EDITOR'S NOTE

The year 2006 marks the 80th anniversary of the presentation of a "Classification and Nomenclature of Beads and Pendants" by Horace C. Beck to the Society of Antiquaries of London in 1926. It was subsequently published in the society's journal *Archaeologia* in 1928 (vol. 77, pp. 1-76). While it is somewhat out of date, it nevertheless remains a classic in its field and is still the only comprehensive work that deals with the classification of beads of complex shapes and forms. Seeing the value of this work, George Shumway reprinted it in 1973. This edition is now out of print. As Beck's report remains a valuable research tool for those studying beads, the Society of Bead Researchers decided to reprint it so it would again be available to bead scholars around the world. The version presented here replicates the original 1928 version with the addition of an addendum that presents corrections made to the manuscript by Beck up to 1934.

Horace C. Beck was born in England in 1873, into a family that operated an optical manufacturing firm. Upon completing his schooling, he joined the business and became an accomplished designer of microscope lenses. In 1924, at the age of 51, he decided to retire from this avocation and to concentrate his efforts on things archaeological. Being most interested in early glass making and the objects made from glass, he focused his attention on beads and pendants, and slowly began to amass a sizeable collection. His major work, "Classification and Nomenclature of Beads and Pendants," was presented just two years later, and by the 1930s he was an acknowledged expert on beads and pendants, commonly known as "The Bead Man." It was then common practice for archaeologists to send him beads for analysis and frequently a sample was donated to Beck's ever-growing collection. This work was all accomplished not in a museum laboratory but in a room in a country cottage that did not even have electricity or running water. His understanding wife and daughter aided him in his work and his wife prepared the drawings that illustrate his publications. Though Beck had hoped to prepare a magnum opus on beads, ill health prevented this and he died in 1941. The collection he amassed was subsequently donated to the Museum of Archaeology and Ethnography in Cambridge, England, where it is available for study by serious researchers.

The editor would like to thank Dr. Roderick Sprague for making his copy of "Classification and Nomenclature of Beads and Pendants" available for replication. Dr. Robert K. Liu of *Ornament* magazine is thanked for making available Beck's corrections to the original manuscript and for permitting the use of Beck's portrait which graces the cover of this journal. The portrait and the brief biography of Horace C. Beck presented above are derived from the article "Horace C. Beck, 'The Bead Man' - 1873-1941" by Flora Westlake (*The Bead Journal*, 1976, vol. 2, no. 4, pp. 30-32).

BECK'S CORRECTIONS AND ADDITIONS

The following changes were made to the "Classification and Nomenclature of Beads and Pendants" by Horace C. Beck up until September of 1934. While the format has been slightly modified for the sake of clarity, the wording remains unchanged.

P. 5, Pl. I. For most practical purposes it is better to amalgamate groups II, III, and IV making one group called: Group II. *Beads with Elliptical, Oval, and Lenticular Cross Sections.*

P. 5, line 2. After core add: or base.

P. 12, line 2. Group XVII. Multiple and Spacing Beads.

P. 12, line 8. Group XXIII. Notched and Gadrooned Beads.

P. 13, line 7. Group XVII. *Multiple and Spacing Beads.*

P. 19, line 3. Add: Family A.10. *Various semi-regular polyhedrons.*

P. 20, line 7. Add: e. *Annular beads of square section.*

P. 24, after line 13 add:

Family B.7. *Inverted drop pendants.*

Family B.8. *Double drop pendants.*

P. 24. At bottom of page add: f. Pearshape.

P. 30, line 7. Family A.5 should be A.4.

P. 36. After B.24. *Stag and Deer* add: B.25. *Seal.*

P. 37, line 7. Add: Family B.10. *Cock and hen.*

P. 38, Family B.1. After h. *Snake's head* add:

i. *Horse's head.*

j. *Stag, deer, or doe's head.*

k. *Fox's head.*

P. 39. After Family B.7. *Horns of Animals*, add:

Family B.8. *Carapace of Tortoise* (Turtle?).

Family B.9. *Quills and hairs of animals.*

Family B.10. *Genitals of bull.*

P. 40, last line but one after Stone add: *Bone, etc.*

P. 44. Group XLVI wants considerable revision. The most important alterations suggested are:

Line 3. After *stone* add: *and bone.*

After line 14 add: g. *Eyes of two or more impressed rings not concentric.*

A.7.a(1) and (2): These run into each other so much that it would make a better division to say: A.1. One row of eyes, and A.2. Two rows of eyes.

To Family A.7. add:

A.7.h. *Compound Stratified eyes in which a number of small eyes are in a large eye.*

A.7.i. *Stratified eye beads in the shape of square cylinders.*

P. 49. After Family A.4.b. add: Family A.4.c. *Flattened form of leech bead.*

P. 50. After Family A.12 add:

A.13. *Truncated Pyramids.*

A.14. *Chain girdle beads.*

A.15. *Ailerons or Winged Beads.*

A.16. *Beads (tubular) with central rib.*

P. 54, line 33. Omit description of *Frit* and add: Frit is a double silicate of copper and lime.

P. 55, line 6. Omit description of *Faience* and add: Faience is practically a quartz brick consisting of grains of crushed quartz fused with a little lime or soda.

I.—*Classification and Nomenclature of Beads and Pendants.* By Horace C. Beck, *Esq., F.S.A.*

Read 19th October 1926

INTRODUCTION

This paper is written in the hope that it may assist in getting more uniformity in the description of beads. At the present time there is no general agreement between different archaeologists as to how a bead should be described. For my own work I have found it essential to have some classification and nomenclature, and I have endeavoured in this paper to work out a system applicable to the beads of all countries. I will give two instances showing the necessity for some definitions. The first is that I consulted two well-known archaeologists, working on the beads of different countries, as to what they considered a disc bead. They did not agree, in fact the only point on which they did agree was that no bead called a disc bead by the other should be called a disc bead. The second instance is taken from the *Antiquaries Journal* for July 1925, where it is stated that a coloured Anglo-Saxon bead of the *usual* type was found.

The question whether pendants should be included has been a difficult one to decide. I have consulted a number of archaeologists, who all agreed that in many cases it was almost impossible to say whether certain objects were beads or pendants. I have therefore decided to include them. I considered the advisability of making a separate division for them, but when I found that a difference in the perforation was sufficient to change an object from a bead into a pendant, I decided to include them as subgroups in Division III. Again, on account of the difficulty of drawing a satisfactory line between inscribed beads and perforated seals, the latter, together with scarabs and cylinders, have been included; but only so far as to allot them groups (nos. XXXVI–XLI) without attempting in any way to classify them further.

Whilst it is hoped that most of the varieties of beads have been allotted places in this classification, it has not been possible to deal with the subject of pendants so fully.

Before going into the question of the classification itself I have found it necessary to give a number of definitions, defining the meaning of various terms as applied to beads.

To describe a bead fully it is necessary to state its form, perforation, colour, material, and decoration.

It has not been found practicable to make a classification on an entirely consistent system. Form has been the chief consideration, but there are a number of beads of forms included in the first two divisions whose importance is due much more to their decoration than to their shape. Many of these have been included in various groups in Division III. In fact, groups XLVI and XLVII consist almost entirely of such beads.

This paper is divided as follows:

In presenting this paper I wish to acknowledge the assistance I have received from various sources. My thanks are especially due to Professor Myres, Professor Sir W. Flinders Petrie, Dr. H. R. Hall, Mr. Reginald Smith, Mr. Guy Brunton, and Mr. Louis Clarke for helpful suggestions, and to Mr. A. P. Trotter for his assistance in drawing a large number of the illustrations.

PART I. DEFINITIONS

Axis. The axis of a bead is an imaginary line through the centre of the perforation. Fig. 1.

Transverse section. The transverse section is that section at right angles to the axis which has the largest area. Fig. 2.

Perimeter. The perimeter is the line or lines bordering the transverse section. Fig. 2.

Diameter. The diameter is the maximum width of the transverse section. Fig. 2.

Major radius. When the transverse section is not symmetrical round the axis, the maximum distance from the axis to the perimeter is called the major radius. Fig. 2.

Longitudinal section. The longitudinal section is that section along the axis that includes the major radius—that is, the section that shows the greatest distance from the axis to the profile. In faceted beads it generally goes through the axis and an edge. Fig. 3.

End. If the surface at the end of the perforation is approximately flat, or is concave, it is called an end. If, however, it is so convex or conical as to form a feature of the bead it is considered as part of the profile of the bead. Fig. 3.

Apex. When the bead has no 'end' the point where the profile meets the perforation is called the apex of the bead. Fig. 3.

Profile. The line or lines bordering the longitudinal section, joining the two ends, or apexes of the bead, are called the profile. In many cases the two

profiles of a bead are different; in such cases, if only one profile is mentioned, it generally refers to the one which is at the end of the major axis—that is, the profile which is farthest from the axis at one point. Fig. 3.

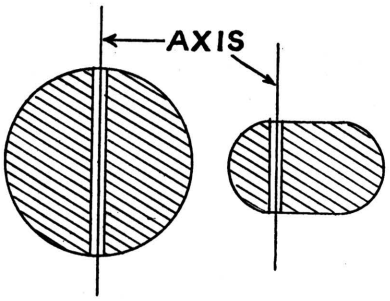

Fig. 1. Axis.

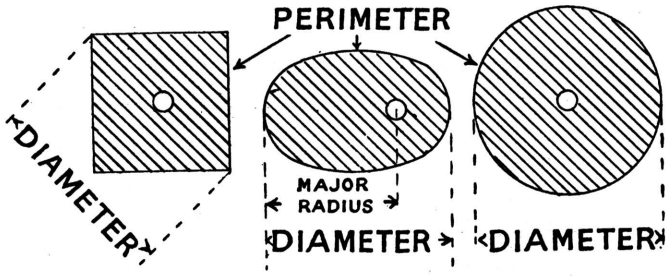

Fig. 2. Transverse section.

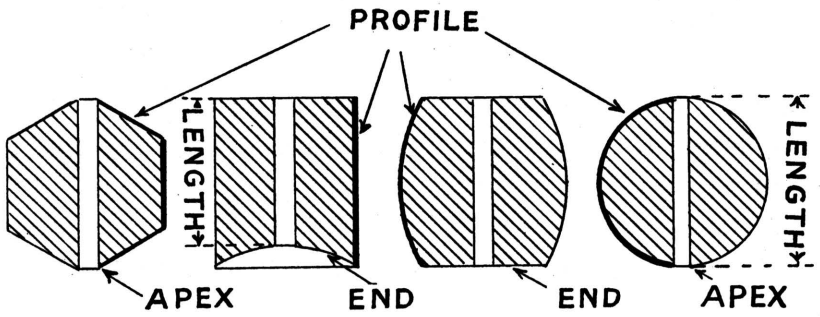

Fig. 3. Longitudinal section.

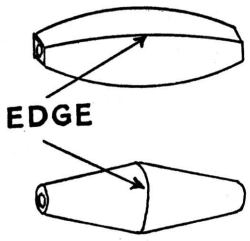

Fig. 4. Edge.

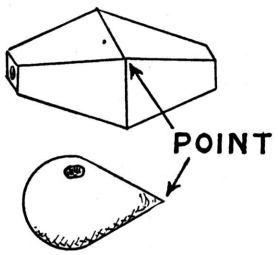

Fig. 5. Point.

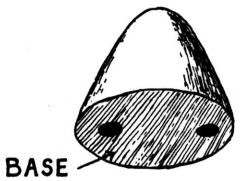

Fig. 6. Base.

Length. The length of a bead is the distance between the two ends or apexes of a bead. That is, the length of a bead is usually the length of the perforation. Fig. 3.

Edge. The junction of two facets or surfaces on a bead is called an edge. Fig. 4.

Point. The meeting-place of three or more facets, or the pointed end of a conical surface, is called a point. Fig. 5.

Middle. The middle of a bead is the position equally distant from the two ends or apexes of a bead.

Base. In beads with V-perforation, in which both ends of the perforation start on the same surface, and in which that surface is approximately flat, that surface is called the base of the bead. Fig. 6.

Regular bead. A regular bead is a bead of a relatively simple geometric shape, which can be approximately determined by a transverse and longitudinal section.

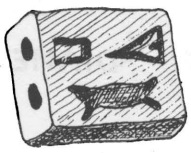

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Fig. 7. Spacing bead. Faience, Egypt, XXVIth Dynasty.

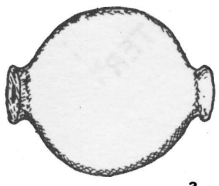

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Fig. 8. Collared bead. Steatite, Egypt, XIIth Dynasty.

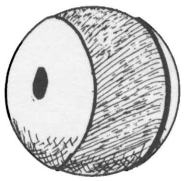

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Fig. 9. Capped bead. Gold and steatite, Egypt, XIIth Dynasty.

Spacing bead. A spacing bead is a bead with two or more perforations through which strings for carrying other beads can be placed, so that the strings are kept at the correct distance apart. Fig. 7.

Disc bead. A disc bead is a regular bead in which the length is less than one-third the diameter of the bead. Very thin disc beads are sometimes called 'wafer beads'.

Short bead. A short bead is a regular bead in which the length is more than one-third the diameter of the bead, and less than nine-tenths the diameter.

Standard bead. A standard bead is a regular bead in which the diameter is approximately the same as the length. In order to fix it more definitely, it is one which has the length more than nine-tenths and less than one and a tenth times the diameter.

Long beads. Regular beads in which the length is more than one and a tenth times the diameter are called long beads.

Gadroon or reed. One of a set of raised convex curved bands, joined at their extremities to form a decorative pattern. Figs. 11, 12.

Flute. One of a series of concave bands running longitudinally on the bead. It differs from a gadroon by being concave, whilst the gadroon is convex. Fig. 13.

Collar. Any attachment at the end of the perforation, designed to strengthen margins or reduce friction, is called a collar. Collars may be notched, milled, or plain. Fig. 8.

Cap. A metal cover to fit over the end of a bead is called a cap. Caps may be plain or decorated. Fig. 9.

Core. In faience and glazed earthenware beads the original body, which is covered over with glaze, is called the core. This word is also used to denote the backing or support frequently found in beads made of thin sheet gold or other metals.

Matrix. Many glass beads consist of a body of one coloured glass into which are impressed, or on which are superimposed, eyes or threads of different coloured glass. This body is called the matrix.

PART II. CLASSIFICATION

Beads and pendants are divided into four divisions.

Division I. Regular rounded beads.
Division II. Regular faceted beads.
Division III. Special type beads and pendants.
Division IV. Irregular beads and pendants.

These divisions are divided into Groups, Subgroups, Families, and Classes.

Division I. Regular Rounded Beads

All regular beads are divided into groups according to their transverse section.

The beads, contained in this division, have a perimeter, which consists entirely of curved lines, or else of curved lines combined with one straight line.

This division is divided into seven groups as follows:

Group I. *Circular.* Beads in which the perimeter is a circle.

These beads are symmetrical round the axis. The great majority of beads belong to this group, which is considered as the type-group of the first division, and many of its various forms are illustrated in pls. II, III.

Group II. *Elliptical.* Beads in which the perimeter is an ellipse.

Group III. *Ovoid.* Beads in which the perimeter approximately consists of the halves of two different ellipses.

Group IV. *Lenticular.* Beads in which the perimeter consists of two curved lines, approximately arcs of circles, which meet at opposite points. When the curved sides meet in a sharp edge, they can be referred to as sharp-edged, but if there is a small flat surface joining the two curved surfaces, they can be called blunt-edged.

Group V. *Plano-convex.* Beads in which the perimeter is approximately the minor segment of a circle. These beads also can be either sharp- or blunt-edged.

Group VI. *Semi-circular.* Beads in which the perimeter is approximately a semi-circle.

Group VII. *Circle and flat.* Beads in which the perimeter is approximately the major segment of a circle.

Division II. Regular Faceted Beads

This division consists of faceted beads, or beads in which the perimeter consists of a series of straight lines. It is divided into nine groups as follows:

Group VIII. *Triangular.* Beads in which the perimeter is a triangle.

Group IX. *Square.* Beads in which the perimeter is a square. This group is taken as the type-group for Division II, and many of its various forms are illustrated in pls. II, III.

Group X. *Rectangular.* Beads in which the perimeter is a rectangle.

Group XI. *Diamond.* Beads in which the perimeter is a diamond.

Group XII. *Pentagonal.* Beads in which the perimeter is a pentagon.

Group XIII. *Hexagonal.* Beads in which the perimeter is a hexagon.

Group XIV. *Octagonal.* Beads in which the perimeter is an octagon.

Group XV. *Polygonal.* Beads in which the perimeter consists of 7, 9, or more sides.

Group XVI. *Tabular.* Beads which have two parallel or nearly parallel surfaces, which surfaces are the principal feature of the bead, and are approximately parallel to the axis.

Pl. I shows a typical transverse section of each of the above sixteen groups. It also shows three beads of each group of the same transverse section as shown, and with three of the most usual longitudinal sections, which are shown at the top of the diagram. The letters, etc., under the beads are described in the next part on the classes.

The above groups are divided into Subgroups, Families, and Classes according to the shape of their longitudinal section, which is the section along the axis showing the greatest distance from the axis to the profile. The maximum width of this section is called the diameter of the bead. When the bead is unsymmetrical this section includes the major radius.

All the above groups are divided into four subgroups, according to length, as follows:

A. *Disc beads,* in which the length is less than one-third the diameter.

B. *Short beads,* in which the length is more than one-third and less than nine-tenths the diameter.

C. *Standard beads,* in which the length is more than nine-tenths and less than one and one-tenth times the diameter.

D. *Long beads,* in which the length is more than one and one-tenth times the diameter.

These subgroups are divided into Families, according to whether the profile is convex, straight, concave, a combination of convex and straight, a combination of straight and concave, or a combination of convex and concave. These families are divided into Classes, according as the profile is parallel or conical.

The families are distinguished by Arabic numerals and the classes by small letters.

The classes are as follows:

Family 1. Beads in which the profile is *convex.*

1 a. Oblate, spherical, and ellipsoid beads, according as the beads are short, standard, or long. In this class the profile meets the perforation.[1]

1 b. Barrel. Beads with flat ends that meet the curved profile at an angle.[1]

1 c. Convex cone. Beads in which the curved profile meets the perforation at one apex.

1 d. Truncated convex cone. Beads in which the curved profile does not meet the perforation, and which therefore have two flat ends.

1 e. Convex bicone. Beads in which the curved line of the profile meets the perforation.

1 f. Truncated convex bicone. Beads in which the curved profile does not meet the perforation, and which therefore have two flat ends.

1 g. Pear-shape. The pear-shape beads in this group have a convex profile of different curvature. Some pear-shape beads have a combination of straight and convex, in which case they belong to family 4; others have a profile combining convex and concave curves, in which case they belong to family 6.

Family 2. Beads in which the profile consists of one or more straight lines.

2 b. Cylindrical. Beads in which the profile consists of one straight line parallel to the axis.

2 c. Cone. Beads in which the profile consists of one straight line which is not parallel to the axis, and which meets the perforation.

2 d. Truncated cone. Beads in which the profile consists of one straight line, which is not parallel to the axis and which does not meet the perforation.

2 e. Bicone. Beads in which the profile consists of two straight lines, at an angle to one another, which meet the perforation.

2 f. Truncated bicone. Beads in which the profile consists of two straight lines at an angle to one another, which lines do not meet the perforation.

2 bd. Chamfered cylinder. A combination of classes 2 b and 2 d.

2 bf. Double chamfered cylinder. A combination of classes 2 b and 2 f.

[1] Beads belonging to group I, family 1 a, which are spherical, or only slightly oblate or ellipsoidal, and those belonging to family 1 b, which have small ends and approximate to spheres, are sometimes called *Spheroids.*

Family 3. Beads in which the profile consists of one or more concave lines.

3 b. Concave. Beads in which the profile consists of one concave line, and in which the two ends are approximately the same size.

3 c. Concave cone. Beads in which the profile consists of a concave line which meets the perforation at one end.

3 d. Truncated concave cone. Beads in which the profile consists of a concave line which does not meet the perforation, but in which one end is decidedly larger than the other.

3 e. Concave bicone. Beads in which the profile consists of two concave lines, both of which meet the perforation.

3 f. Truncated concave bicone. Beads in which the profile consists of two concave lines which do not meet the perforation.

Family 4. Beads in which the profile consists of a combination of convex and straight lines.

4 db. Cylinder with one convex end. This is a combination of classes 1 d and 2 b.

4 fb. Cylinder with two convex ends. This is a combination of classes 1 f and 2 b.

Family 5. Beads in which the profile consists of a combination of straight and concave lines.

5 bd. Cylinder with one concave end. This is a combination of classes 2 b and 3 d.

5 bf. Cylinder with two concave ends. This is a combination of classes 2 b and 3 f.

Family 6. Beads in which the profile consists of a combination of convex and concave lines.

No classes of this family are shown in pls. II, III, but they can be formed in the same way as those in families 4 and 5.

From the foregoing it will be seen that the full description of the form of a regular bead is given by four symbols. The first is a Roman numeral and denotes the group; the second, a capital letter, denotes the subgroup and length; the third, an Arabic numeral, denotes the family; whilst the fourth is a small letter and denotes the class.

In all cases the same symbol means the same. The groups show the transverse section. The subgroup shows the length. A are disc beads, B are short beads, C are standard beads in which the length and the diameter are approximately equal, and D are long beads.

In the same way the Arabic numerals which denote the families show if

the line of the profile is curved or straight. 1 are convex, 2 are straight, 3 are concave, 4 are convex and straight, 5 are straight and concave, whilst 6 are convex and concave.

In the same way the small letter denoting the class always means the same.

a means that the profile consists of one line which meets the perforation at both ends, so that the bead has two apexes and no 'ends'.

b means that the profile consists of one line which does not meet the perforation at either end, and which is parallel to the axis if the profile is straight; and if the profile is curved, a straight line joining the two ends is approximately parallel to the axis. These bands have two 'ends'.

c means that the bead is conical, and that the profile meets the perforation at one end. These beads therefore have one apex and one 'end'.

d means that the bead is conical, and the profile does not meet the perforation at either end. These beads therefore have two 'ends'.

e means that the bead is a bicone and that the profile consists of two lines which meet the perforation at both ends. These beads therefore have two apexes and no 'ends'.

f means that the bead is a bicone in which the profile does not meet the perforation at either end. These beads therefore have two 'ends'.

g means that the bead is pear-shaped.

