$ ; AD  $230-250 \pm 220$ . The next group were those from the Tomb of the Brick Arches (fig. ) with a date of b.p.  $1680 \pm 80$ ; AD  $280 \pm 80$ . These were followed by an assortment of beads from a deposit next to the platform A in the Stele Park (fig. ) with a date of b.p.  $1610 \pm 40$ ; AD  $390 \pm 40$ . The last of these was from part of the IW building (fig. ) with a date of b.p.  $1550 \pm 50$ ; AD  $440 \pm 50$ . The beads from these four areas have been set out (Table p. ). The similarities that exist amongst these with the other beads of Aksum will be considered in the light of the proposed radio-carbon dates (Masca corrected). Certain observations may be noticed and will be discussed below.

The beads from the third century Gudat Tomb are unlike the assemblages from other sites. The double ring bead which is of the ~~same~~ same form and colour as ring beads from mixed areas can not be said to look like the others. The gold-in-glass bead, while of the same kind as those from other ~~later~~ later tombs, was a spheroid of an extremely small diameter, which was



not usually the case with spheroids in that category, (though one did occur in the Tomb of the Brick Arches). Apart from these occurrences, none of the other beads from the Guditi Tomb could be said to have affinities with beads from elsewhere on the site.

However, this is not the case with those from the Stele Park. One finds that amongst the hundreds of beads from the fourth century Tomb of the Brick Arches, there are many likenesses with beads from elsewhere in the Stele Park. Its faceted beads (category XIII, PL ) in royal-blue were also found in Catacomb A only in a smaller version. The gold-in-glass beads were chiefly medium to large spheroids instead of small ellipsoids as in Catacomb A, but nevertheless collared cylinders occurred in both. The greenish-white hexagonally faceted barrel bead is to be found in both the Tomb of the Brick Arches and the Catacomb A as well as from trenches in associated areas. The medium-light-blue hexagonally faceted bicones of the Tomb of the Brick Arches ~~occurred~~ occurred in the Geza Agmai area also. The presence in the tomb of very small drawn beads can be paralleled in some of those trenches in areas ~~app~~ associated with Catacomb A.

If we further examine the beads from Catacomb A and compare them with those from Catacomb B and C as well as those from the area of Geza Agmai, we find that there are certain beads in common. For example, the royal-blue spheroids are found in Catacomb A and B. The faceted bead (category XVII, PL ) and the tetragonally faceted bicone both occurred in the Catacomb B and the Geza Agmai area. Thus the beads of these particular areas in the Stele Park show an affinity to each other.

The radio-carbon date of the latter part of the fourth century for the area next to the platform A in the Stele Park (fig. ) would fit in well with the early fourth century date for the Tomb of the Brick Arches. The beads of interest from the trench next to platform A were the barrel bead and the longitudinally segmented bead. The former were found in the Catacomb A as well as in the area of the Tomb of the False Door, the latter occurred in the Tomb of the Brick Arches, though in a slightly smaller version. This would fit in with the other correspondences of the beads to each other and their dates in the Stele Park.

The last radio-carbon date of the latter part of the fifth century for one part of the IW building would accord with the finds of the beads from that site. These were almost entirely drawn beads unlike any from other sites. As to the date of the beads from the Enda Sem'on building, this ~~is~~ is difficult to determine, since the beads are a group onto themselves. There are one or two instances of similarities to certain tomb beads of the Stele Park, but these may be fortuitous. The few beads from the Kaleb area, however, have much in common with the Enda Sem'on beads, as does some of the glass from these two sites which is probably sixth century.

Certain characteristics of the beads regarding their size and their lack of decoration would accord with those of glass beads of late Roman date. <sup>(78)</sup> A good many of the Aksum beads were small. For the most part they ~~were~~ were plain, except for some few faceted beads.

In summing up, the beads from the two necropoli of the Gudit field and the Stele Park belong to the third and fourth centuries respectively, ~~whilst~~ whilst the beads from the domestic sites of Enda Sem'on and the IW building are slightly later with

a fifth century date for the latter and a sixth century for the beads of the former.

Observations on comparisons of glass beads from other sites

Similarities with beads from collections elsewhere have been indicated above where appropriate. Certain tendencies become evident upon further consideration. The first is that the beads of Aksum have affinities with beads from sites of varying dates which cover several centuries. Secondly, these sites are widely dispersed.

While it is true that certain beads may remain in fashion over a ~~long~~ long period of time, and nothing definitive may be derived from such similarities, nevertheless, since the majority of beads from other sites comparable to the Aksum beads belong roughly to the third and fourth centuries, with a few extending on from the fifth to the sixth centuries, one may assume that the Aksum beads belong chiefly to these periods. This, in fact, agrees with the radio-carbon dating discussed above.

The sites from which beads comparable to those from Aksum derive are scattered widely along the trade routes of antiquity. These may be found from India to the Sudan and Egypt and along the routes ~~of the Romans in Britain~~ of the Romans in Britain.

It is interesting to note the beads of Aksum which had comparisons with those from sites elsewhere. There were in all beads from sixteen categories or their subdivisions. The gold-in-glass beads (category XX PL ) had correspondences with beads from more sites than any other. These were to be found on Roman sites in Britain, at El-Badari, at Faras in Nubia, at Kerch in the Caucasus, and at Kausembi, Ahichhatra, Tripuri and Arikamedu in India. Comparisons with the



rectangular faceted bead (category XIII, PL ) had the next most frequent number of occurrences on other sites. Those were at Taxila, ~~Qau~~ Qau, Koptos, Illahun, Faras, Firka and on certain Roman sites in Britain. Examples of the hexagonally faceted beads such as the ~~1/4~~ cylinders were found in Taxila, Faras, Illahun and Roman Britain; Hexagonally faceted bicones similar to the Aksum specimens could be found at Gheyta, Firka and sites of the Romans in Britain. Instances of small bicones were present at Gheyta as well as at Roman sites in Britain. Hexagonally faceted ellipsoids occurred at Qau. The discs of the Catacomb A were similar to those at Taxila and Faras. The longitudinally segmented bead could be found both at Faras and at sites in Roman Britain. Large numbers of drawn beads occurred at Virampathnam and Faras. The elongated flattened diamond was present at both Faras and Firka. Hand-moulded spheroids (category XLXb, PL ) occurred at Gheyta and Illahun. Folded beads were found at Abu Geili and Illahun. The barrel bead was present at Taxila. Lentoid beads, gadrooned beads and ellipsoids with chevron decoration all had occurrences in Roman Britain. The polyhedral spheroid was also found in Palestine, as well as in Aksum. Apart from the cone-lenticular beads which came from upper ~~1/4~~ levels of the sites, ~~not~~ no other Aksum beads resembled those from Islamic sites on the East African coast.

Thus it may be seen that the collection of beads which bear a resemblance to the Aksum ones belonged chiefly to the third and fourth centuries with some few preceding that period and others extending on into the fifth to the sixth centuries. It may be noted that the Aksum beads concerned with these comparisons were mostly from the necropoli and that there were

very few for the beads of the domestic sites which are later. The beads of Aksum may be considered to be / typical of a collection of beads of the early centuries of the Romans-Byzantine Empire.