In families 4, 5, and 6, of which all the beads are combinations of two of the families 1, 2, or 3, it is possible to describe them by using the two small class letters describing the beads which they combine, always putting the class in the lower numbered family first. Thus in family 4 a combination of 1 b and 2 c would be 4 bc, and a combination of 1 f and 2 b would be 4 fb.

Pls. II, III show a typical section in each class in families 1, 2, and 3, and some classes in families 4 and 5. They also show a bead of this section belonging to group I and group IX: under each bead are the correct symbols to describe it.

These plates also show that, as the diameter of a bead is the greatest width of the transverse section, the diameter of a square bead is equal to the diagonal of the square, and therefore a standard square bead has a length approximately equal to its diagonal. In other words, the standard square bead is the square bead that could be cut out of a standard cylinder of circular section.

In the above cases the 'ends' of beads may be flat or slightly concave or hollow conical—that is to say, a part of a cone in which the smaller portion of the cone is nearer the centre of the bead. If, however, their surface has a deep hollow cone, it is generally best to consider it as part of the perforation. See perforation types 1, 3, and 5.

If the 'ends' are so convex or conical—that is to say, part of a cone in which the smaller part of the cone is farther from the centre of the bead—that

they become a feature of the bead, they should not be considered as 'ends' but as a part of the profile of the bead.

The ends of beads are sometimes specially shaped. Some tubular beads have the ends ground alternately convex and concave, so as to fit together. Some others have a very deep concave end. In this case it is best to describe the bead, if otherwise regular, under its correct class and note that the end is very concave.

Many of the beads in the foregoing groups can be modified in various ways as follows:

Collared beads. Many regular beads can have collars, in which case they can be described as of the class to which they would belong if they had no

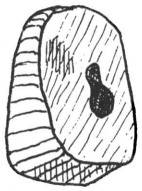

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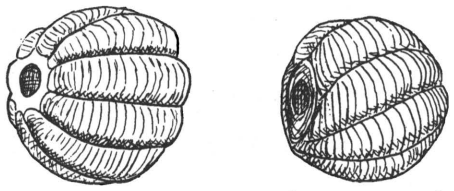
Fig. 10. Wedge bead. Amber, Anglo-Saxon.



a 5/2 *b* 5/2

Fig. 11. Melon beads. *a*, Faience, Egypt, XVIIIth Dynasty; *b*, Glass, Egypt, Roman Period.

collar, and then the word 'collared' can be added. The bead shown in fig. 8, is II. C. 1. a, collared.

Capped beads. Some regular-shaped beads have caps fitted to them, in which case they can be described as if the cap were not there, and then the word 'capped' can be added. The bead shown in fig. 9, is I. C. 1. a, capped.

Wedge beads. Beads of large diameter often have the two ends at an angle to one another like the keystone of an arch. This is generally done to enable a number of them strung together to hang in a circle. Such beads can be described as if they were not wedge-shaped, and then the word 'wedge' can be added. The bead shown in fig. 10 is a rather irregular specimen of VII. B. 2. b, wedge.

Gadrooned beads. Another way in which regular beads can be modified is by being gadrooned or reeded. The number of gadroons varies from three or four to as many as twenty-five or thirty.

The fact that these beads are gadrooned is generally more important than the shape, so although the shape can be described by the letters and numbers used in Division I, the beads have all been included in group XXIII, Notched and gadrooned beads and pendants. Two of the commonest forms are the *melon bead* (fig. 11) and the gadrooned bicone (fig. 12).

The gadroons can also be *spiral*, in which case, if the spiral is only slight,

they are included in group XXIII. Fig. 11, b shows a spiral melon bead. If, however, the spiral is great, it is best to include them in group XVIII, Spiral beads and pendants.

Fluted beads. Regular beads can also be fluted. In this case the groove is concave, and there is sometimes a sharp line or rib where the flutes join.

Beads modified in this way are treated in the same way as gadrooned beads.

Spiral faceted beads. Another way in which regular faceted beads are modified is for the facets to go spirally round the bead instead of straight (fig. 14). These can be described in the ordinary way with the addition of the word 'spiral'.

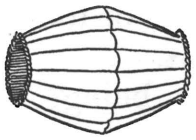


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Fig. 12. Gadrooned bicone bead. Gold, Cyprus, 500 B. C.

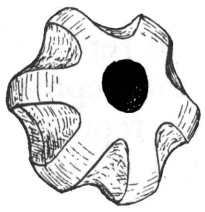

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Fig. 13. Fluted bead. Turquoise, Peru, *c.* 1500 A. D.

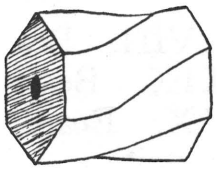

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Fig. 14. Spiral faceted bead.

Division III. Special Type Beads and Pendants

This division includes the more elaborate types of beads, the pendants, and perforated seals. It is very difficult to divide it satisfactorily into Groups, Subgroups, and Families. The difficulty is greatly increased by the inclusion of pendants and the fact that it is almost impossible to draw a hard and fast line between what is a bead and what is a pendant. In many cases an exactly similar object becomes a definite bead or a definite pendant, according to its perforation. For instance, an olive shell perforated along the axis is a bead, whilst the same shell perforated at one end is a pendant (see fig. 25, A. 1, B. 1).

Each group is therefore divided into two subgroups, subgroup A being for beads, and subgroup B for pendants. Each subgroup is divided into similar families; similar objects in each group belonging to families of the same number. For instance, the shells referred to above both belong to family 1 of group XXVII; the bead belongs to family XXVII. A. 1, which contains beads consisting of complete shells, whilst the pendant belongs to family XXVII. B. 1, which contains pendants consisting of complete shells.

The only disadvantage of this method is that the families in some of the subgroups are not consecutively numbered, some families in subgroup A not being represented in subgroup B, and vice versa.

This division is divided into thirty-two groups as follows:

Group XVII. Multiple beads.
Group XVIII. Spiral beads and pendants.
Group XIX. Special faceted beads.
Group XX. Annular and wheel pendants.
Group XXI. Bullae.
Group XXII. Simple pendants.
Group XXIII. Notched beads and pendants.
Group XXIV. Filigree and lattice-work beads and pendants.
Group XXV. Granulated beads and pendants.
Group XXVI. Beads and pendants representing or made of flowers, fruits, seeds, or leaves.
Group XXVII. Beads and pendants representing or made of complete shells.
Group XXVIII. Beads and pendants representing weapons or tools.
Group XXIX. Beads and pendants representing emblems.
Group XXX. Beads and pendants representing human beings or human-headed deities.
Group XXXI. Beads and pendants representing or made of parts of human beings.
Group XXXII. Beads and pendants representing animals or animal-headed deities.
Group XXXIII. Beads and pendants representing birds or bird-headed deities.
Group XXXIV. Beads and pendants representing reptiles, insects, etc., or deities with heads of reptiles, insects, etc.
Group XXXV. Beads and pendants representing or made of parts of animals, birds, reptiles, insects, etc.
Group XXXVI. Scarabs.
Group XXVII. Cylinder seals.
Group XXXVIII. Ball seals.
Group XXXIX. Cone seals.
Group XL. Lenticular seals.
Group XLI. Button seals.
Group XLII. Button beads and toggle beads.
Group XLIII. Elaborate medieval carved beads.
Group XLIV. Elaborate jewelled pendants of the Middle Ages and Renaissance.
Group XLV. Netsukés.
Group XLVI. Spot beads and eye beads and pendants with circular eyes.
Group XLVII. Zone, striped, wave, and chevron beads.
Group XLVIII. Sundry beads and pendants.

These groups are arranged primarily according to the shape of the beads. In some cases, however, the decoration or inscription is so much more important, that they have been grouped according to that. The chief instances where this has been done are the seals and scarabs (groups XXXVI–XLI), the spot and eye beads (group XLVI), and the zone, striped, wave, and chevron beads (Group XLVII).

Group XVII. *Multiple Beads*

This group is divided as follows:

Subgroup A. Beads.

Family A. 1. *Segmented beads.*

a. Small, not more than ¼ in. diameter. Fig. 15, A. 1. a.

b. Large, more than ¼ in. diameter. Fig. 15, A. 1. b.

These two classes contain beads which are very different, but they merge almost imperceptibly from one to the other. The larger beads are usually more like separately made beads joined together, and were sometimes used for cutting into separate beads.

Family A. 2. *Multitubular beads.*

a. Beads of faience, glass, or metal tubes with the axes in one plane. Fig. 15, A. 2. a.

b. Beads of faience, glass, or metal tubes with the axes in different planes. Fig. 15, A. 2. b.

c. Beads carved out of stone, amber, etc., in imitation of multitubular beads. Fig. 15, A. 2. c.

d. Multiple cross-spacing beads. Fig. 15, A. 2. d.

These are multitubular beads arranged so as to act as spacing beads in two directions.

Family A. 3. *Rectangular, elliptical, and lenticular spacing beads, in which the axes of the perforations are parallel.*

The majority of the spacing beads belonging to this family are included in the following classes:

a. *Rectangular spacing beads.*

In these the transverse section is a rectangle.

1. Cylinder. Fig. 7.
2. Oblate, Circular, and Ellipsoidal.
3. Disc. Fig. 15, A. 3. a. 3.

b. *Elliptical spacing beads.*

In these the transverse section is an ellipse, or an ellipse with flattened sides.

1. Cylinder. Fig. 15, A. 3. b. 1.

2. Oblate, circular, and ellipsoidal. Fig. 15, A. 3. b. 2.
3. Disc.

c. *Lenticular spacing beads.*

1. Cylinder.
2. Oblate, circular, and ellipsoidal.
3. Disc. Fig. 15, A. 3. c. 3.

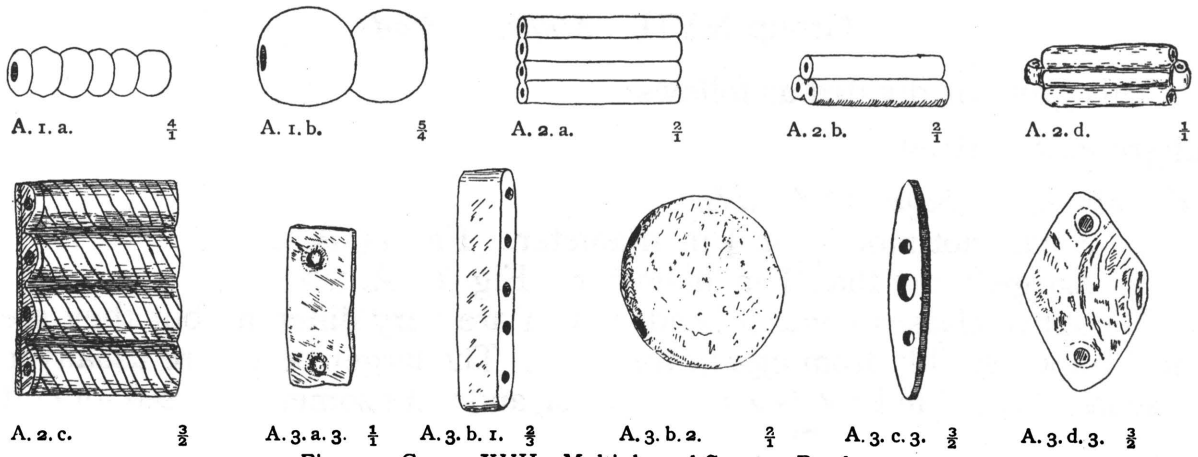


Fig. 15. GROUP XVII. Multiple and Spacing Beads.

A. 1. a. Small segmented bead. Faience, Egypt, XVIIIth Dynasty.
A. 1. b. Large segmented bead. Glass, Irish, Celtic.
A. 2. a. Multitubular bead. Faience, Egypt, XIXth Dynasty.
A. 2. b. Multitubular bead. Faience, Egypt, XIXth Dynasty?
A. 2. c. Carved multitubular bead. Lapis, Egypt, XIIth Dynasty.
A. 2. d. Multiple cross spacing bead. Faience, Tel el Amarna, XVIIIth Dynasty.
A. 3. a. 3. Rectangular disc spacing bead. Mother of pearl, Egypt, XIIth Dynasty.
A. 3. b. 1. Elliptical cylinder spacing bead. Stone, Ur, 3500 B. C.
A. 3. b. 2. Elliptical circular spacing bead. Faience, Ur, 2000 B. C.?
A. 3. c. 3. Lenticular disc spacing bead. Shell, Ur.
A. 3. d. 3. Lozenge disc spacing bead. Shell, Ur, Early Period?

d. *Lozenge or diamond spacing beads.*

1. Cylinder.
2. Oblate, circular, and ellipsoidal.
3. Disc. Fig. 15, A. 3. d. 3.

Family A. 4. *Terminal spacing beads.* Fig. 44.

These beads have the perforations nearer together at one end or have fewer perforations at one end than at the other.

The spacing beads in families 3 and 4 are those of regular or simple designs, which from their shape and decoration do not fall into other groups of Division III.

Many spacing beads of an elaborate nature are classed in various groups according to their design, as for instance the flower and leaf pendants in group XXVI and the teeth with double perforation in group XXXV, etc.

Subgroup B. Pendants.

There is a great number of multiple pendants, but these usually consist of several representations of some emblem or figure. For this reason they are not placed in this group, but are placed in the same group as a pendant of a single representation of the same emblem or figure.

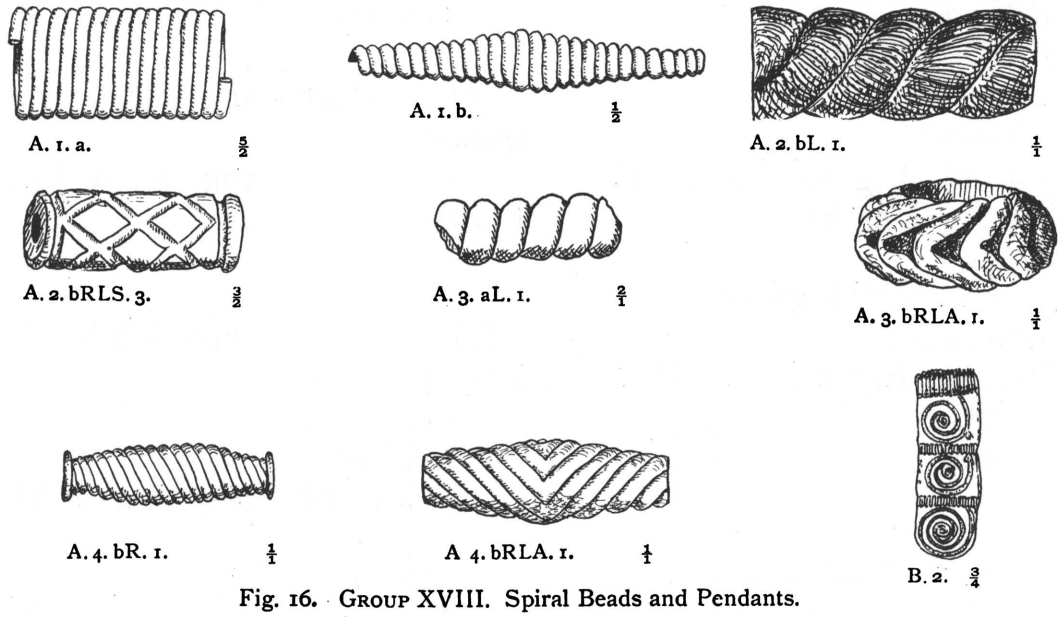


Fig. 16. GROUP XVIII. Spiral Beads and Pendants.

A. 1. a. Spiral wire bead. Gold, Cyprus, 500 B. C.
A. 1. b. Spiral wire bead. Bronze, Italy, 9th century B. C.
A. 2. bL. 1. Moulded spiral bead. Faience, Hierakonpolis, Ist Dynasty.
A. 2. bRLS. 3. Bead with superimposed spirals. Faience, Ur, before 600 B. C.
A. 3. aL. 1. Wound spiral bead. Glass, Crimea, Greek Period.
A. 3. bRLA. 1. Wound spiral bead. Glass, Ireland, Celtic?
A. 4. bR. 1. Carved spiral bead. Amber, Praeneste, 800 B. C.
A. 4. bRLA. 1. Carved bead with adjacent spirals. Amber, Etruscan, 800 B. C.
B. 2. Moulded spiral pendant. Glass, Rhodes, 1300 B. C.

Group XVIII. *Spiral Beads and Pendants*

Subgroup A. Beads.

Family A. 1. *Spiral wire beads.*

a. *Parallel.* Fig. 16, A. 1. a.

b. *Bicone.* Fig. 16, A. 1. b.

c. *Spherical and ellipsoidal.*

These beads are made by winding wire in coils. They are usually made of metal, but are also made of glass, wax, etc. In some cases the wire may be lightly fused together to keep it in position, but it must not be melted into a solid mass, so that the shape of the wire, inside or outside, is lost.

Family A. 2. *Moulded or painted spiral beads in faience and pottery.*

Family A. 3. *Moulded, wound, or enamelled spiral beads in glass.*
Family A. 4. *Carved, glazed, etc., spiral beads in stone, amber, etc.*

These three families can be divided as follows:

a. *Single spirals.*

R. Right-hand.
1. Raised.
2. Flush. Fig. 69.
3. Incised.

L. Left-hand.
1. Raised. Fig. 16, A. 3. aL. 1.
2. Flush. Fig. 83.
3. Incised.

b. *Multiple spirals.*

R. Right-hand.
1. Raised. Fig. 16, A. 4. bR. 1.
2. Flush.
3. Incised.

L. Left-hand.
1. Raised. Fig. 16, A. 2. bL. 1.
2. Flush.
3. Incised.

RLA. Right- and left-hand adjacent spirals.
1. Raised. Fig. 16, A. 3. bRLA. 1, and A. 4. bRLA. 1.
2. Flush.
3. Incised.

RLS. Right- and left-hand spirals superimposed.
1. Raised.
2. Flush.
3. Incised. Fig. 16, A. 2. bRLS. 3.

Family A. 5. *Beads with helical designs.* Fig. 70.

The spiral eye beads might have been included in this family, but I think it better to put them with the other eye beads in group XLVI.

Subgroup B. Pendants.

A certain number of spiral beads and pendants is not included in this group, as these fall more appropriately elsewhere. Amongst the beads in addition to the spiral eye beads mentioned above, are the spiral gadroon beads, included in group XXIII, and the spiral faceted beads referred to on page 11. In the same way there are a number of pendants with spiral gadroons, which, except that the gadroons are spiral instead of straight, are exactly similar to the gadroon pendants in family B of group XXIII. They are therefore included in that group. In this subgroup there are, however, the following families:

Family B. 1. *Spiral wire pendants.*
Family B. 2. *Moulded spiral pendants.*

Included in this family are a series of curious flat moulded glass pendants, with a number of spirals on the face. These come from Mycenae and Ialysos (fig. 16, B. 2). In some cases the whole pendant is moulded in the form of a spiral.

Family B. 3. *Carved spiral pendants.*

Group XIX. *Special Types of Faceted Beads*

Family A. 1. *Cornerless cubes.* Fig. 17, A. 1.

These beads are cubes or rectangles which have had all their corners cut off so as to leave triangular surfaces. They are the combination of a cube and an octagon.

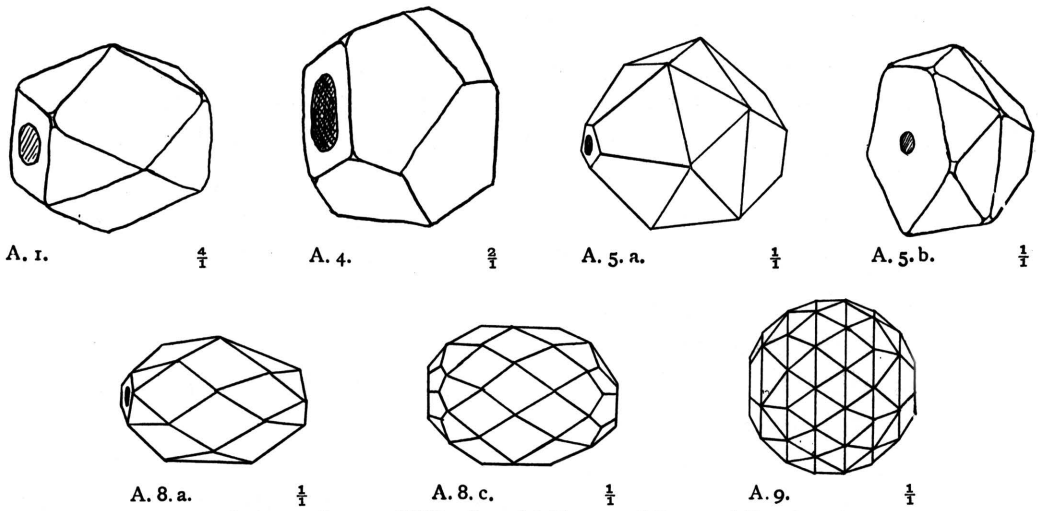


Fig. 17. GROUP XIX. Special Types of Faceted Beads.

A. 1. Cornerless cube bead. Glass, Crimea, 500 B. C.
A. 4. Twisted square bead. Glass, Egypt, Roman Period.
A. 5. a. Double pentagon bead. Crystal, Anglo-Saxon.
A. 5. b. Flattened double pentagon bead. Crystal, Anglo-Saxon.
A. 8. a. Lozenge pentagon bead. Crystal, Anglo-Saxon.
A 8. c. Lozenge octagon bead. Crystal, Modern.
A. 9. Multifaceted bead. Crystal, Modern.

Family A. 2. *Tetrahedron.*

There are two classes of these, which, although they are of the same shape, are perforated differently.

a. Perforated from a point to the centre of the opposite surface.

b. Perforated from the centre of one edge to the centre of the edge opposite.

Family A. 3. *Dodecahedron.*

Family A. 4. *Twisted square.* Fig. 17, A. 4.

These beads are made like a square bicone bead, IX. C. 2. f, but the facets which point to one end are rotated 45 degrees with reference to the facets which point to the other end. The crystallographic name for this is a truncated tetragonal trapezohedron, but I think the name 'twisted square' is more descriptive and easier.

Family A. 5. *Double pentagon.* Fig. 17, A. 5. a.

These beads have twenty facets. There are five at each end and each of these facets has four edges. The facets make a considerable angle with the

axis. As in the twisted square, the facets at two ends are arranged so that the edges of the facets at one end are opposite the middle of those at the other end. On the top of each of these four-sided facets is a triangular facet, of which the base adjoins the four-sided facet at one end, and the apex adjoins the edge between the two facets at the other end. In this way there are five four-sided facets at each end and ten triangular facets in between them.

It is usual for these beads to be shorter than the diameter and for the four-sided facets at one end to make a greater angle with the axis than do those at the other end. In some cases the angles at one end become practically a right angle, and the five facets become almost or quite a single flat pentagonal surface. Such beads are called Flattened Double Pentagons (fig. 17, A. 5. b). A rare special form is when the four-sided facets meet at an apex so as to form equilateral triangles, and the intermediate triangles are also equilateral: in this case the bead becomes an icosahedron.

Family A. 6. *Double hexagon.*

These are similar to the double pentagons in family A. 5, but have six facets round each end instead of five.

Family A. 7. *Double octagon.*

These are similar to the double pentagons in family A. 5, but have eight facets round each end instead of five.

Family A. 8. *Lozenge faceted beads.*

a. *Lozenge pentagon.* Fig. 17, A. 8. a. These beads have five 'lozenge' or diamond-shaped facets round the perimeter, arranged so that the obtuse angles of the lozenges are touching. In between each pair of facets, are further lozenge-shaped facets extending from the centre to the ends. At the end between this second row of lozenge facets is a row of triangular facets. The bead therefore has fifteen lozenge-shaped and ten triangular facets.

b. *Lozenge hexagon.* These beads are made on the same principle as the beads A. 8. a, but there are six lozenge-shaped facets round the perimeter instead of five. Also the facets which correspond to the triangular facets are generally lozenge-shaped, or at any rate more than triangles, in which case a further row of facets appears at the ends.

c. *Lozenge octagon.* Fig. 17, A. 8. c. These beads are made on the same principle as the beads A. 8. a, but there are eight lozenge-shaped facets round the perimeter instead of five. In this case the triangular facets become lozenge-shaped facets, in which the angle near the end is much more obtuse than the one near the centre, and the further rows of facets at the ends are lozenge-shaped or five-sided.

Family A. 9. *Beads with many triangular facets.*

There are a number of methods of cutting approximately spherical beads

with large numbers of triangular facets. One method in which there are twelve triangular facets round the perimeter is shown in fig. 17, A. 9.

Group XX. *Annular and Wheel Beads and Pendants.*

Subgroup A. Beads.

Family A. 1. *Annular beads.*

a. *Annular beads of circular section.* Fig. 18, A. 1. a. These beads are like

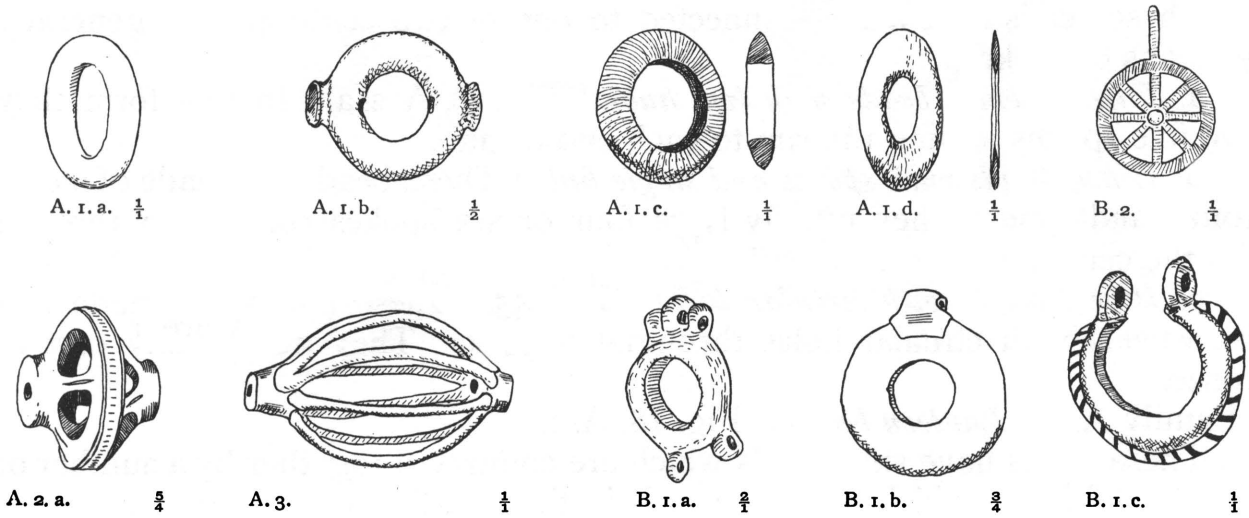


Fig. 18. Group XX. Annular and Wheel Beads and Pendants.
A. 1. a. Annular bead. Glass, Egypt, Roman Period.
A. 1. b. Pierced annular bead. Bronze, Ireland, Bronze Age.
A. 1. c. Quoit bead. Faience, English, Bronze Age.
A. 1. d. Flattened annular bead. Amber, England, 100 B. C.
A. 2. a. Wheel bead. Faience, Mycenae, 1300 B. C.
A. 3. Lantern bead. Faience, Egypt, XIIth Dynasty.
B. 1. a. Quoit spacing bead. Faience, Egypt, XVIIIth Dynasty.
B. 1. b. Quoit pendant. Faience, England, Bronze Age.
B. 1. c. Split annular pendant. Glass, Egypt, XVIIIth Dynasty.
B. 2. Wheel pendant. Assyria, 650 B. C.

rings. The longitudinal section consists of two circular or nearly circular portions, one on each side of the axis. These beads are a special form of oblate disc bead, I. A. 1. a.

b. *Pierced annular beads.* Fig. 18, A. 1. b. These beads are similar to the beads in the last class, but they are also perforated at right angles to the axis. They are frequently made out of thin metal, and are then hollow, and they sometimes have collars. These beads vary much in size, and many of the largest ones were used as brooches.

c. *Quoit beads.* Fig. 18, A. 1. c. Beads in which the longitudinal section consists of two triangles with slightly curved sides, one on each side of the axis,

and in which the perforation is more than half the diameter of the bead. They are a special case of disc bicone, I. A. 1. e.

d. *Flattened annular beads.* Fig. 18, A. 1. d. Beads in which the longitudinal section consists of two lenticular portions, one on each side of the axis, and in which the smallest width of the lenticular section is the length of the bead. They are a special case of disc bicone, I. A. 1. e. Usually the length of the bead is extremely small compared to the diameter.

Family A. 2. *Wheel beads.*

These beads have a rim connected to one or two centre-pieces, generally by means of spokes.

a. *Faience wheel beads with two hubs.* Fig. 18, A. 2. a. In this form they have five spokes joining the rim to each end or hub.

b. *Wheel beads with spokes and single hub.* These beads are made of stone, bronze, and bone. They usually have four or six spokes connecting the rim with the central hub.

c. *Wheel beads with circular holes.* Fig. 45. These beads are made like disc wheels with circular holes through the disc. They are usually cast in bronze.

Family A. 3. *Lantern beads.* Fig. 18, A. 3.

These beads have small ends which are connected together by a number of threads of faience, which bend outwards in the middle so as to form a hollow lantern.

Subgroup B. Pendants.

Family B. 1. *Annular pendants.*

a. *Quoit spacing beads.* Fig. 18, B. 1. a. These are annular or quoit-shaped rings with small rings for suspension, and for passing threads through on opposite sides of the main ring.

b. *Quoit pendants.* Fig. 18, B. 1. b. These pendants consist of an annular or quoit-shaped ring, which has a projection attached to one side of it through which is the perforation for suspension. Occasionally the perforation goes through the edge of the ring and there is no projection.

c. *Split annular pendants.* Fig. 18, B. 1. c. These pendants consist of an annular ring with a small gap in it. At each side of the gap are lugs which are pierced for suspension. This class of pendant was usually made of glass, several kinds of glass being used in the same one. They are almost always Egyptian of the XVIIIth Dynasty, and were probably used as earrings.

Family B. 2. *Wheel pendants.* Fig. 18, B. 2.

These pendants consist of a wheel-shaped disc with a long projection for suspension.

Group XXI. *Bullae*

Bullae consist of a disc, generally with a design on it, with a projection at the top, which is perforated for suspension. They frequently formed the centre of necklaces.

Family B. 1. *Moulded bullae.*

a. *Glass bullae.* Fig. 19, B. 1. a.

b. *Faience bullae.*

Family B. 2. *Carved bullae.*

a. *Carved bullae with designs.* Fig. 19, B. 2. a. These are carved in jet, amber, and various stones. The designs are of all sorts; frequently heads are

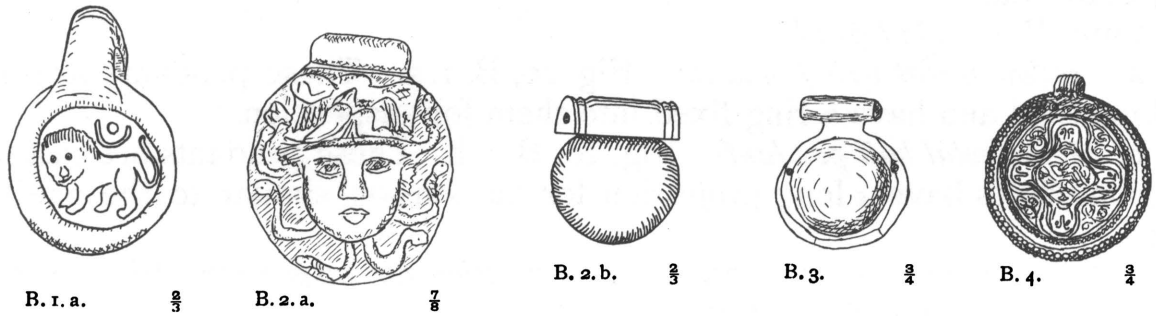


Fig. 19. GROUP XXI. Bullae.

B. 1. a. Moulded bulla. Glass, Syrian, Roman Period.
B. 2. a. Carved bulla. Jet, Yorkshire, Roman Period.
B. 2. b. Carved bulla. Amber, Italy, 800 B. C.
B. 3. Metal bulla. Gold, Italy, 700 B. C.
B. 4. Bracteate. Gold, Anglo-Saxon.

shown, as in the figure. In such cases it is a question whether they should be included here or in group XXXI, family B. 1. pendants representing the head and face. Unless the shape is very definitely the shape of a bulla, it is better to include it in group XXXI.

b. *Carved bullae without designs.* Fig. 19, B. 2. b. The special form of these illustrated has the disc about half as thick as the diameter, and has rounded edges. It is not decorated. These pendants are found in Italy, and may be representations of the sun; if this is so, they should not be included here, but in group XXIX, family B. 2.

Family B. 3. *Metal bullae.* Fig. 19, B. 3.

These are of several forms. In one they are hollow discs hammered out of sheet metal, the back and front being riveted together, and forming a top similar in shape to the amber bullae of the last family.

In another form they are plain convex discs, with or without a design upon them, and with a hole at the top for suspension.

Family B. 4. *Bracteates.* Fig. 19, B. 4.

These are flat metal discs rather similar to coins, with a projection at the top, bent over, or riveted on for suspension.

They occur frequently in the Saxon and Merovingian period, and form a sufficiently definite group to put them in a different family from the metal bullae in family 3.

Group XXII. *Simple Pendants*

Most of the pendants in this group consist of a number of simple forms derived from regular beads, but pierced so as to make them pendants. But some, as those in class B. 1. f, although derived from a simple form, are themselves very elaborate.

Family B. 1. *Ball pendants.*

a. *Hollow metal ball pendants.* Fig. 20, B. 1. a. These pendants are made of thin metal and have a ring fixed into them for suspension.

b. *Solid metal ball pendants.* Fig. 20, B. 1. b. These pendants are cast solid, and sometimes have a long projection for suspension, similar to the one illustrated.

c. *Solid faience and stone balls, with projection for suspension.* Fig. 20, B. 1. c. These are perforated through the projection.

d. *Hollow faience ball pendants.* These are hollow faience balls of large size, with only one hole in them, through which a toggle attached to a cord was passed for suspension. The best-known form of these are the sector globe faience beads. Fig. 84.

e. *Crystal or stone balls in mount.* Fig. 20, B. 1. e. One form of these pendants consists of a circular ball of stone or crystal, mounted in a metal mount, made by bending two strips of metal round the ball at right angles to one another, joining the strips together where they cross, and attaching a ring for suspension at one end.

f. *Oriental ivory ball pendants.* Fig. 20, B. 1. f. There are two well-known forms of these: (1) in which the ivory is carved away through holes on the outside, so as to leave a series of loose balls inside; (2) in which the ball is left almost solid, but has a series of holes undercut in it in such a way that the pieces of ivory left from the centres of the holes are too large to come out, and being pointed at one end give the appearance of a large number of loose prickles on it.

Family B. 2. *Drop pendants.*

a. *Plain drops with pointed tops.* Fig. 20, B. 2. a. There are many varieties of these. They can be either circular or elliptical in section. They frequently have gold caps or gold bands round them.

b. *Plain drops with rounded ends or rings for suspension.* Fig. 20, B. 2. b. There are many forms of these pendants. Great variety is given to them by adding terminal drops of small size.

c. *Hollow drop pendants.* Fig. 20, B. 2. c. There are several types of these. The curious form illustrated is hammered out so that whilst leaving a thick loop

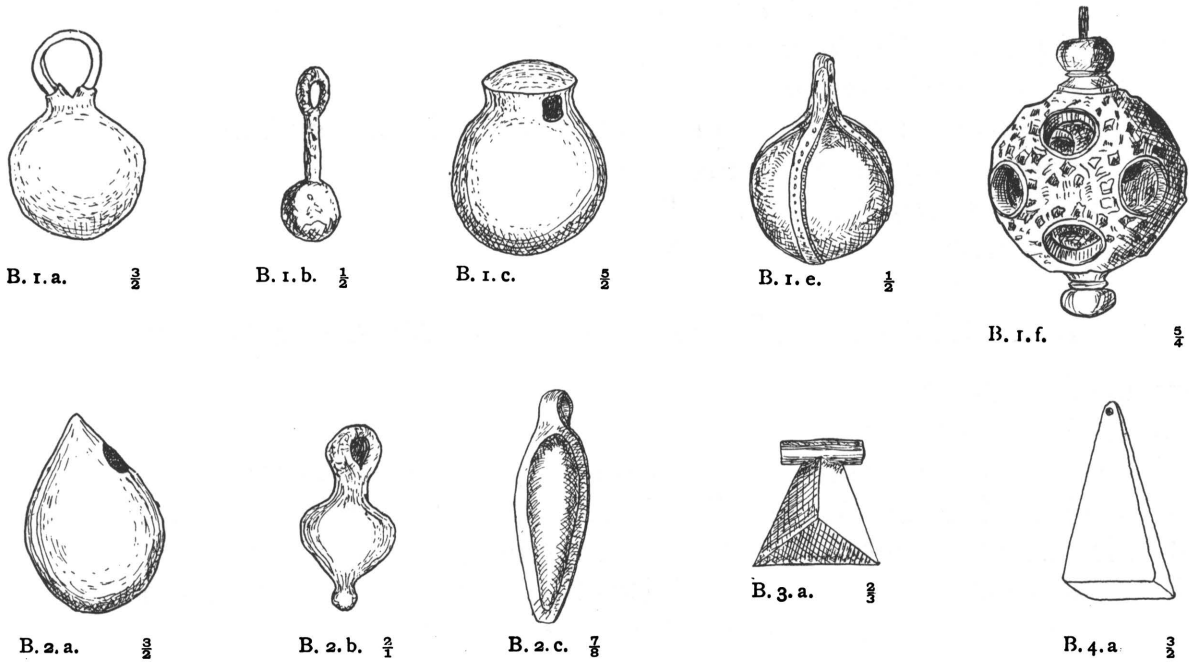


Fig. 20. GROUP XXII. Simple Pendants.

B. 1. a. Hollow metal ball pendant. Bronze, Crimea, 600 B. C.
B. 1. b. Solid metal ball pendant. Bronze, Italy, Bronze Age.
B. 1. c. Stone ball pendant. Carnelian, Egypt, XIIth Dynasty.
B. 1. e. Crystal ball in bronze mount. Anglo-Saxon.
B. 1. f. Ivory ball pendant. Japan, 19th century.
B. 2. a. Drop pendant. Carnelian, Egypt.
B. 2. b. Drop pendant. Glass, Egypt, Roman Period.
B. 2. c. Hollow drop pendant. Bronze, Italy, 9th century B. C.
B. 3. a. Triangular faceted drop pendant. Amber, Italy, 800 B. C.
B. 4. a. Pyramid pendant. Glass, England, Roman Period.

for suspension, the sides are extremely thin. The tip on one side was longer than the other and bent over to fasten the two sides together. These should perhaps be included amongst bullae, as there seems no definite line of division between them, but I think that they are too far from circular.

Family 3. *Faceted drop pendants.*

a. *Triangular faceted drop pendants.* Fig. 20, B. 3. a. These pendants carved in amber are found in Italy. They do not seem to represent any emblem and so have been included here.

Family B. 4. *Pyramid pendants.*

a. *Perforated at the small end.* Fig. 20, B. 4. a.

b. *Perforated at the large end.*

Family B. 5. *Cone pendants.*

These are similar to the pendants in family B. 4, but they are circular in section.

a. *Perforated at the small end.*

b. *Perforated at the large end.*

Family B. 6. *Rod pendants.*

These are rods or cylinders perforated towards one end, at right angles to the axis, so as to hang as pendants.

a. *Circular or elliptical section.*

b. *Faceted section.*

Group XXIII. *Notched and Gadrooned Beads and Pendants*

Subgroup A. Beads.

Family A. 1. *Notched.*

The beads in this family can be divided into the following classes:

a. *Milled.* Fig. 21, A. 1. a. Beads in which the perimeter has a series of small indentations round it, similar to the milled edge of a coin.

b. *Crenelated.* Fig. 21, A. 1. b. Beads in which the perimeter has a series of larger notches, similar to the teeth of a cogwheel.

c. *Rayed.* Fig. 21, A. 1. c. Beads in which there are a few large projections on the perimeter.

d. *Radially grooved.* Fig. 21, A. 1. d. Beads in which the notches or grooves go from the perforation to the edge. Beads of this class sometimes combine the features of one of the previous classes, in which case the two letters can be used to describe them.

Family A. 2. *Fluted beads.*

a. *Spherical, oblate, and ellipsoidal.* Fig. 13.

b. *Cylindrical.*

c. *Cone.*

d. *Bicone.* Fig. 21, A. 2. d.

e. *Disc.* Fig. 21, A. 2. e.

Family A. 3. *Gadrooned beads.*

a. *Spherical, oblate, and ellipsoidal.* (1) *Straight gadroons.* Fig. 11, a. (2) *Spiral gadroons.* Fig. 11. b. The beads in this class are the well-known melon beads. In the spiral ones the spirals are only slight. When the spiral is great it is best to include them in group XVIII.

b. *Cylindrical.*

c. *Cone.*

d. *Bicone.* Fig. 12.

e. *Disc.* Fig. 21, A. 3. e.

Subgroup B. Pendants.

Family B. 2. *Fluted pendants.*

Family B. 3. *Gadrooned pendants.*

a. *Straight gadroons.* Fig. 21, B. 3. a. b. *Spiral gadroons.* Fig. 21, B. 3. b.

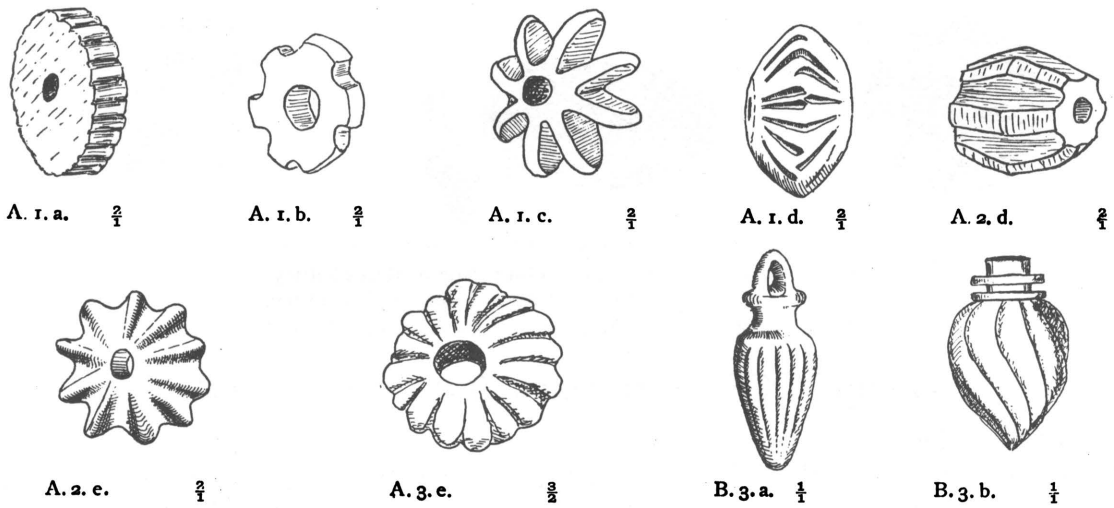


Fig. 21. GROUP XXIII. Notched and Gadrooned Beads and Pendants.

A. 1. a. Milled bead. Faience, Egypt, XXIIIrd Dynasty.
A. 1. b. Crenelated bead. Faience, Egypt, XXIIIrd Dynasty.
A. 1. c. Rayed bead. Faience, Tel el Amarna, XVIIIth Dynasty.
A. 1. d. Radially grooved bead. Faience, Egypt, XXIIIrd Dynasty.
A. 2. d. Bicone fluted bead. Agate, Ur, 2000 B. C.?
A. 2. e. Disc fluted bead. Faience, Egypt, XXIIIrd Dynasty.
A. 3. e. Disc gadrooned bead. Glass, Egypt, XIXth Dynasty.
B. 3. a. Gadrooned pendant. Faience, Egypt, XXIIIrd Dynasty.
B. 3. b. Gadrooned pendant. Amber, Italy, 800 B. C.

Group XXIV. *Filigree and Lattice Beads and Pendants*

Subgroup A. Beads.

Family A. 1. *Wire filigree beads.*

The beads of this group are made of open wire-work, or the wire-work is the most important feature.

a. *Open filigree.* Fig. 22, A. 1. a. b. *Solid filigree.* Fig. 22, A. 1. b.

In class a the wire-work is only supported by itself, whilst in class b there is a metal matrix to which the wire is attached.

Family A. 2. *Skeleton beads.* Fig. 22, A. 2. These are hollow beads of faience with open-work patterns of thin thread, somewhat similar to the filigree wire beads.

Subgroup B. Pendants.

Family B. 1. *Wire filigree pendants.*

These pendants, made in open and solid filigree, are found in a large variety of forms.

Family B. 3. *Lattice-work ivory scent-holders.*

These are elaborately carved ivory cases which open to enable a lump of scent to be inserted. The carving of the lattice-work is sometimes extremely fine. There are a great variety of forms.

A. 1. a. $\frac{2}{1}$ A. 1. b. $\frac{2}{1}$ A. 2. $\frac{3}{1}$

Fig. 22. GROUP XXIV. Filigree and Lattice Beads and Pendants.
A. 1. a. Open filigree bead. Silver, Spain, 18th century.
A. 1. b. Solid filigree bead. Silver, Japan, 19th century.
A. 2. Skeleton bead. Faience, Egypt, XVIIIth Dynasty.

Group XXV. *Granulated Beads and Pendants*

Subgroup A. Beads.

These beads are either completely or partially made up of small balls or decorated in imitation of them. They are generally made of metal, but sometimes of glass or faience. There are the following families:

Family A. 1. *Granulated metal beads.*

These beads are made by soldering together a large number of small metal balls, usually of gold or silver. The spherical and odd-shaped ones are often called metal mulberry beads. They are divided into the following classes:

a. *Granulated metal cylinders.*
b. *Granulated metal ball or mulberry beads.*
c. *Granulated bicone and barrel beads.* Fig. 23, A. 1. c.
d. *Granulated disc beads.* Fig. 23, A. 1. d.
e. *Odd-shaped granulated beads.* Fig. 23, A. 1. e.
f. *Granulated metal spacing beads.*
g. *Metal beads with granulated collars.*

Family A. 2. *Imitation granulated metal beads.* Fig. 23, A. 2.

These beads are made out of a sheet or tube of metal and are carved or stamped to imitate a granulated bead. The usual method is to take a sheet of metal and file two series of grooves right across it, the one series being at right angles to the other, and then bend it into a cylinder.

Family A. 3. *Moulded glass granulated beads.*

These beads are moulded with bosses all over them, and are often gilt to represent gold beads.

a. *Moulded glass granulated cylinders.* Fig. 23, A. 3. a.
b. *Glass mulberry beads.* Fig. 23, A. 3. b.

These are generally more or less globular and have bosses moulded all over them; they are therefore included here and not in the next group of beads representing fruit.

Family A. 4. *Cut glass granulated beads.* Fig. 23, A. 4.

These are made by taking a yellow glass cylinder and cutting on it a series of grooves parallel to the axis and turning a series of rings round it, so as to leave rows of spots standing up.

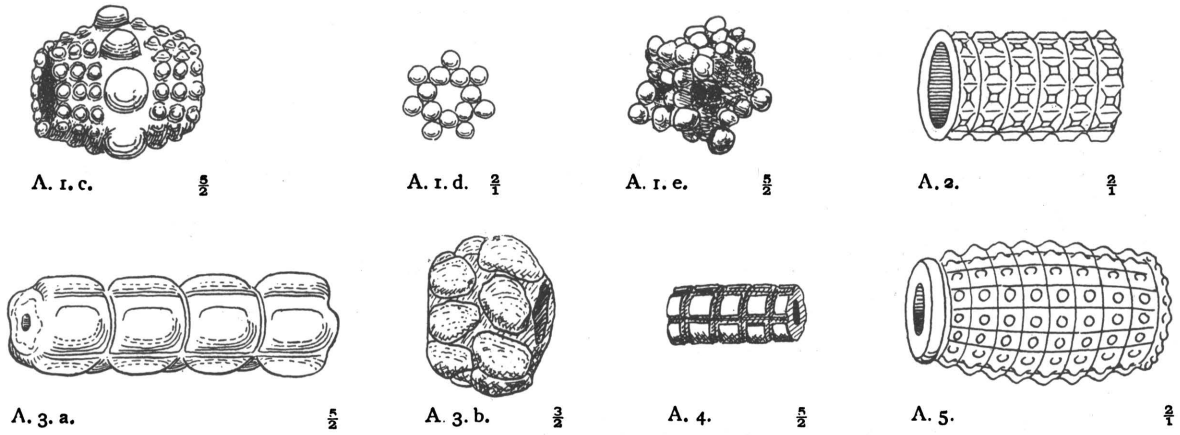


Fig. 23. GROUP XXV. Granulated Beads and Pendants.

A. 1. c. Granulated barrel bead. Silver, Egypt, 400 B. C.
A. 1. d. Granulated disc bead. Gold, Greece, 700 B. C.
A. 1. e. Irregular granulated bead. Silver, Palestine, Medieval.
A. 2. Imitation granulated bead. Silver, Egypt, 400 B. C.
A. 3. a. Moulded granulated cylinder bead. Glass, Cyprus, 500 B. C.
A. 3. b. Mulberry bead. Glass, Egypt, Roman Period.
A. 4. Cut glass granulated bead. Glass, Egypt, XIXth Dynasty.
A. 5. Faience granulated bead. Faience, Egypt, XXIIIrd Dynasty.

Family A. 5. *Faience granulated beads.* Fig. 23, A. 5.

These are generally barrel-shaped.

Family A. 6. *Cut stone granulated beads.*

These are cut in a similar method to the cut glass granulated beads in family A. 4.

Group XXVI. *Beads and Pendants representing or made of Fruits, Flowers, Leaves, or Seeds*

As this group is divided into a large number of families and classes which are the same for both subgroup A and subgroup B, they are listed together, but all classes are not necessarily represented in both subgroups.

Many more classes will probably have to be added to this group later, but the more usual ones are given below.

Families A. 1 and B. 1. *Beads and pendants made of or representing flowers.*

a. *Chrysanthemum.*
b. *Corncockle.* Centauria. Fig. 24, B. 1. b.
c. *Daisy.* Anthemis. Fig. 24. B. 1. c.
d. *Lily.* Fig. 24, B. 1. d.
e. *Lotus.* Fig. 24, A. 1. e, and B. 1. e.
f. *Papyrus.* Fig. 24, A. 1. f.
g. *Poppy.* Fig. 24, B. 1. g. These are generally represented by single petals.
h. *Rose.* A number of representations of flowers with five petals are included in this class. Beads are also made of petals of roses crushed up into a solid mass.
i. *Thistle.*

Families A. 2 and B. 2. *Beads and pendants made of or representing fruits.*

a. *Date.* Fig. 24, B. 2. a.
b. *Gourd.* Fig. 24, B. 2. b.
c. *Grapes.* Fig. 24, B. 2. c.
d. *Mandrake.* Fig. 24, B. 2. d.
e. *Nightshade.* Necklaces of these have been found on an Egyptian mummy.
f. *Pineapple.*
g. *Pomegranate.* Fig. 24, B. 2. g.

Families A. 3. and B. 3. *Beads and pendants made of or representing nuts, seeds, or fruit-stones.*

a. *Acorn.*
b. *Cardamon seeds.*
c. *Date stones.*
d. *Lotus seed-vessel.* Fig. 24, B. 3. d.
e. *Melon seed.*
f. *Peach stone.*
g. *Poppy seed-vessel.* Fig. 24, A. 3. g.
h. *Quondong nuts.*

Families A. 4. and B. 4. *Beads and pendants made of or representing leaves.*

a. *Acanthus.*
b. *Clover.*
c. *Olive.*
d. *Palm.* Fig. 24, B. 4. d.
e. *Willow.*

Families A. 5 and B. 5. *Beads and pendants made of or representing straw, grass, etc.*

a. *Straw.* Fig. 24, A. 5. a.

Families A. 6 and B. 6. *Beads and pendants representing conventional designs derived from flowers.*

a. *Rosettes.* Fig. 24, A. 6. a.
b. *Conventions derived from the lotus.* Fig. 24, B. 6. b.

Group XXVII. *Beads and Pendants representing or made of Complete Shells.*

Subgroup A. Beads.

The beads in this group are either made of complete shells, or are imita-

tions of complete shells made in some other material. The great quantity of beads mostly of regular forms cut out of shell is not included in this group.

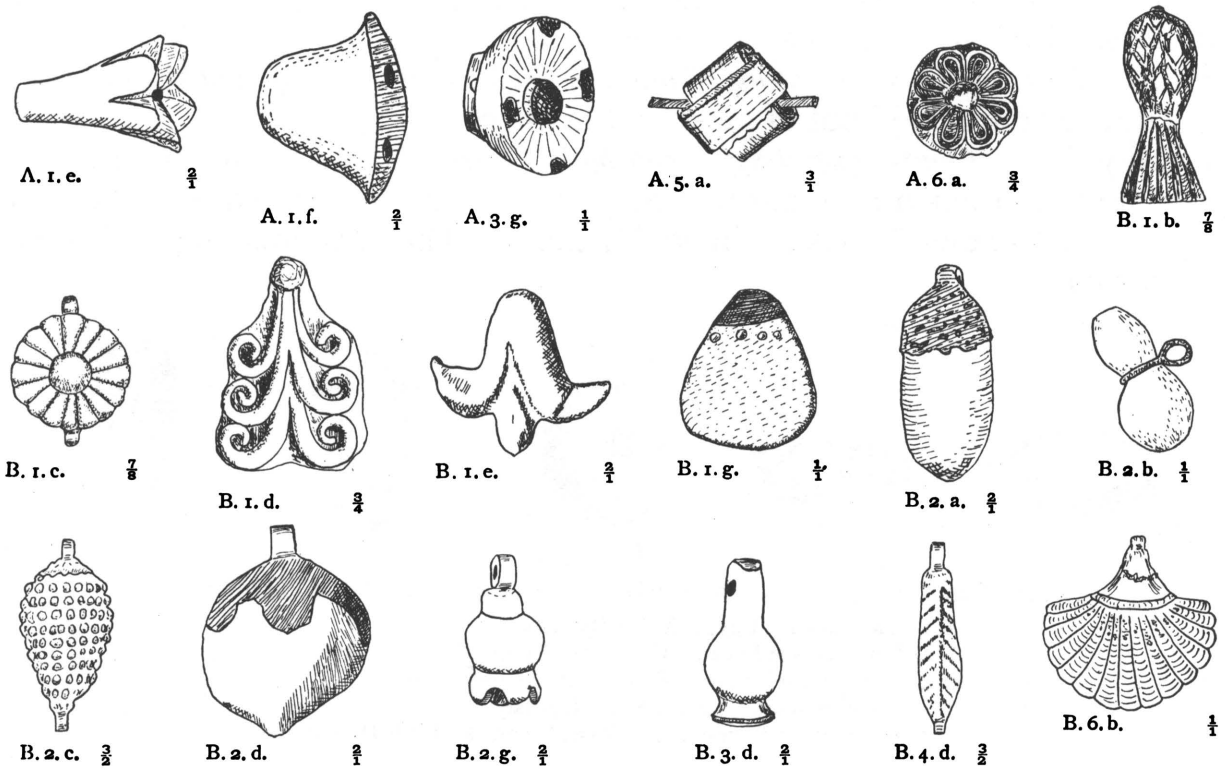


Fig. 24. GROUP XXVI. Beads and Pendants made of or representing Flowers, Fruits, Seeds, or Leaves.

A. 1. e. Lotus bead. Faience, Egypt, XVIIIth Dynasty.
A. 1. f. Papyrus bead. Faience, Egypt, XIIth Dynasty.
A. 3. g. Poppy seed-vessel (?) bead. Faience, Egypt, XXIIIrd Dynasty.
A. 5. a. Straw bead. Straw, Egypt, XVIIIth Dynasty.
A. 6. a. Rosette bead. Terra-cotta, Greece.
B. 1. b. Corncockle pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 1. c. Daisy pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 1. d. Lily pendant. Glass, Mycenae, 1300 B. C.
B. 1. e. Lotus pendant. Faience, Egypt, XIIth Dynasty.
B. 1. g. Poppy petal pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 2. a. Date pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 2. b. Gourd pendant. Silver, Japan, 19th century.
B. 2. c. Grape pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 2. d. Mandrake pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 2. g. Pomegranate pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 3. d. Lotus seed-vessel pendant. Carnelian, Egypt, XVIIIth Dynasty.
B. 4. d. Palm leaf pendant. Faience, Tel el Amarna, XVIIIth Dynasty.
B. 6. b. Conventional lotus pendant. Faience, Tel el Amarna, XVIIIth Dynasty.

Family A. 1. *Beads consisting of complete shells.* Fig. 25, A. 1.

Many varieties of shell have been used to make beads by simply piercing and then stringing them. A few of these varieties are referred to later under materials.

Family A. 2. *Beads consisting of carved representations of complete shells.* Fig. 25, A. 2.

These beads are copies of shells, carved in stone, glass, frit, and other materials. Fig. 25, A. 2 is carved in carnelian.

Family A. 3. *Beads consisting of moulded representations of complete shells.*

These are moulded out of glass and faience.

Family A. 5. *Beads consisting of complete Echinus shells.* Fig. 25, A. 4.

In spite of their fragile nature these have been used for beads; in fact some of the earliest known beads are made of these. The specimen figured is Late Aurignacian.

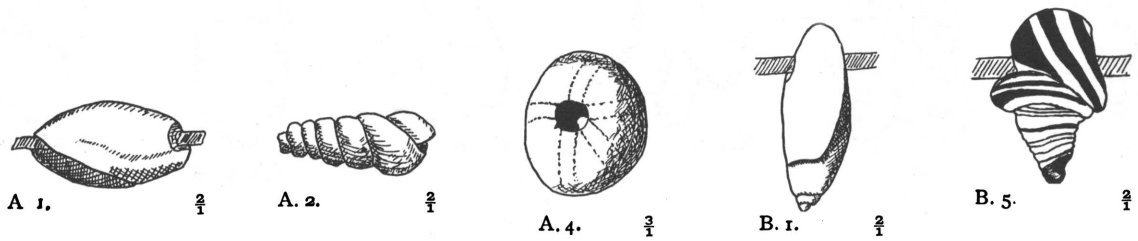


Fig. 25. GROUP XXVII. Beads and Pendants made of or representing Complete Shells.

A. 1. Shell bead. Egypt, XIIth Dynasty.
A. 2. Imitation shell bead. Carnelian, Egypt, XIIth Dynasty.
A. 4. Echinus shell bead. France, Aurignacian Period.
B. 1. Shell pendant. Egypt, XIIth Dynasty.
B. 5. Imitation shell pendant. Glass, Egypt, XVIIIth Dynasty (?).

Subgroup B. Pendants.

Family B. 1. *Pendants consisting of complete shells.* Fig. 25, B. 1.

Many varieties of shells are used for this purpose.

Family B. 2. *Pendants consisting of carved representations of complete shells.*

Family B. 3. *Pendants consisting of moulded representations of complete shells.*

Family B. 5. *Pendants consisting of imitations of complete shells made out of twisted glass.* Fig. 25, B. 5.

These imitation shells are made out of twisted threads of glass. The one figured is made of black and yellow threads.

Group XXVIII. *Beads and Pendants representing Weapons or Tools*

As weapons and tools are so closely allied they are both included in this group.

Subgroup A. Beads.

Family A. 1. *Axe beads.*

a. *Double-axe beads.* Fig. 26, A. 1. a.

Subgroup B. Pendants.

Family B. 1. *Axe pendants.*

a. *Double-axe pendants.*

b. *Models of stone axes in stone, wood, etc.* Fig. 26, B. 1. b.

Family B. 2. *Adze pendants.* Fig. 26, B. 2.

Family B. 3. *Arrow-head pendants.*

There are many varieties of this form of pendant, some of which are still worn as charms. A simple form is shown in Fig. 26, B. 3.

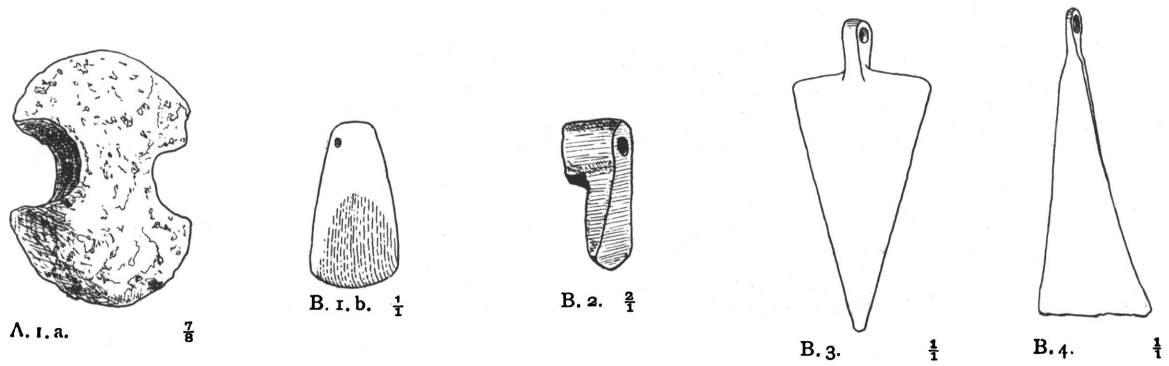


Fig. 26. GROUP XXVIII. Beads and Pendants representing Weapons or Tools.

A. 1. a. Double-axe bead. Amber, Denmark, Neolithic.
B. 1. b. Axe pendant. Carnelian, Egypt, Old Kingdom.
B. 2. Adze pendant. Faience, Mesopotamia, 2000 B. C.
B. 3. Arrow-head pendant. Bronze, Italy, 900 B. C.
B. 4. Razor (?) pendant. Bronze, Italy, 900 B. C.

Family B. 4. *Razors and knives.* Fig. 26, B. 4.

Family B. 5. *Lance-heads.*

Family B. 6. *Shields.*

Family B. 7. *Chisels.*

Group XXIX. *Beads and Pendants representing Emblems*

This group contains all the beads representing emblems, which are not included in other groups. Those representing flowers, shells, or weapons have already been referred to in previous groups, and those representing human beings, animals, and deities are included in later groups.

The emblems of this group are very numerous, but the following families contain those most usually found:

Subgroup A. Beads.

Family A. 1. *Cross.* Fig. 27, A. 1.

Family A. 2. *Sun.*

Family A. 3. *Moon and crescent.* Fig. 27, A. 3.

Family A. 4. *Papyrus sceptre.* Fig. 27, A. 4.
Family A. 5. *Knot.* Fig. 27, A. 5.
Family A. 6. *Cartouche and name beads.*
a. *Cartouche beads.* Fig. 27, A. 6. These are beads in the shape of a cartouche.
b. *Name beads.* Fig. 27, A. 6. b.
Family A. 7. *Wallet beads.* Fig. 27, A. 7.
Family A. 15. *Jug and vase beads.* Fig. 27, A. 15.
Family A. 19. *Star beads.* Fig. 27, A. 19.

Subgroup B. Pendants.

Family B. 1. *Cross.* Fig. 27, B. 1.
Family B. 2. *Sun.* Fig. 27, B. 2.
Family B. 3. *Moon and crescent.* Fig. 27, B. 3.
Family B. 4. *Papyrus sceptre.*
a. *Single.* Fig. 27, B. 4. a.
b. *Double.* Fig. 27, B. 4. b.
Family B. 5. *Knot.*
Family B. 8. *Ankh.* Fig. 27, B. 8.
Family B. 9. *Crown.*
a. *Crown of Upper Egypt.* Fig. 27, B. 9. a.
b. *Crown of Lower Egypt.* Fig. 27, B. 9. b.
Family B. 10. *Tet* or *Zad.* Fig. 27, B. 10.
Family B. 11. *Uraeus.* Fig. 27, B. 11.
Family B. 12. *Girdle.* Fig. 27, B. 12.
Family B. 13. *Charm case, and pectoral.* Fig. 27, B. 13.
Family B. 14. *Bell.* Fig. 27, B. 14.
Family B. 15. *Jugs and vases.* Fig. 27, B. 15.
Family B. 16. *Steps.*
Family B. 17. *Altar.*
Family B. 18. *Key.*

All the above families contain many varieties, which can be divided into classes. This has not been attempted and classes have only been specified when more than one specimen from a family has been illustrated.

Group XXX. *Beads and Pendants representing Human Beings, or Human-headed Deities*

A few beads and a great number of pendants belong to this group. Pendants representing men or women are found in most countries. In many cases these represent deities. In Greece and Rome pendants of Jupiter, Eros, and other gods are found, but the greatest number from any single country comes from Egypt, where amongst others the following deities are found, Amen, Anhur, Bes, Hathor, Hatmeyt, Horus, Isis, Khonsu, Maat, Min, Mut, Nebhat, Nefertum, Neit, Osiris, Ptah-Seker, Ra, Set, and Shu.

SUBDIVISION I. ROUNDED BEADS.
Groups V, VI and VII have one flat surface.

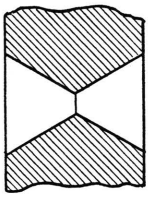
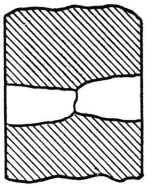
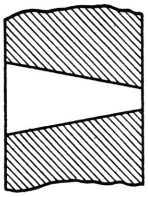
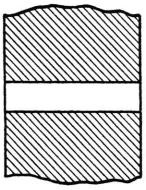
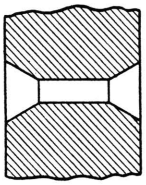
Longitudinal Section. / Transverse Section.			
Group I Circular.	I.C.1.a.	I.C.2.b.	I.C.2.e.
Group II Elliptical.	II.C.1.a.	II.C.2.b.	II.C.2.e.
Group III Ovoid.	III.C.1.a.	III.C.2.b.	III.C.2.e.
Group IV Lenticular.	IV.C.1.a.	IV.C.2.b.	IV.C.2.e.
Group V Plano-convex.	V.C.1.a.	V.C.2.b.	V.C.2.e.
Group VI Semicircular.	VI.C.1.a.	VI.C.2.b.	VI.C.2.e.
Group VII Circle and Flat.	VII.C.1.a.	VII.C.2.b.	VII.C.2.e.

SUBDIVISION II. FACETED BEADS.

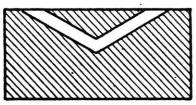
Longitudinal Section. / Transverse Section.			
Group VIII Triangular.	VIII.C.1.a.	VIII.C.2.b.	VIII.C.2.e.
Group IX Square.	IX.C.1.a.	IX.C.2.b.	IX.C.2.e.
Group X Rectangular.	X.C.1.a.	X.C.2.b.	X.C.2.e.
Group XI Diamond.	XI.C.1.a.	XI.C.2.b.	XI.C.2.e.
Group XII Pentagonal.	XII.C.1.a.	XII.C.2.b.	XII.C.2.e.
Group XIII Hexagonal.	XIII.C.1.a.	XIII.C.2.b.	XIII.C.2.e.
Group XIV Octagonal.	XIV.C.1.a.	XIV.C.2.b.	XIV.C.2.e.
Group XV Polygonal.	XV.C.1.a.	XV.C.2.b.	XV.C.2.e.
Group XVI Tabular.	XVI.C.1.a.	XVI.C.2.b.	XVI.C.2.e.

		1. Convex.							2. Straight.							3 Concave					4. Convex and Straight.		5. Straight and Concave.	
		Oblate Disc.	Barrel Disc.	Convex Cone Disc.	Convex Truncated Cone Disc.	Convex Bicone Disc.	Convex Truncated Bicone Disc.	Pear-shape Disc	Cylinder Disc.	Cone Disc.	Truncated Cone Disc.	Bicone Disc	Truncated Bicone Disc	Chamfered Cylinder Disc.	Double Chamfered Cylinder Disc.	Concave Disc.	Concave Cone Disc	Concave Truncated Cone Disc.	Concave Bicone Disc	Concave Truncated Bicone Disc.	Cylinder Disc with one Convex End.	Cylinder Disc with two Convex Ends.	Cylinder Disc with one Concave End.	Cylinder Disc with two Concave Ends.
DISC BEADS. Length less than ⅓ diameter	Longitudinal Section	A.1.a.	A.1.b.	A.1.c	A.1.d.	A.1.e.	A.1.f.	A.1.g.	A.2 b.	A.2.c	A.2.d.	A.2.e	A.2.f	A.2.b.d.	A.2.b.f	A.3.b	A.3.c.	A.3.d.	A.3.e.	A.3.f	A.4.d.b.	A.4.f b.	A.5.b.d.	A.5.b.f
	Group I Circular	I.A.1.a.	I.A.1.b.	I.A.1.c.	I.A.1.d.	I.A.1.e.	I.A.1.f.	I.A 1 g.	I.A.2.b.	I.A.2.c.	I.A.2.d	I A 2 e	I.A.2.f	I.A.2.b.d.	I.A.2.b.f.	I.A.3.b.	I.A.3.c.	I.A.3.d.	I.A.3.e.	I.A.3.f.	I.A.4.d.b.	I.A.4.f.b.	I.A.5.b.d	I.A.5.b.f.
	Group IX Square.	IX.A.1.a.	IX.A.1.b.	IX.A.1.c.	IX.A.1.d.	IX.A.1.e.	IX.A.1.f	IX.A.1.g.	IX.A.2.b	IX.A.2.c.	IX.A.2.d	IX.A.2.e	IX.A.2.f	IX.A.2.bd.	IX.A.2.b.f	IX.A.3.b	IX.A.3.c.	IX.A.3.d.	IX.A.3.e.	IX.A.3.f.	IX.A.4.d.b.	IX.A 4.f b.	IX.A.5.b.d.	IX.A.5.b.f.
		Oblate	Short Barrel.	Short Convex Cone	Short Truncated Convex Cone.	Short Convex Bicone.	Short Truncated Convex Bicone.	Short Pear-shape	Short Cylinder	Short Cone.	Short Truncated Cone	Short Bicone.	Short Truncated Bicone	Short Chamfered Culinder	Short Double Chamfered Culinder.	Short Concave.	Short Concave Cone	Short Truncated Concave Cone.	Short Concave Bicone	Short Concave Truncated Bicone.	Short Cylinder with one Convex End.	Short Cylinder with two Convex Ends.	Short Cylinder with one Concave End.	Short Cylinder with two Concave Ends.
SHORT BEADS. Length more than ⅓, and less than 9/10 diameter.	Longitudinal Section.	B. 1. a	B.1.b	B.1.c.	B.1.d.	B.1 e.	B.1.f	B.1.g.	B. 2 b.	B.2.c.	B.2.d.	B 2 e	B 2.f	B.2.b.d	B.2.b.f	B.3.b.	B.3.c	B.3.d	B.3.e.	B.3.f	B 4 d.b	B.4 f b	B.5.b.d	B.5.b.f
	Group I Circular.	I.B.1.a.	I.B.1.b.	I.B.1.c.	I.B.1.d.	I.B.1.e.	I.B.1.f.	I.B.1.g.	I.B.2.b.	I.B.2.c	I.B.2.d	I B 2 e	I B 2.f	I.B.2.b.d	I.B.2.b.f	I.B.3.b.	I.B.3.c	I.B.3.d	I.B.3.e	I.B.3.f.	I.B.4.d.b.	I.B.4.f.b.	I.B.5.b.d.	I.B.5.b.f.
	Group IX Square.	IX. B.1.a.	IX.B.1.b.	IX.B.1.c.	IX.B.1.d.	IX.B.1.e.	IX.B.1.f	IX.B.1.g.	IX.B.2.b.	IX.B.2.c	IX.B.2.d.	IX.B.2.e	IX.B.2.f	IX.B.2.b.d.	IX.B.2.b.f.	IX.B.3.b.	IX.B.3.c.	IX.B.3.d.	IX.B.3.e	IX.B.3.f	IX.B.4.d.b	IX.B.4.f.b.	IX.B.5.b.d.	IX.B.5.b.f.
		Circular	Standard Barrel	Standard Convex Cone	Standard Truncated Convex Cone.	Standard Convex Bicone.	Standard Truncated Convex Bicone.	Standard Pear-shape	Standard Cylinder	Standard Cone	Standard Truncated Cone	Standard Bicone	Standard Truncated Bicone	Standard Chamfered Cylinder.	Standard Double Chamfered Cylinder	Standard Concave.	Standard Concave Cone.	Standard Truncated Concave Cone.	Standard Concave Bicone.	Standard Truncated Concave Bicone.	Standard Cylinder with one Convex End.	Standard Cylinder with two Convex Ends.	Standard Cylinder with one Concave End	Standard Cylinder with two Concave Ends.
STANDARD BEADS Length more than 9/10 and less than 1 1/10 diameter	Longitudinal Section	C.1.a	C.1.b	C 1 c	C.1 d	C 1 e	C 1 f	C 1.g	C.2 b	C 2.c	C 2 d	C.2.e.	C.2.f.	C.2.b.d.	C.2.b.f.	C.3.b.	C.3.c.	C.3.d.	C.3.e.	C.3.f.	C.4.d.b.	C.4.f.b.	C.5.b.d.	C.5. b f.
	Group I Circular	I.C.1.a	I.C.1 b	I.C.1.c.	I.C.1.d	I.C 1 e	I.C.1.f	I.C.1.g	I.C.2.b	I.C 2.c	I.C.2.d.	I.C.2.e.	I.C.2.f.	I.C.2.b.d.	I.C.2.b.f.	I.C.3.b.	I.C.3.c.	I.C.3.d.	I.C.3.e.	I.C.3.f.	I.C.4.d.b.	I.C.4.f.b.	I.C.5.b.d.	I.C.5.b.f.
	Group IX Square	IX.C.1.a	IX.C.1.b	IX.C.1.c.	IX.C.1.d	IX.C 1.e	IX.C.1.f.	IX.C 1.g.	IX.C.2.b.	IX.C.2.c.	IX.C.2.d.	IX.C.2.e.	IX.C.2.f.	IX.C.2.b.d.	IX.C.2.b.f.	IX.C.3.b.	IX.C.3.c.	IX.C.3.d.	IX.C.3.e.	IX.C.3.f.	IX.C.4.d.b.	IX.C.4.f.b.	IX.C.5.b.d.	IX.C.5.b.f.
		Ellipsoid	Long Barrel	Long Convex Cone	Long Truncated Convex Cone	Long Convex Bicone.	Long Truncated Convex Bicone	Long Pear-shape	Long Cylinder	Long Cone.	Long Truncated Cone.	Long Bicone.	Long Truncated Bicone.	Long Chamfered Cylinder	Long Double Chamfered Cylinder	Long Concave.	Long Concave Cone.	Long Truncated Concave Cone.	Long Concave Bicone	Long Truncated Concave Bicone.	Long Cylinder with one Convex End.	Long Cylinder with two Convex Ends.	Long Cylinder with one Concave End.	Long Cylinder with two Concave Ends.
LONG BEADS Length more than 1 1/10 diameter	Longitudinal Section	D.1 a	D.1 b	D.1.c	D.1.d	D.1.e	D.1.f.	D.1.g.	D.2.b.	D.2.c	D.2.d.	D.2.e.	D.2.f.	D.2.b.d.	D.2.b.f.	D.3.b.	D.3.c.	D.3.d.	D.3.e.	D.3.f.	D.4.d.b.	D.4.f.b.	D.5.b.d.	D.5 b f.
	Group I Circular	I.D 1.a	I.D.1.b.	I.D 1.c.	I.D.1.d.	I.D.1.e	I.D.1.f	I.D.1.g.	I.D.2.b.	I.D.2.c.	I.D.2.d.	I.D.2.e.	I.D.2.f.	I.D.2.b.d.	I.D.2.b.f.	I.D.3.b.	I.D.3.c.	I.D.3.d.	I.D.3.e.	I.D.3.f.	I.D.4.d.b.	I.D.4.f.b.	I.D.5.b.d.	I.D.5.b.f.
	Group IX Square	IX.D.1.a.	IX.D.1.b.	IX.D.1.c.	IX.D.1.d	IX.D.1.e.	IX.D.1.f.	IX.D.1.g.	IX.D.2.b.	IX.D.2.c.	IX.D.2.d.	IX. D.2.e.	IX.D.2.f.	IX.D.2.b.d.	IX.D.2.b.f.	IX.D.3.b.	IX.D.3.c.	IX.D.3.d.	IX.D.3.e.	IX.D.3.f.	IX.D.4.d.b.	IX.D.4.f.b.	IX.D.5.b.d.	IX.D.5.b.f.

SINGLE PERFORATIONS.

Type I. Double Cone.	Type II. Drilled from Both Ends.	Type III. Single Cone.	Type IV. Plain.	Type V. Chamfered.
				
Bored from both ends. No attempt at parallel hole.	Drilled from both ends. Parallel or slight cone, if present, accidental	Conical Bored from one end.	Approximately parallel, bore from one end.	Conical at ends, parallel in centre.

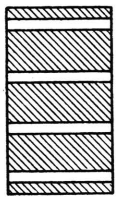
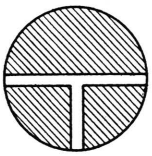
SINGLE PERFORATIONS.

Type VI. Large.		Type VII Tubular	Type VIII. V Perforation.	
a. Medium Large.	b. Extra Large.		a. Bored from one surface.	b. Bored from two surfaces.
				
Holes more than ¼ and less than ½ diameter.	Hole more than ½ diameter	Cylinder with so large perforation that it becomes a tube.	Both holes bored from one surface.	Holes bored from two surfaces which are not parallel.

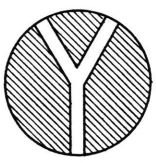
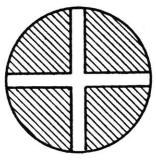
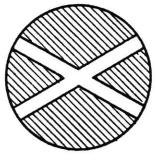
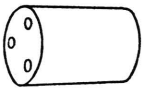
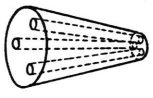
SINGLE PERFORATIONS.

Type IX. Corner	
a. Single	b Double
	
Hole bored from one end to adjacent side.	Holes bored from two ends to adjacent side

MULTIPLE PERFORATIONS.

Type X. In one Plane.		
a. Parallel	b. Converging.	c. Tee.
		

MULTIPLE PERFORATIONS.

Type X. In one Plane				Type XI. Not in one Plane.	
d Y	e Rectangular Cross.	f. Oblique Cross.	g. Combined Converging and Y.	a. Parallel.	b. Converging.
					

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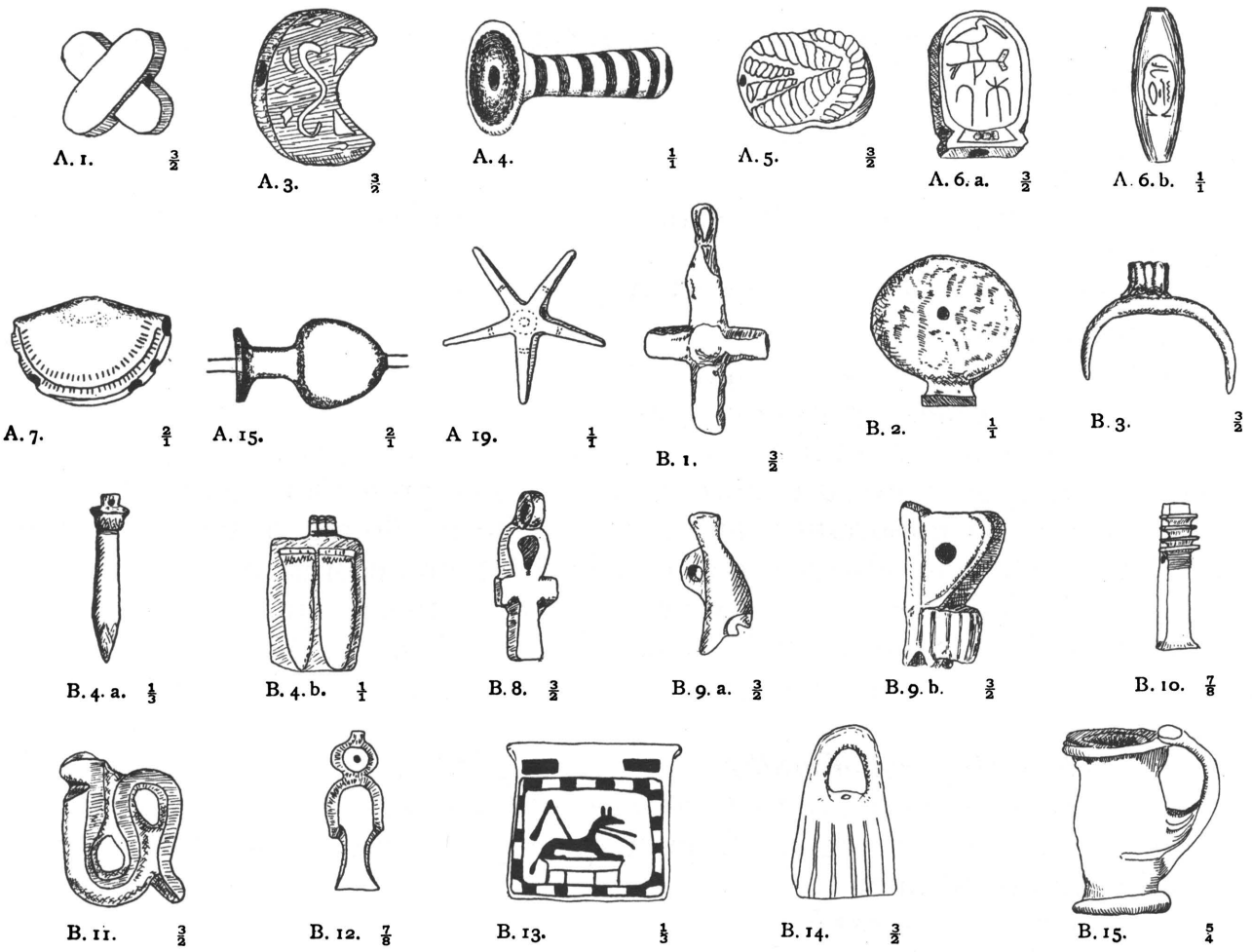


Fig. 27. GROUP XXIX. Beads and Pendants representing Emblems.

A. 1. Cross bead. Stone, Crete.
A. 3. Crescent bead. Bronze, Syria, Arab Period.
A. 4. Papyrus sceptre bead. Glass, Egypt, XVIIIth Dynasty.
A. 5. Knot bead. Gold, Egypt, XIIth Dynasty.
A. 6. a. Cartouche bead. Lapis, Egypt, XVIIIth Dynasty.
A. 6. b. Name bead. Amethyst, Egypt, XIIth Dynasty.
A. 7. Wallet bead. Gold, Egypt, XVIIth Dynasty.
A. 15. Vase bead. Gold, Egypt, XIIth Dynasty.
A. 19. Star bead. Faience, Egypt, XIIth Dynasty.
B. 1. Cross pendant. Bronze, Coptic.
B. 2. Sun pendant. Black stone, Egypt, XXVIth Dynasty.
B. 3. Crescent pendant. Gold, Egypt, XVIIIth Dynasty.
B. 4. a. Papyrus sceptre pendant. Faience, Egypt, XXVIth Dynasty.
B. 4. b. Double papyrus sceptre pendant. Jade (?), Egypt, XXVIth Dynasty.
B. 8. Ankh pendant. Faience, Egypt, XVIIIth Dynasty.
B. 9. a. Crown of Upper Egypt, pendant. Faience, Egypt, XXVIth Dynasty.
B. 9. b. Crown of Lower Egypt, pendant. Faience, Egypt, XXVIth Dynasty.
B. 10. Tet pendant. Faience, Egypt, XXIIIrd Dynasty.
B. 11. Uraeus pendant. Carnelian, Egypt, XVIIIth Dynasty.
B. 12. Girdle pendant. Stone, Egypt, XXVIth Dynasty.
B. 13. Pectoral. Faience, Egypt, XVIIIth Dynasty.
B. 14. Bell pendant. Bronze, Egypt.
B. 15. Jug pendant. Glass, Syria, Roman Period.

Group XXXI. *Beads and Pendants representing Parts of Human Beings.*

Subgroup A. Beads.

Family A. 1. *Head and face beads.*

a. *Complete heads.*

b. *Face only.* One variety of these inlaid in glass mosaic is illustrated. Fig. 28, A. 1. b.

c. *Head with two faces.* Fig. 28, A. 1. c.

d. *Skull beads.*

Family A. 2. *Heart beads.* Fig. 28, A. 2. a.

Family A. 3. *Beads representing eyes.*

The large numbers of beads with circular spots or eyes, although in some cases they suggest an eye, are more often used as a protection against the evil eye; they are so important that they have been allotted a special group, no. XLVI. They are also referred to in Part VI, on decoration.

The following classes are, however, included in this group:

a. *Beads in the form of single uchats.* Fig. 28, A. 3. a. These are representations of the eye of Horus and are one of the commonest forms of Egyptian amulets.

b. *Beads in the form of multiple uchats.* Fig. 28, A. 3. b.

c. *Faience beads with uchats painted or inscribed upon them.* Fig. 28, A. 3. c.

These are beads of regular form, frequently spherical, which have uchats painted or inscribed upon them.

Family A. 7. *Breast beads.*

a. *Hand holding breast.* Fig. 28, A. 7. a.

Subgroup B. Pendants.

Family B. 1. *Head and face pendants.*

a. *Complete heads.*

b. *Face only.* Fig. 28, B. 1. b.

c. *Head with two faces.*

d. *Skull pendants.*

Family B. 2. *Heart pendants.*

a. *Ab pendants.* Fig. 28, B. 2. a. These are the Egyptian form of heart amulet.

b. *Heart-shape pendants.* Fig. 28, B. 2. b.

Family B. 3. *Eye pendants.*

a. *Uchats.*

Family B. 4. *Leg pendants.* Fig. 28, B. 4.

Family B. 5. *Arm or hand pendants.* Fig. 28, B. 5.

Family B. 6. *Ear pendants.*

Family B. 7. *Breast pendants.*

Family B. 8. *Phallus pendants.*

Family B. 9. *Human tooth pendants.*

Human teeth are used as pendants, sometimes over a hundred being strung on one necklace.

a. *Unperforated, with notches ground for suspension.* Fig. 28, B. 9. a.

b. *Perforated.* Fig. 28, B. 9. b.

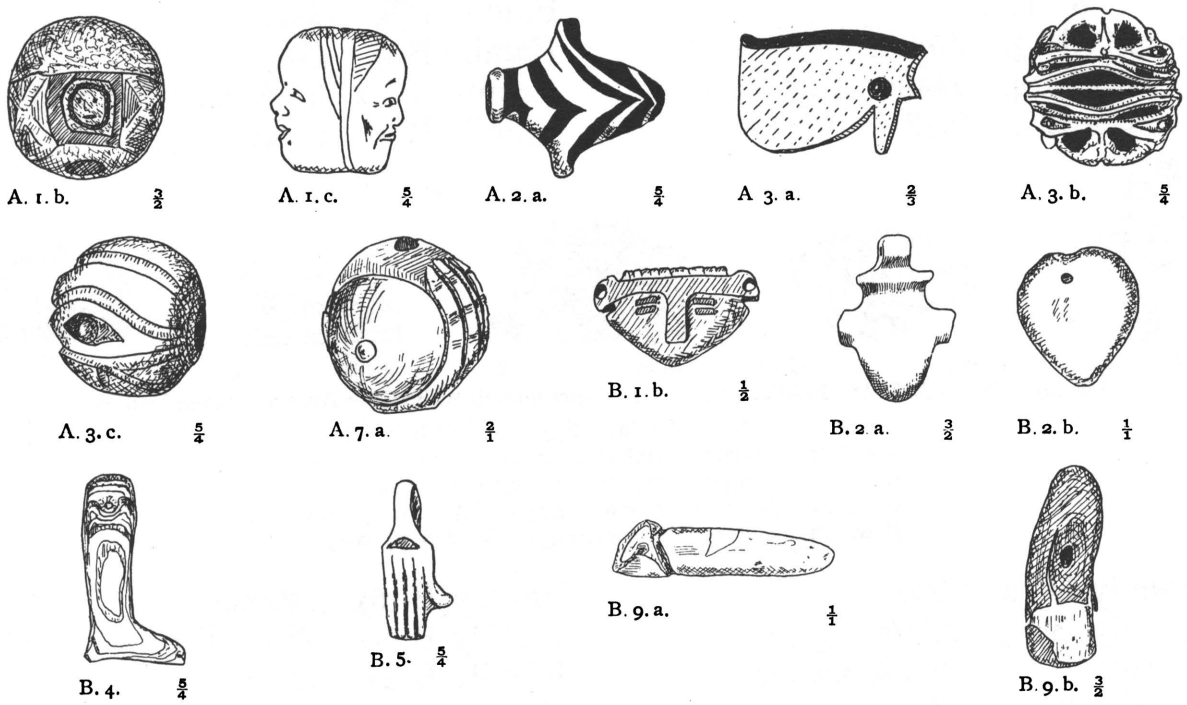


Fig. 28. GROUP XXXI. Beads and Pendants representing Parts of Human Beings.

A. 1. b. Face bead. Glass, Palmyra, 200 B. C.
A. 1. c. Face bead. Wax, Japan, 19th century.
A. 2. a. Ab heart bead. Glass, Egypt, XVIIIth Dynasty.
A. 3. a. Uchat. Faience, Egypt, XXIIIrd Dynasty.
A. 3. b. Multiple uchat. Faience, Egypt, XXIIIrd Dynasty.
A. 3. c. Uchat bead. Faience, Egypt, XXIInd Dynasty.
A. 7. a. Breast bead. Carnelian, Aegina, 1100 B. C.
B. 1. b. Face pendant. Stone, Lake Guatavita, Columbia.
B. 2. a. Ab pendant. Green feldspar, Egypt, XVIIIth Dynasty.
B. 2. b. Heart pendant. Carnelian, Salonica.
B. 4. Leg pendant. Carnelian, Egypt, VIth Dynasty.
B. 5. Hand pendant. Carnelian, Egypt, VIIth Dynasty.
B. 9. a. Tooth pendant. Algeria, Neolithic Period.
B. 9. b. Tooth pendant. France, Aurignacian Period.

Group XXXII. *Beads and Pendants representing Animals or Animal-headed Deities*

Subgroup A. Beads.

Beads of this group are not nearly so common as pendants, but they are sometimes met with.

Subgroup B. Pendants.

Many animals are represented as pendants, the more usual are contained in the following families:

Family B. 1. *Antelope.*
Family B 2. *Ape and monkey.* Fig. 29, B. 2.
Family B. 3. *Horse.*
Family B. 4. *Bear.* Fig. 29, B. 4.
Family B 5. *Bull.*
Family B 6. *Camel.*
Family B 7. *Cat.*
Family B 8. *Cow.*
Family B. 9. *Dog.*
Family B. 10. *Elephant.* Fig. 29, B. 10.
Family B. 11. *Gazelle.*

B. 2. $\frac{5}{4}$ B. 4. $\frac{3}{4}$ B. 10. $\frac{3}{2}$ B. 18. $\frac{1}{3}$ B. 20. $\frac{1}{3}$

Fig. 29. GROUP XXXII. Beads and Pendants representing Animals or Animal-headed Deities.

B. 2. Ape pendant. Faience, Egypt, XXVIth Dynasty.
B. 4. Bear pendant. Amber, Aquilea, 800 B. C.
B. 10. Elephant pendant. Silver, Egypt, Ptolemaic.
B. 18. Lion pendant. Faience, Egypt, XXVIth Dynasty.
B. 20. Pig pendant. Faience, Egypt, XXXth Dynasty.

Family B. 12. *Hare.*
Family B. 13. *Hedgehog.*
Family B. 14. *Hippopotamus.*
Family B. 15. *Ibex.*
Family B. 16. *Jackal.*
Family B. 17. *Leopard.*
Family B. 18. *Lion.* Fig. 29, B. 18.
Family B. 19. *Mouse.*
Family B. 20. *Pig.* Fig. 29, B. 20.
Family B. 21. *Ram.*
Family B. 22. *Sheep.*
Family B. 23. *Shrew.*
Family B. 24. *Stag and deer.*

The deities with animal heads are included in the same family as the animals whose head they have, but they are put in a separate class. Thus, Thoueris would be in family B. 14, Sekhmet in B. 18, Bastet in B. 7, Anubis in B. 16, etc.

Group XXXIII. *Beads and Pendants representing Birds or Bird-headed Deities*

Subgroup A. Beads.

Although there are many bird beads they are not so common as pendants, so the classes are enumerated under subgroup B. An example of a duck bead is shown. Fig. 30, A. 1.

Some of the beads of this group are double, the best known is the double dove bead. Fig. 30, A. 2.

Subgroup B. Pendants.

The more usual bird pendants are included in the following families:

Family B. 1. *Duck.*
Family B. 2. *Dove and pigeon.*
Family B. 3. *Eagle.*
Family B. 4. *Ibis.*
Family B. 5. *Hawk.* Fig. 30, B. 5.
Family B. 6. *Ostrich.*
Family B. 7. *Quail.*
Family B. 8. *Vulture.*
Family B. 9. *Wagtail.*

A. 1. 2/1 A. 2. 1/1 B. 5. 5/4

Fig. 30. GROUP XXXIII. Beads and Pendants representing Birds and Bird-headed Deities.
A. 1. Duck bead. Faience, Syria, Roman Period.
A. 2. Double dove bead. Glass, Tel el Amarna, XVIIIth Dynasty.
B. 5. Hawk pendant. Lapis, Egypt, XVIIIth Dynasty.

Bird-headed deities are included in the same family as the birds whose head they have. For instance, Thoth would be included in B. 4, and Horus, when represented with the hawk head, in B. 5.

Group XXXIV. *Beads and Pendants representing Reptiles, Insects, etc., or Deities with the Heads of Reptiles, Insects, etc.*

Subgroup A. Beads.

The most common form of bead which might have been included in this group is the Scarab. As these, however, have such a very definite and special interest, they are put into a group of their own.

With the above exception, the pendants in this group also are much more numerous than the beads, but various beads are found. As examples, a frog bead (A. 3) and a fish bead (A. 7) are shown in fig. 31.

Subgroup B. Pendants.

Most of the reptiles, etc., most usually met with are in the following families:

Family B. 1. *Crocodile.*
Family B. 2. *Lizard.*
Family B. 3. *Frog.*
Family B. 4. *Toad.*
Family B. 5. *Turtle.* Fig. 31, B. 5.
Family B. 6. *Serpent.* Fig. 31, B. 6.
Family B. 7. *Fish.*
Family B. 8. *Scorpion.*
Family B. 9. *Beetle.*
Family B. 10. *Hornet.*

Family B. 11. *Locust.* Fig. 31, B. 11.
Family B. 12. *Fly.* Fig. 31, B. 12.
Family B. 13. *Butterfly.*
Family B. 14. *Chrysalis.*
Family B. 15. *Bee.*

Deities with heads representing reptiles, etc., are included in the same families as the reptiles, etc., are themselves; for instance, the crocodile god would be included in family B. 1, and the snake god in B. 6.

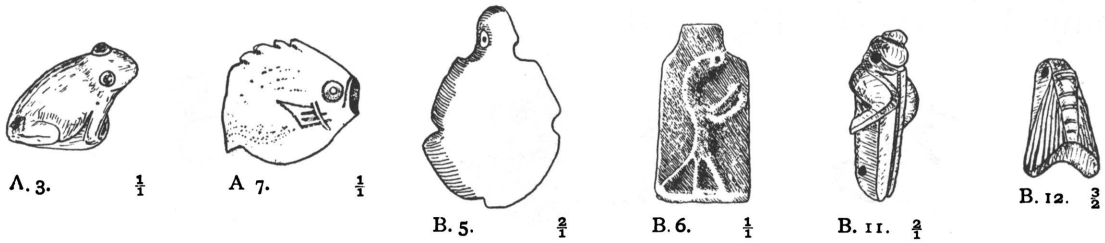


Fig. 31. GROUP XXXIV. Beads and Pendants representing Reptiles, Insects, etc., or Deities with the Heads of Reptiles, Insects, etc.

A. 3. Frog bead. Stone, Meroe, XXVth Dynasty.
A. 7. Fish bead. Ivory, Japan, 19th century.
B. 5. Turtle pendant. Stone, Egypt, Predynastic.
B. 6. Snake-god pendant. Faience, Egypt, XIIth Dynasty.
B. 11. Locust pendant. Carnelian, Egypt, XIIth Dynasty.
B. 12. Fly pendant. Faience, Egypt, XIIth Dynasty.

Group XXXV. *Beads and Pendants representing or made of Parts of Animals, Birds, Reptiles, Insects, etc.*

Subgroup A. Beads.

Beads are sometimes made as representations of heads and other parts of animals, but they are uncommon compared to the pendants.

Subgroup B. Pendants.

Family B. 1. *Heads of animals, etc.* A few of the more common are in the following classes:

a. *Bull's head.* Fig. 32, B. 1. a.
b. *Hippopotamus' head.* Fig. 32, B. 1. b.
c. *Cat's head.* Fig. 32, B. 1. c.
d. *Lion's head.*
e. *Jackal's head.*
f. *Leopard's head.*
g. *Ram's head.* Fig. 32, B. 1. g.
h. *Snake's head.*

Family B. 2. *Teeth.* Fig. 32, B. 2.

Many varieties of real teeth have been used as pendants, from the earliest period to the present day. The one shown is a spacing bead made from the incisor of a chamois, and is of the Aurignacian period.

Family B. 3. *Claws.*

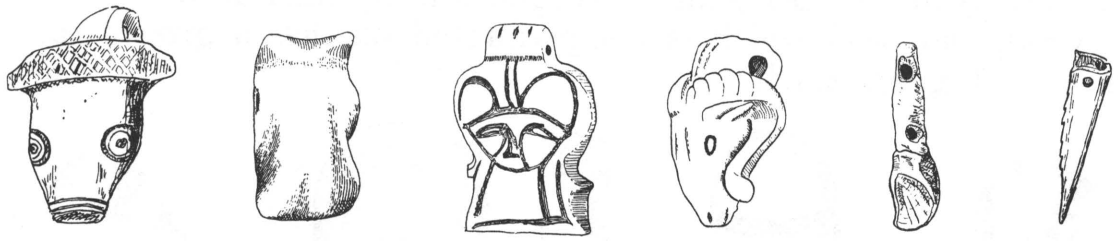
Real claws and imitations of them in stone have been used as pendants.

Family B. 4. *Beaks.* Fig. 32, B. 4.

The beaks of parrots, toucans, and other birds have been used as pendants.

Family B. 5. *Bones.*

Many small bones, such as fish vertebrae, knuckle bones (both real and imitation), and leg bones of small animals and birds have been used as beads



B. 1. a. $\frac{5}{4}$ B. 1. b. $\frac{4}{1}$ B. 1. c. $\frac{3}{2}$ B. 1. g. $\frac{2}{1}$ B. 2. $\frac{3}{2}$ B. 4. $\frac{1}{4}$

Fig. 32. GROUP XXXV. Beads and Pendants made of or representing Parts of Animals, Birds, Reptiles, Insects, etc.

B. 1. a. Bull's head pendant. Stone, Crete.
B. 1. b. Hippopotamus head pendant. Steatite, Egypt, XIIth Dynasty.
B. 1. c. Cat head pendant. Glazed steatite, Egypt, XVIIIth Dynasty.
B. 1. g. Ram's head pendant. Faience, Egypt, XXVIth Dynasty.
B. 2. Chamois tooth spacing bead. France, Aurignacian Period.
B. 4. Toucan beak pendant.

or pendants. Even the carapace of the tortoise, when divided into its original plaques, and bones as large as the foot bones of reindeer have been found as pendants.

Family B. 6. *Legs of animals.*

These are frequently moulded in faience.

Family B. 7. *Horns of animals.*

Group XXXVI. *Scarabs and Scaraboids.*
Group XXXVII. *Cylinder Seals.*
Group XXXVIII. *Ball Seals.*
Group XXXIX. *Cone Seals.*
Group XL. *Lenticular Seals.*
Group XLI. *Button Seals.*

Group XLII. *Button Beads and Toggle Beads*

Subgroup A. Beads.

Family A. 1. *Unperforated button beads.*

These possibly should not be considered as beads, as they are not perforated, but they have been found as parts of necklaces.

a. *Disc button beads.* Fig. 33, A. 1. a. These discs are found in great numbers, and probably the great majority were not used as beads. Nevertheless, some have been found made into a sort of bead, by cementing two together

with a string through the cement, and there is no other explanation as to their use. It is suggested that they were game pieces, but they do not seem to have been found with game boards, as have some other variety of game pieces. Some of them are very elaborately ornamented.

b. *Dumb-bell.* These are frequently similar to the beads shown in fig. 33, A. 5. b, but they are not perforated. A special form made in amber is like an ordinary ellipsoid bead, which is not perforated, but has a groove round for suspension. Fig. 33, A. 1. b.

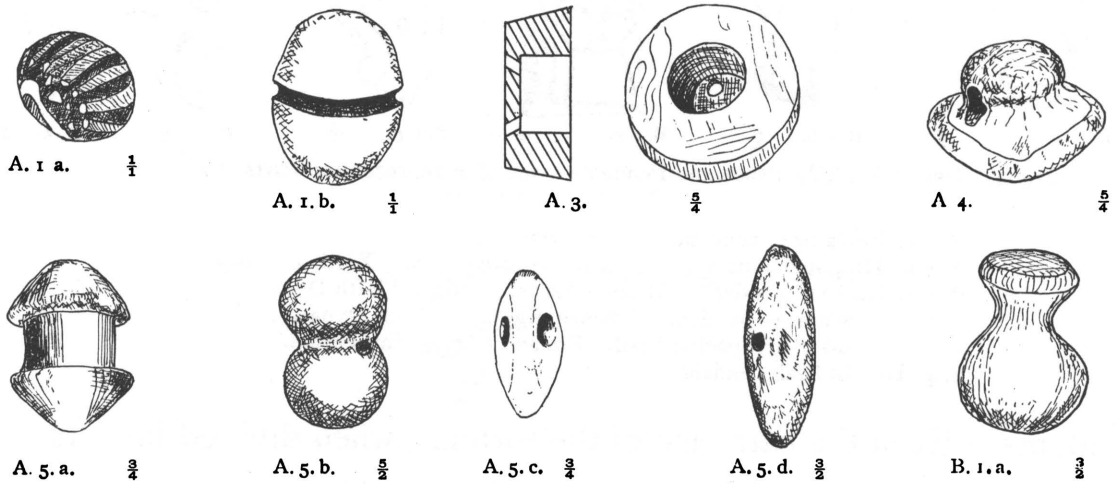


Fig. 33. GROUP XLII. Button Beads and Toggle Beads.

A. 1. a. Disc button bead. Glass, Egypt, Roman Period.
A. 1. b. Dumb-bell bead. Amber, Italy, 700 B. C.
A. 3. Button bead with depressed centre. Red agate, Lake Guatavita, Columbia.
A. 4. Button bead. Stone, Syria.
A. 5. a. Toggle bead. Amber, Denmark, Neolithic.
A. 5. b. Toggle bead. Glass, Egypt, XVIIIth Dynasty.
A. 5. c. Toggle bead. Carnelian, Egypt, Predynastic.
A. 5. d. Toggle bead. Faience, Egypt, VIIIth Dynasty.
B. 1. a. Button pendant. Glass, Egypt, Roman Period.

Family A. 2. *Button beads with V perforation and flat bases.*

a. *With circular base.* Fig. 6.

b. *With oval base.*

Family A. 3. *Button beads with depressed centre.* Fig. 33, A. 3.

These beads are carved out of a hard stone, they have a depressed centre in which are two perforations.

Family A. 4. *Button beads perforated through the projection.* Fig. 33, A. 4.

These are similar to button seals, but are not engraved.

Family A. 5. *Toggle beads.*

a. *Amber.* Fig. 33, A. 5. a.

b. *Glass.* Fig. 33, A. 5. b.

c. *Stone.* Fig. 33, A. 5. c.

d. *Faience.* Fig. 33, A. 5. d.

Subgroup B. Pendants.

Family B. 1. *Unperforated button pendants.*

a. *Globular.* Fig. 33, B. 1. a. These pendants have been found tied on to a string so as to form a necklace.

Group XLIII. *Elaborate Medieval Carved Beads*

These are usually called beads though they are really pendants. They were carved to go on a rosary. They were made out of hard wood such as pear or box, and occasionally out of nuts. The beads were sometimes two or three inches across, and were completely covered on the surface by carvings of figures, generally representing religious scenes. They frequently open into a triptych, where another scene is portrayed.

These beads were made in various European countries during the middle ages, and are the most elaborate form of bead known.

Group XLIV. *Elaborate Jewelled Pendants of the Middle Ages and Renaissance*

These pendants represent one of the high-water marks of jewellers' work. Some were pendants for the chains of the various orders of chivalry; others were worn as pendants by the wealthy patrons of art during the Renaissance. Frequently such pendants were designed so as to introduce some large and irregular shaped pearl or other jewel.

It is impossible in a paper of this sort to attempt to classify these pendants. They all have their own individuality. Many countries assisted in their production. Italy, Spain, England, France, Germany, and the Netherlands made pendants which in each case were influenced by their own artists of the period. The only other pendants that can be compared with them as regards general technique and design are some of the finest Egyptian pectorals.

Group XLV. *Netsukés*

These elaborate Japanese carvings are really pendants or toggles, and were put on the end of the string, by which the 'Inro' or medicine case was carried. They are as a class rather different from other pendants, and are therefore put in a group by themselves, although many of them represent persons, animals, flowers, etc., and on that account might have been included in the previous groups.

Group XLVI. *Spot Beads and Eye Beads and Pendants with Circular Eyes*

The beads in this group are more fully dealt with in Part VI on Decoration, where the methods of manufacture are referred to (pp. 60–5). As far as their

form goes most of them have already been included among the regular beads in divisions I and II. Their decoration, however, is so much more important than their shape, many of them having been used as amulets, that they have been allotted this group.

Beads with plain spots, crumb beads, and beads with combined wave and spot decoration, have been included, as it is difficult to draw the line between some of them and spot eye beads.

Subgroup A. Beads.

Family A. 1. *Spot stone eye beads.*

a. *Cameo eye beads.*

(1) *Carved from single stone.*

(a) Single eye. Fig. 34 a, A. 1. a.

(b) Double eye. Fig. 37.

(c) Multiple spots.

These are cut from a stone with small natural inclusions giving the bead the appearance of a drilled spot stone bead which has had the spots filled.

(2) *Cemented cameo eye beads.*

These are made by cementing two different coloured stones together.

b. *Drilled spot stone eye beads.*

These are sometimes plain (fig. 38), at other times combined with carved lines (fig. 34 a, A. 1. b.). The spots are sometimes filled with enamel.

Family A. 2. *Simple spot glass eye beads.*

a. *Glass beads with raised definite spots.*

(1) Spots only. Fig. 34 a, A. 2. a, and Fig. 56.

(2) Spots combined with waves.

(3) Spots combined with other decoration.

b. *Glass beads with flush definite spots.*

(1) Spots only. Fig. 34 a, A. 2. b, and Fig. 57.

(2) Spots combined with waves. Fig. 78.

(3) Spots combined with other decoration.

The beads in the above two classes have the spots arranged in a definite order, whilst those in the two following classes are quite irregular.

c. *Glass crumb beads with raised crumbs.* Fig. 55.

d. *Glass crumb beads with flush crumbs.* Fig. 34 a, A. 2. d.

Family A. 3. *Simple spot faience, frit, and pottery eye beads.*

a. *Faience crumb beads.* Fig. 34 a, A. 3. a.

b. *Pricked faience and pottery eye beads.* Fig. 34 a, A. 3. b. In some cases beads have definite and elaborate patterns pricked on them, in which case it is better to classify them according to the pattern, and not include them here.

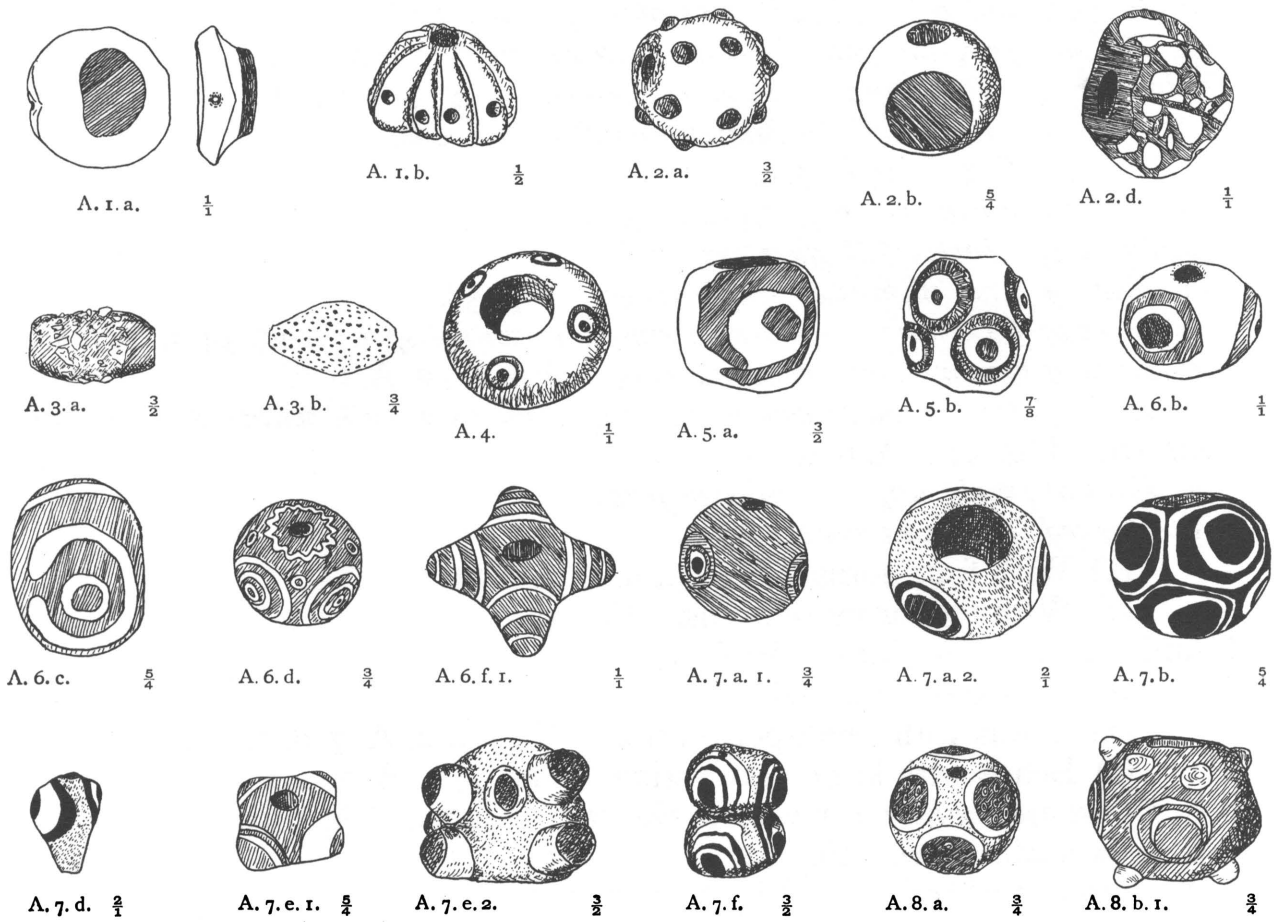


Fig. 34 a. GROUP XLVI. Spot Beads and Eye Beads and Pendants with Circular Eyes.

A. 1. a. Cat's eye bead. Onyx, Mesopotamia, 700 B. C.
A. 1. b. Drilled spot bead. Stone, Ireland, Celtic Period.
A. 2. a. Glass raised spot eye bead. Glass, Venice, 18th century.
A. 2. b. Glass flush spot eye bead. Glass, Japan, 18th century.
A. 2. d. Glass crumb bead. Glass, Cumae, 300 B. C.
A. 3. a. Faience crumb bead. Faience, Egypt, VIIth Dynasty.
A. 3. b. Pricked bead. Pottery, Egypt, Predynastic.
A. 4. Ring and dot stone eye bead. Stone, Egypt, XXIIIrd Dynasty.
A. 5. a. Ring and dot painted faience eye bead. Egypt, XXIIIrd Dynasty.
A. 5. b. Ring and dot incised faience eye bead. Persia.
A. 6. b. Impressed ring and central spot eye bead. Glass, Italy, Villanovan.
A. 6. c. Impressed concentric ring eye bead. Glass, Italy, Villanovan.
A. 6. d. Bead with impressed eyes and waves. Glass, Italy, Villanovan.
A. 6. f. 1. Horned impressed eye bead. Glass, Italy, Villanovan.
A. 7. a. 1. Stratified flush eye bead. Glass, Cumae, 500 B. C.
A. 7. a. 2. Stratified flush eye bead. Glass, Mediterranean Area, 600 B. C.
A. 7. b. Stratified flush eye bead. Glass, Italy, 700 B. C.
A. 7. d. Raised stratified eye bead. Glass, Egypt, XVIIIth to XIXth Dynasty.
A. 7. e. 1. Horned stratified eye bead. Glass, Italy, Villanovan.
A. 7. e. 2. Horned stratified eye bead. Glass, Egypt, XXIIIrd Dynasty.
A. 7. f. Double stratified eye bead. Glass, Egypt, XXIIIrd Dynasty.
A. 8. a. Combined stratified and impressed eye bead. Glass, Italy, Etruscan.
A. 8. b. 1. Combined stratified and plain spot eye bead. Glass, Mediterranean, 600 B. C.

c. *Faience and pottery beads with plain painted spots.*

d. *Faience, frit, and pottery beads, with raised ring eyes.*

Family A. 4. *Ring and dot stone eye beads.* Fig. 34 a, A. 4.

Family A. 5. *Ring and dot faience and frit eye beads.*

a. *Flush.* Fig. 34 a, A. 5. a.

b. *Incised or raised.* Fig. 34 a, A. 5. b.

Family A. 6. *Impressed glass eye beads.*

a. *Eyes of flush impressed single rings.* Fig. 58.

b. *Eyes of flush impressed single ring and central spot.* Fig. 34 a, A. 6. b.

c. *Eyes of two or more concentric rings.* Fig. 34 a, A. 6. c.

d. *Eyes of two or more concentric rings combined with waves, spots, or other decorations.* Fig. 34 a, A. 6. d.

e. *Eyes of single rings not pressed flush.*

f. *Horned impressed eye beads.*

(1) With four horns. Fig. 34 a, A. 6. f. 1.

(2) With five or more horns. Fig. 59.

Family A. 7. *Stratified eye beads.*

a. *Flush eyes well separated.*

(1) Beads with small perforation. Fig. 34 a, A. 7. a. 1.

(2) Beads with large perforation. Fig. 34 a, A. 7. a. 2.

b. *Flush eyes hardly any matrix showing.* Fig. 34 a, A. 7. b.

c. *Triangular form.* Fig. 61.

d. *Raised stratified eyes.* Fig. 34 a, A. 7. d.

These are intermediate between A. 7. a. and A. 7. e.

e. *Horned stratified eyes.*

(1) With four horns. Fig. 34 a, A. 7. e. 1.

(2) With more than four horns. Fig. 34 a, A. 7. e. 2.

f. *Double beads with stratified eyes.* Fig. 34 a, A. 7. f.

g. *Beads with stratified eyes combined with other decoration.*

Family A. 8. *Beads with stratified eyes combined with impressed or spot eyes.*

a. *Beads with stratified eyes in which the central spot has a series of impressed rings.* Fig. 34 a, A. 8. a.

b. *Beads in which some of the eyes are stratified and some plain spots.*

(1) Raised spots. Fig. 34 a, A. 8. b. 1.

(2) Flush spots. Fig. 34 b, A. 8. b. 2.

c. *Beads in which the eyes have an impressed ring outside, and a stratified part in centre.* Fig. 34 b, A. 8. c.

d. *Beads with impressed rings with eyes stratified upon them.*

These are formed by impressing a wide ring and then applying spots on the top of the ring, by the process used for stratified eyes.

Family A. 9. *Inserted cane eye beads.*

a. *Beads with inserted cane eyes, well separated by matrix.*

1. *Flush eyes.* Fig. 34 b, A. 9. a.

2. *Raised or horned eyes.*

b. *Large disc beads with inserted cane eyes.* Fig. 34 b, A. 9. b.

c. *Beads made entirely of eye-canes, or in which there are so many that the matrix is scarcely visible.* Fig. 34 b, A. 9. c.

d. *Double strip eye beads.* Fig. 54.

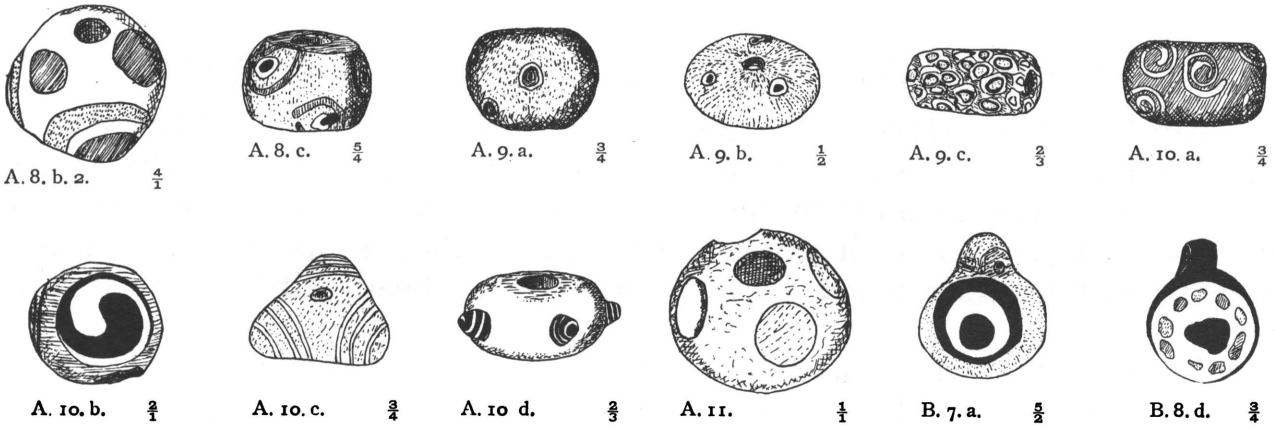


Fig. 34 b. GROUP XLVI (*continued*).

A. 8. b. 2. Combined stratified and plain spot eye bead. Glass, Egypt, XXIIIrd Dynasty.
A. 8. c. Combined stratified and impressed eye bead. Glass, Cumae, 300 B. C. ?
A. 9. a. Inserted cane eye bead. Glass, Italy, Etruscan.
A. 9. b. Disc bead with cane eyes. Glass, Cumae, 100 B. C.
A. 9. c. Inserted cane eye bead. Glass, Cumae, A. D. 100.
A. 10. a. Spiral eye bead. Glass, near Cambridge, Roman Period, or earlier.
A. 10. b. Spiral eye bead. Glass, Egypt, XVIIIth to XXth Dynasty.
A. 10. c. Triangular spiral eye bead. Glass, Italy, Villanovan.
A. 10. d. Horned spiral eye bead. Glass, Cheshire, Roman Period, or earlier.
A. 11. Metal eye bead. Bronze, Oxfordshire, Pre-Roman.
B. 7. a. Stratified eye pendant. Glass, Egypt, XVIIIth to XXth Dynasty.
B. 8. d. Stratified eye pendant. Glass, Egypt, XVIIIth to XXth Dynasty.

These are made of elaborate canes so arranged that, when the bead is cut off, it shows lines at right angles to the axis on part of the surface, whilst the parts where the strips are cut off show spot or eye decoration.

e. *Folded beads made from eye canes.*

f. *Chequer beads.*

1. *Made from simple canes.*

2. *Made from elaborate canes.* Fig. 80.

g. *Beads with inserted cane eyes combined with canes of other patterns.*

Family A. 10. *Beads with spiral eyes.*

a. *Beads with flush spiral eyes, made of impressed threads.* Fig. 34 b, A. 10. a.

b. *Beads with flush spiral eyes, made of two sorts of glass twisted together* Fig. 34 b, A. 10. b.

c. *Triangular beads with spiral eyes at the angles.* Fig. 34 b, A. 10. c.

d. *Beads with horned spiral eyes.* Fig. 34 b, A. 10. d.

Family A. 11. *Metal eye beads.* Fig. 34 b, A. 11.

Subgroup B. Pendants.

There are a number of pendants belonging to this group. They mostly belong to families B. 7. and B. 8. Fig. 34 b, B. 7. a and B. 8. d.

Group XLVII. *Zone, Striped, Wave, and Chevron Beads*

Most of the beads in this group are of regular form and so have already been included by their shape in divisions I and II. To describe this, the names, letters, etc., given to them in those divisions should be used. As, however, their decoration is so much more important than their shape, they are classed together in this group, which includes most of the beads with line decoration only.

If they have spot decoration as well as line decoration they are included in the last group, spot and eye beads, no. XLVI. Also beads with spiral lines are not included here, but in group XVIII, Spiral beads.

Fuller particulars of many of these beads are given in Part VI on Decoration.

Subgroup A. Beads.

Family A. 1. *Zone beads.*

Beads divided into zones by lines, etc., round the perimeter concentric with the axis.

a. *Glass.* Fig. 68.

b. *Onyx.* Fig. 35, A. 1. b.

c. *Stone, crystal, etc., with lines cut round.* Fig. 35, A. 1. c.

Family A. 2. *Longitudinally striped beads.*

a. *Parallel stripes of plain canes.* Fig. 35, A. 2. a.

b. *Parallel stripes of elaborate canes.* Fig. 67.

c. *Annular and short bicone beads with radial stripes.* Fig. 35, A. 2. c.

d. *Beads of stone, amber, etc., carved with longitudinal lines.*

e. *Faience sector globe beads.* Fig. 84.

Family A. 3. *Wave beads.*

a. *Single wave.* Fig. 75.

b. *Double wave adjacent.* Fig. 76.

c. *Double wave, superimposed.* Fig. 77.

d. *Multiple waves.* Fig. 35, A. 3. d.

e. *Beads of stone, amber, etc., carved with waves.*

f. *Faience beads with moulded or painted waves.*

In many of the glass beads of this family the waves have pointed ends and are practically chevrons, but they are always made by superimposing a thread, which is often impressed, but is never wire-drawn. The wire-drawn beads are included in family A. 7.

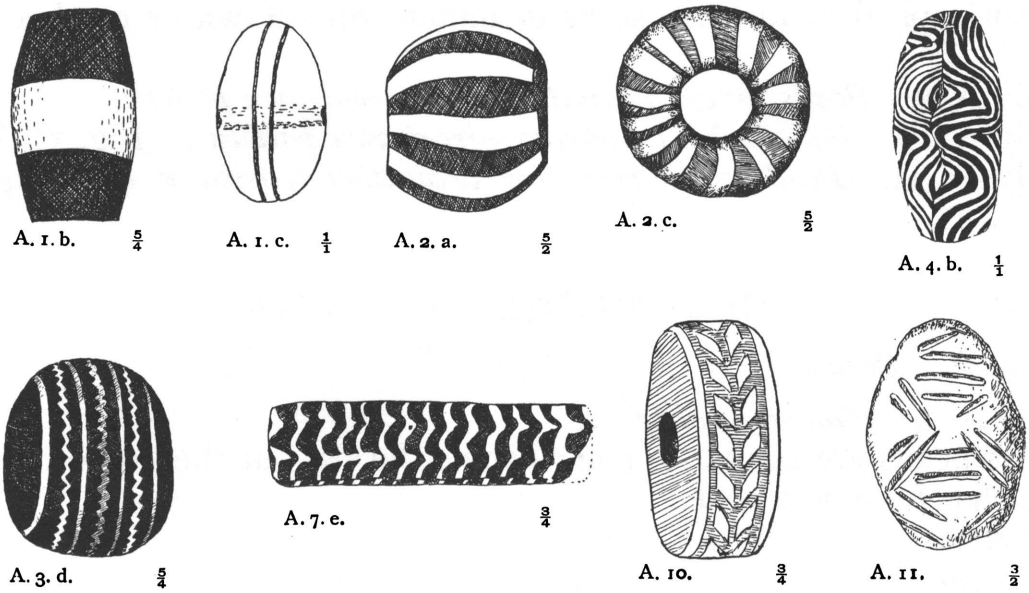


Fig. 35. GROUP XLVII. Zone, Striped, Wave, and Chevron Beads.

A. 1. b. Zone bead. Onyx, Mesopotamia, before 700 B. C.
A. 1. c. Zone bead. Crystal, Anglo-Saxon.
A. 2. a. Longitudinally striped bead. Glass, Crimea, 700 B. C. ?
A. 2. c. Radially striped bead. Glass, Syria, 300 B. C. ?
A. 3. d. Multiple wave bead. Glass, Sweden, A. D. 800.
A. 4. b. Folded scrabble bead. Glass, Taxila, India.
A. 7. e. Irregular wire-drawn or combed bead. Glass, Italy, 9th century B. C.
A. 10. Faience copy of a combed bead. Tel el Amarna, XVIIIth Dynasty
A. 11. Bead with irregular straight line decoration. Stone, Ur, Neolithic.

Family A. 4. *Scrabble beads.*

a. *Wound scrabble beads.* Fig. 79.

These are formed by winding a thread of glass in an irregular manner round a matrix. The pattern may be either raised or impressed.

b. *Folded scrabble beads.* Fig. 35, A. 4. b.

These are made by folding over layers of glasses of different colours, in an irregular manner.

Family A. 5. *Cane chevron beads.* Fig. 66.

Family A. 6. *Zigzag beads.* Fig. 71.

Family A. 7. *Wire-drawn or combed beads.*

a. *Wire-drawn chevron.* Fig. 72.

b. *Wire-drawn scallop.* Fig. 73.

c. *Wire-drawn double scallop.*

d. *Wire-drawn ogee or feather pattern.* Fig. 74.

e. *Slightly and irregular wire-drawn.* Fig. 35, A. 7. e.

Family A. 8. *Glass beads imitating wire-drawn or combed patterns.*

This family contains beads in which elaborate longitudinally striped canes have been applied to a matrix so as to imitate wire-drawn or combed chevron beads.

Family A. 9. *Beads carved in imitation of wire-drawn patterns.*

Family A. 10. *Faience beads copying wire-drawn patterns.* Fig. 35, A. 10.

Family A. 11. *Beads with irregular decoration consisting of straight lines.* Fig. 35, A. 11.

Group XLVIII. *Sundry Beads*

Subgroup A. *Beads.*

Family A. 1. *Plano-conical beads.*

These beads are similar to plano-convex beads, but the curved surface of the latter has become a cone.

a. *Oblate.*

b. *Circular.*

c. *Ellipsoidal.* Fig. 36, A. 1. c.

Family A. 2. *Panelled beads.*

a. *Beads with circular panels.* Fig. 36, A. 2. a. These beads are carved so as to leave circular panels standing up. Usually there are six panels, one at each end and four round the perimeter, one at every 90 degrees.

b. *Beads with sector panels.* Fig. 36, A. 2. b. These beads are carved so as to leave alternate sectors of the bead raised or depressed. It is usual to divide the perimeter into six or eight sectors.

c. *Beads with U-shaped panels.* Fig. 36, A. 2. c. These beads are carved so as to leave U-shaped panels standing up. There are usually four panels.

d. *Beads with lozenge-shaped panels.* Fig. 36, A. 2. d. These beads are carved away so as to leave lozenge-shaped and triangular panels standing up.

A spiral bead such as that illustrated in fig. 16, A. 2. bRLS. 3 might also be considered a lozenge panel bead, but in that the spiral is obvious and an important feature of the bead, whilst in the beads of this class the spiral scarcely exists.

Family A. 3. *Glass string beads.* Fig. 36, A. 3.

These beads are either entirely made of strings of ornamented glass, or else

are decorated with them. In the latter case the strings are not pressed flush into the matrix, but stand out as a prominent feature of the bead. They are frequently found in Ireland and are generally considered to be of the late Iron Age, but it has recently been suggested that they may be later.

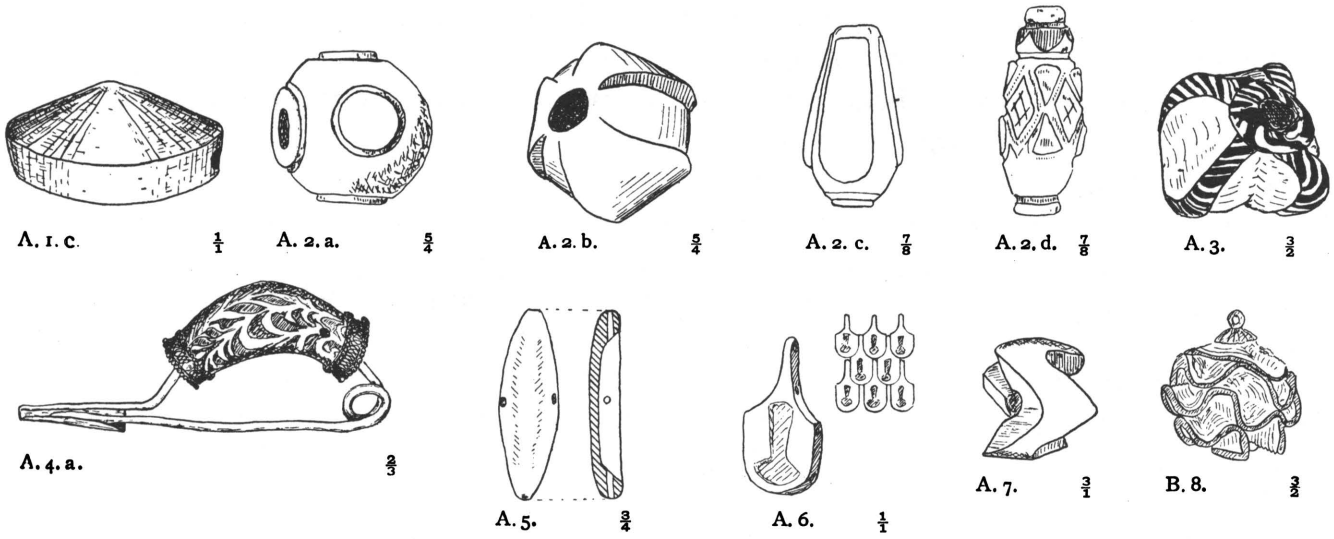


Fig. 36. GROUP XLVIII. Sundry Beads.

A. 1. c. Plano-conical bead. Quartzite, Ur, before 600 B. C.
A. 2. a. Panelled bead. Glazed quartz, Persia.
A. 2. b. „ „
A. 2. c. „ „
A. 2. d. „ „
A. 3. String bead. Glass, Ireland, Celtic Period.
A. 4. a. Leech bead. Glass on gold mount, Yugoslavia, 500 B. C.
A. 5. Boat bead. Faience, Tel el Amarna, XVIIIth Dynasty.
A. 6. Feather diaper bead. Faience, Tel el Amarna, XVIIIth Dynasty.
A. 7. Chain bead. Glass, Modern.
A. 8. Ribbon bead. Glass, Modern.

Family A. 4. *Leech beads.*

These beads are made to fit on fibulae, and as many of them resemble the 'leech' type fibula, they are called leech beads.

a. *Glass leech beads.* Fig. 36, A. 4. a. These are usually very ornate having patterns of chevrons or scallops round them.

b. *Amber and ivory leech beads.* These are generally built up of several pieces. They may be of amber only, or sections of amber may be separated by plates of gold or bronze, or may alternate with sections of ivory. When ivory is used it is sometimes elaborately inlaid.

Family A. 5. *Boat beads.* Fig. 36, A. 5.

These are long boat-shaped faience beads with the back hollowed out. They have cross perforation.

Family A. 6. *Feather diaper beads.* Fig. 36, A. 6.

These beads have four perforations, and are of such a shape that when threaded together they make the diaper pattern supposed by Egyptologists to represent feathers.

Family A. 7. *Chain beads.* Fig. 36, A. 7.

These make a chain, the points of one bead fitting into the hollows of the next.

Family A. 8. *Glass ribbon beads.* Fig. 36, B. 8.

These beads are hollow glass balls entirely covered with glass ribbon. The one illustrated is mounted as a pendant.

Family A. 9. *Sundry mosaic beads.*

Mosaic beads, that is, beads built up out of two or more different coloured glasses or faience, usually have the colours arranged so as to make a definite pattern, in which case they are included in the group to which the pattern belongs.

There are, however, some in which the designs are so irregular that they cannot be easily placed in other groups, and these are included in this family. Examples of these are the swirled glass beads, fig. 49, and the blotched beads, fig. 50.

Family A. 10. *Splashed faience beads.* Fig. 82.

In these spots and patches of coloured glaze are irregularly splashed on a glaze of a different colour.

Family A. 11. *Etched carnelian and chalcedony beads.*

The important thing about these beads is the way in which they are made. The designs are usually simple, one of the most elaborate is shown in fig. 42.

Family A. 12. *Bent beads.*

These are usually cylindrical faience beads which have been bent, or beads carved in imitation of such cylinders. They are approximately the same diameter all along, which distinguishes them from the leech beads in family A. 4. of this group.

Division IV. Irregular Beads and Pendants

This division is divided into two groups as follows:—

Group XLIX. *Irregular Beads and Pendants, Perforated only*

The beads and pendants in this group are made out of natural pieces of stone, amber, etc., in which no attempt has been made to grind the surface. They are, however, perforated. The perforation in some cases is also natural.

Group L. *Irregular Beads and Pendants, Perforated and Roughly Ground*

These are made out of irregular pieces of material, and in addition to being perforated, are roughly worked over part or all of the surface. They are divided into the following families:—

Family A. 1. *Beads ground or chipped on ends only.*

Family A. 2. *Beads ground or chipped over the whole or greater part of the surface.*

Family B. 1. *Pendants ground or chipped over a small portion of the surface only.*

Family B. 2. *Pendants ground and chipped over the whole or greater part of the surface.*

PART III. PERFORATION

Perforations can be divided into eleven types as follows:—

Type I. *Double cone perforation.* This perforation is bored from both ends, with conical holes. In this type the cone has a considerable angle, and no attempt is made to make the hole parallel.

Type II. *Drilled from both ends perforation.* This type is bored from both ends, generally with a sort of drill. The holes are parallel or only slightly conical, the coning, if present, being accidental.

Type III. *Single cone perforation.* This perforation is bored from one end and is conical.

Type IV. *Plain perforation.* This perforation is bored from one end and is approximately parallel.

Type V. *Chamfered perforation.* This perforation is conical at the ends but the central part is parallel. A modified form is only conical at one end.

Type VI. *Large perforation.* This type is subdivided as follows:—

a. Medium large; when the hole is more than one quarter, and less than half the diameter of the bead.

b. Extra large; when the hole is half the diameter of the bead or larger.

Type VII. *Tubular perforation.* This type contains beads of cylindrical form, in which the perforation is so large that the bead becomes a tube; such beads may be bored out of the solid material, or they may be made from sheet metal. They are also occasionally moulded.

Type VIII. *V-perforation.*

a. Perforation bored at different angles from the same end, side, or base.

b. Perforation bored from two ends which are not parallel.

Type IX. *Corner perforation.*

a. *Single.* In this case the perforation starts at one of the ends, and comes out on one of the sides.

b. *Double.* In this case the perforation is the same as the last, but in addition a second hole starting near the further extremity of the same side comes out at the other end.

Type X. *Multiple perforations in the same plane.*

a. Parallel perforation.
b. Converging perforation.
c. T-perforation.
d. Y-perforation.
e. Rectangular cross-perforation.
f. Oblique cross-perforation.
g. Combination of converging and Y-perforation.

Type XI. *Multiple perforations not in the same plane.*

a. Perforations parallel, arranged in triangle.
b. Perforations converging.

The above types of perforation are illustrated on plate IV.

PART IV. COLOUR

The question of colour is very important, and I hoped to have had a chart printed with this paper. A chart was prepared, but the expense of reproducing it in such a way that the different impressions would be the same, combined with the uncertainty as to how long the colours would remain without changing, necessitated the plan being abandoned.

The work now being carried out at the National Physical Laboratory by Mr. J. Guild shows that it is possible accurately to describe a colour by a mathematical formula, and it is to be hoped that before long a chart will be produced, with graduated variations of hue, saturation, and brilliancy, in which each colour is recorded in this way.

For bead-work I think that a chart with about one hundred colours, each with three or four patches of different brilliancy, and all collected on two sheets, about 15 in. by 12 in., would be the most suitable form.

Several charts have been made in which the colours are arranged on a large number of sheets. The disadvantage of this is that it takes too long to match a colour and also that only an approximate match can often be made, as different parts of a bead frequently vary considerably in colour.

PART V. MATERIAL

The materials used for the manufacture of beads can be divided into three divisions: I. Natural materials; II. Metals; III. Artificial materials.

I. *Natural Materials.* These are materials which once they are found only require making into beads. Some, as for instance many shells and seeds, need very little doing to them, whilst stones with natural holes through them, suitable for wearing as beads, are frequently found.

Most of the natural materials are included in the following five groups:

1. Stone, including crystals.
2. Jet, lignite, Kimmeridge shale, amber, and natural gums.
3. Shell, including complete shells, pearls, egg-shells, etc.
4. Wood, including seeds, pith, straw, etc.
5. Teeth, ivory, bone, horn, skin, and hair.

II. *Metals.* These generally need to be smelted or otherwise prepared before they can be made into beads.

III. *Artificial Materials.* These materials had to be manufactured. The most important are included in the following nine groups:

1. Glass.
2. Frit.
3. Faience.
4. China.
5. Unglazed pottery, clay.
6. Lacquer.
7. Wax.
8. Paper.
9. Sundry compositions: celluloid, cement, bakerlite, imitation amber, etc.

I. *Natural Materials.*

1. *Stone.* Very large numbers of stones are used for beads, and it is often difficult to say out of what stone a bead has been made. It is sometimes an assistance to test either the hardness or the specific gravity.

The following table gives the hardness and the specific gravity of some of the stones used:

Stone.	*Hardness.*	*Specific Gravity.*
Sapphire	9	4·2–3·9
Oriental amethyst	9	4·2–3·9
Oriental emerald	9	4·2–3·9
Spinel	8	3·8
Topaz	8	3·64–3·5
Beryl	8–7·5	2·7–2·6
Emerald	8–7·5	2·7–2·6
Tourmalin	7·5–7	3·2–2·9
Jacinth	8–7	4·5
Garnet	7·5–6·5	4·2–3·6
Agate	7	2·65
Amethyst	7	2·65
Bloodstone	7	2·65
Chalcedony	7	2·65
Carnelian	7	2·65
Flint	7	2·65
Jasper	7	2·65
Quartz	7	2·65
Jade	7–6·5	3·3
Opal	6·5–5·5	2–2·3
Green feldspar	6	2·6–2·4
Turquoise, Callaïs	6	3–2·75
Serpentine	5·5–2·3	2·6–2·5
Lapis lazuli	5	2·4
Arragonite	3·75	2·9
Marble	3·75–3	2·9–2·7
Malachite	3·5	3·8
Calcite	3	2·7
Steatite	1·5–1	2·4

2. *Jet, lignite, Kimmeridge shale, amber, and natural gums.* These can frequently be told by their very low specific gravity, that of jet and lignite being from 1·2–1·4, and the hardness being 2. The specific gravity of amber is from

1·03–1·08, and the hardness from 2–2·5. It is extremely difficult to distinguish between the different varieties of natural gums.

3. *Shell.* Great numbers of shells are used to make beads. Some are used as complete shells; amongst others, cowries (cypraea), olive, cone, scallop, and helix are used in this way. Others, such as tridachna and mother-of-pearl, are cut to various shapes. Pearls and coral are included in this group, also egg-shells.

4. *Wood.* Woods and seeds of a great many varieties are used in the manufacture of beads. When describing a bead it is advisable to say what wood or seed is used, if it is possible to do so.

5. *Teeth, etc.* Teeth when small are usually made into beads by simply perforating them. Larger teeth are sometimes treated in the same way, but sometimes they are carved into special shapes. When possible it is advisable to state to what animal they belong.

Ivory may be either true ivory or morse ivory; the specific gravity of true ivory is 2·07.

Bone, horn, and skin are usually carved to some special form, and it is difficult to state from what animal they come, but when known it should be stated. Small bones, however, are often used whole (see page 39).

II. *Metals.*

Most of the metals known to the ancients have been used for making beads. They usually had to be smelted, but occasionally nuggets of gold and lumps of meteoric iron were found in a form suitable for working.

III. *Artificial Materials.*

1. *Glass.* Glass is a vitreous compound that has a conchoidal fracture. It is a combination of silica with lime or lead, and an alkali such as soda and potash.

Many colours and varieties of glass are made and used for beads. Some of these have great power of resisting corrosion and therefore keep a polished surface for a very long time. Other glasses corrode much more rapidly; in some cases this gives brilliant iridescent colours, but in others the surface corrodes away, and the material at first sight looks like a piece of clay.

2. *Frit.* Frit is a partially mixed material, consisting of unmelted substances held together by a cement. It may consist of materials which would make a glass but have been only partly melted.

Paste. This term is frequently used in referring to glass. It has no meaning applied to beads. The only vitreous substance that can correctly be called paste is a transparent glass of very high refractive index, made in comparatively

recent years, and used for making artificial diamonds. I do not think this is ever used for beads. Some forms of Saxon glass, when very corroded, look like pottery, and are often erroneously described as paste. It is a misleading term, as really they are true glass. Then, again, soft blue frit is called paste by some people, whilst others apply the term to all sorts of pottery and faience.

3. *Faience.* This is earthenware which has been glazed with a silica enamel. Originally the term was applied to a glazed earthenware made at Faenza, but it has become a term frequently used for almost any form of glazed earthenware and especially for beads.

Glaze. Glaze is a form of glass. It can vary very much in its composition, but it always contains silica and an alkali.

4. *China.* 5. *Unglazed pottery, clay.*

China or porcelain, and earthenware or unglazed pottery, are substances largely composed of clay. Porcelain, however, usually has the ingredients in finer particles and, having been heated to a higher temperature, many of its particles have become transparent, thus producing a translucent material. The difference between porcelain and earthenware is one of translucency.

Earthenware can be described as any clay baked sufficiently to stick together, but which has not been heated sufficiently to melt its ingredients.

6. *Lacquer.* Lacquer is prepared from the Lac Tree, *Rhus Vernicifera.* Large numbers of coats are usually applied by means of a brush or spatula. These are sometimes moulded or carved to shape before the final decoration is put on.

The core of lacquer beads is usually wood, but other materials are sometimes used.

PART VI. DECORATION

In considering the decoration of beads it is best to divide them according to the material of which they are made.

1. Beads of Natural Materials

The original material was often of such a nature that shaping it into a bead gave it a decorative effect. This, strictly speaking, is not decoration in the sense that I refer to.

Cameo decoration. When the form of the bead has been altered by irregular cutting so as to give some specially desired effect, it is called *Cameo decoration.* A good example of this is the cat's-eye bead of Mesopotamia (fig. 34 a, A. 1. a). In this the onyx is carved away so as to give the effect of a black centre with a white ring round it. They are also made with double eyes. A specimen with double eye, carved from three layers of onyx, is shown in fig. 37.

Carved decoration. When a bead has been carved with a pattern, which has no reference to any natural decoration there may be on the material, it is called *Carved decoration.* Two of the best-known forms of this, other than the alterations in shape referred to under Classification, are the *spot* (fig. 38) made by a drilled hole, generally with a conical point, and the *ring and dot* (fig. 39). Both these motives were usually repeated several times on the bead.

Carved decoration has also been applied to metals and to some of the artificial materials.

Engraved decoration. Beads were frequently cut in intaglio. These are called *Engraved beads* (fig. 40). In most the designs are elaborate and not easy to classify, in which case they should be described individually.

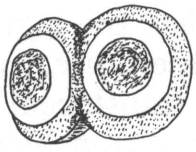


Fig. 37. Double cat's-eye bead. Onyx, Assyria, 2000 B. C.

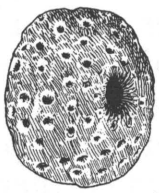


Fig. 38. Drilled spot bead. Stone, Ireland, Celtic Period.

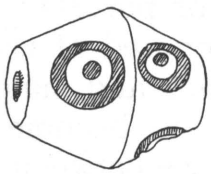


Fig. 39. Ring and dot bead. Stone, Cyprus, 700 B. C.

When, however, they have any form of writing on them they are called *Inscribed beads* (fig. 41). Inscribed beads were not only engraved but also, when made of wood or some suitable material, the writing was sometimes painted on. Painted inscribed beads were, however, more frequently made in faience (see page 70).

Inlay decoration. This is another form of carved decoration in which an incised pattern was carved, and then this pattern was filled in with pieces of another material cut to fit.

Enamelled, glazed, and painted decoration. When a bead has been covered with a thin layer of vitreous enamel or glaze, it is called a *Glazed bead.* Many natural stones were glazed. The best-known examples are the glazed steatite and glazed quartz beads and pendants of Egypt and Persia.

When a bead has had comparatively deep holes or lines filled in with vitreous enamel, it is called an *Enamelled bead.*

When a bead has a design painted on the surface with some form of pigment, which is not fused, it is called a *Painted bead.*

Etched decoration. Some beads made of carnelian or chalcedony, have had designs chemically produced on them by etching and heating. Such beads are called *Etched carnelian or chalcedony beads* (fig. 42).

Etched-bone decoration. In this method of decoration the surface was

scratched or burnt away with a hot metal point. This was done on bone beads during the Bronze Age, specimens having been found in a few places in England (fig. 43). Such beads are called *Etched-bone beads.*

Rocked-line decoration. This form of decoration is somewhat allied to the bone etching, and somewhat to engraved decoration. For this process a point

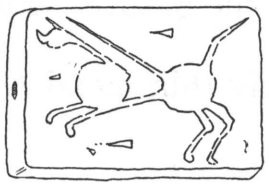


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Fig. 40. Engraved bead. Steatite, Hittite, 600–400 B. C.

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Fig. 41. Inscribed bead. Glazed steatite, Egypt, XVIIIth Dynasty.

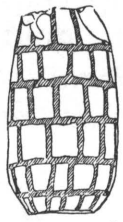

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Fig. 42. Etched carnelian bead. Ur, Mesopotamia, Early Period.

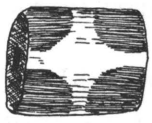

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Fig. 43. Etched bone bead. Yorkshire, Bronze Age.

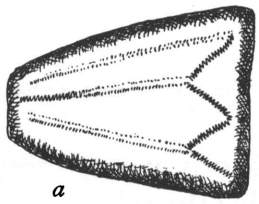

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Fig. 44. Terminal spacing bead with rocked line decoration. Jet, Burwell Fen, Bronze Age.

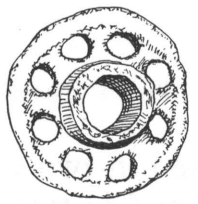

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Fig. 45. Bronze wheel bead. Italy, Bronze Age.

was taken, which was chisel edged in one direction and curved in the other; it was about one-twentieth of an inch wide. This was rocked backwards and forwards along the surface of a jet bead, in such a manner that it made a line about one-twentieth of an inch wide, consisting of a number of sharp zigzag cross-lines. A specimen is shown natural size in fig. 44 *a*; a portion of the line magnified is shown in fig. 44 *b*.

2. Beads made of Metal

Cast decoration. Beads which have been cast with a pattern on them, the pattern having been made in the mould, and which have not had the surface worked on after casting, are called *Cast beads.* One form which appears to have been left from the casting is the Terramara Bronze Wheel Bead (fig. 45). It belongs to group XX. A. 2. c.

Carved decoration. Sometimes a bead, which had the pattern cast on it, has had the surface finished by chasing, in which case it is best to class it under carved decoration, such beads being called *Chased beads.*

The remarks made with reference to carved beads in natural materials apply also to carved metal beads.

Inlaid decoration. Beads in which the surface has been carved or stamped with an incised or depressed pattern, which pattern has been filled with another material, are called *Inlaid beads.*

In one special form of this an undercut groove was chased in the metal bead, and fine gold or silver wire was hammered into the groove. Such beads are called *Damascene beads.*

Stamped decoration. Metal beads if made of fairly thin metal have been

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Fig. 46. Stamped metal bead. Japan.

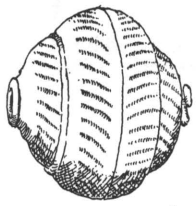

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Fig. 47. Repoussé bead. Gold, Cyprus, 500 B. C.

embossed in two ways. For both methods it was necessary to make the bead hollow and in two parts, which were finally joined together. One method was to press or stamp it to shape between two tools which had on them the shape and pattern that were required on the bead. This is called stamped decoration, and beads so made are called *Stamped* or *Pressed beads* (fig. 46).

The other method was to emboss the pattern, by hammering the bead with small tools, both from inside and outside. This is called *Repoussé decoration*, and such beads *Repoussé beads* (fig. 47).

Etched decoration. To etch a bead the metal was covered with some acid-resisting varnish. The varnish was then cut away in the required pattern, and the bead was painted with or dipped into acid. This removed the surface where the varnish had been cut away, and left an etched pattern on the bead. Beads treated in this way are called *Etched metal beads.*

Gilded and plated decoration. In both these cases the metal of the bead was covered either completely or in part with gold or some other metal. When this layer is extremely thin, as in the case of a chemical deposit or a covering of gold leaf, it is called *Gilded decoration*, and a bead so treated is called a *Gilt bead.*

When, however, the superimposed metal has considerable thickness and was bent round or soldered to the matrix, it is said to be *Plated*, and a bead so treated is called a *Plated metal bead.*

Filigree decoration. This is a form of decoration by means of thin wires. They may be only soldered together, or they may have a matrix on to which they are fixed. Beads made in this way are called *Filigree beads.* See group XXIV, fig. 22.

Enamelled decoration. There are several forms of this.

When a vitreous glaze or enamel has been fused over the whole or a large part of the surface of a bead, without any elaborate pattern on it, it may be called *Glazed*, but it is more usual to call metal beads which are coated with any form of glaze or enamel *Enamelled beads.*

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Fig. 48. Cloisonné bead. Japan, XVIIIth century.

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Fig. 49. Swirled glass bead.

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Fig. 50. Blotched glass bead. Roman.

Another form of enamelled bead is the *Limoges enamelled bead.* In this form the enamel was painted on as a pattern or picture and then fired. Sometimes it was necessary to fire it a large number of times. This class of enamel, though very rarely met with on beads, is rather more common on pendants.

When the surface has been cut away and the hollows filled in with enamel, it is called *Champlevé enamel.*

When the surface has been built into cloisons by soldering small wires on to it, and these cloisons have then been filled with enamel, it is called *Cloisonné enamel*, and beads so made are called *Cloisonné beads* (fig. 48). This form of decoration is extremely common in oriental beads.

2. Beads made of Artificial Materials

The artificial material that has the greatest variety of technique, both in its original manufacture and its subsequent decoration, is glass. It will therefore be considered first.

1. *Beads made of Glass*

Some classes of decoration depend entirely on the original method in which the glass was made.

Swirled decoration. Two or more glasses of different colours were melted and stirred together to a slight extent, and then moulded into beads. This gave

the effect of lines of different colours bending in and out in a quite irregular manner. Beads made in this manner are called *Swirled glass beads* (fig. 49).

In some cases different glasses are melted on the surface of the bead and swirled round after the matrix has been made.

Blotched decoration. In this case a number of broken fragments of different coloured glass were taken and heated until they were plastic, and then pressed together and moulded into the required shape. The result was to form a bead with a large number of blotches of different colours. Such beads are called *Blotched glass beads* (fig. 50).

Most of the decoration of glass beads, however, was applied during the manufacture. As this is classified largely according to the method of manufacture of the bead, it is necessary first to consider how this was done.

There were six chief methods of making glass beads:

1. *Wire-wound beads.* A thin stick of glass heated until it had much the consistency of toffee was wound round a wire. During the process the glass was pulled out into a thread, and there is frequently a projection on the bead showing where this thread was broken off. When, however, as often happens, the bead has been reheated for subsequent decoration, this projection generally disappears. Beads made in this manner are called *Wire-wound.*

2. *Cane beads.* To make these the glass was made into a rod or tube which was called a cane. These canes were sometimes made of one glass only; at other times they were made of different coloured glasses arranged in a pattern.

To make a bead, a cane, usually tubular, was selected of approximately the same diameter as the bead required. A piece the length of the bead was cut off this cane. In some cases this was used as a bead without any further work on it. In other cases it was finished by either grinding or reheating. Beads made in this manner are called *Cane beads.*

The method of making tubular canes is of some interest. At the present time they are made by taking a piece of molten glass on the end of a blowpipe, and slightly blowing it out so as to make it hollow. Whilst it is still hot a rod is attached to the other end, and it is stretched out as rapidly as possible so as to make a long tube before it cools. This process necessitates the use of a blowpipe. It appears, however, that the method of working glass with a blowpipe was not invented more than a century or so before the Christian era, so that it has been taken for granted that all beads made of tubular cane must be later than that date. But small glass tubes have been found in the glass factory at Tel el Amarna, which is the earliest glass factory known and dates from the XVIIIth dynasty. By examining fragments of these I have been able to trace the method of their manufacture. A strip of glass of considerable thickness, and wide enough to fold round a wire, was, whilst in a plastic condition, folded round and the edges

fused together so as to make a tube. Such tubes are called *Folded canes.* These were sometimes reheated and pulled out into small tubular canes, such as those found at Tel el Amarna (fig. 51 *a*).

Pieces broken from these make long cylindrical beads, and a necklace entirely consisting of such beads simply broken off canes has been found in a New Kingdom grave at Abydos (fig. 51 *b*).

3. *Folded beads.* When, however, the folded cane is not pulled out into a small tube, but beads are cut from it and ground to shape they are called

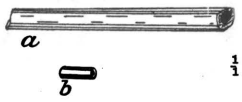

Fig. 51. *a*, Glass tubular cane. Tel el Amarna; *b*, glass tubular bead. Abydos, XIXth Dynasty.

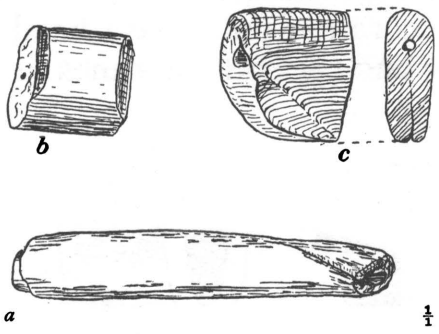

Fig. 52. Fragments of folded glass canes. Tel el Amarna.

Folded beads. Fig. 52 *a* shows a folded cane of cuprous oxide glass ready to grind into one of the long pear-shaped beads so characteristic of the XVIIIth dynasty. From the way in which the end has been nicked down whilst hot, so as to show where to break it off, it looks as though the strip was longer when folded, probably at least twice as long. In the same necklace are found beads made in this manner of one sort of glass, whilst beads of the same shape but another glass are wire-wound.

Fig. 52 *b* shows a piece cut off a larger cane suitable for grinding into a spherical bead. Fig. 52 *c* shows a cane strip made by folding over a strip a great deal wider than necessary to go round the wire. Such strips were used for cutting into wallet beads and small amulets. The mark made by the tool used to press the folded strip together is clearly shown in this specimen.

Folded beads were made in several other ways. One method was to prepare a slab of glass with a length nearly equal to the circumference of the desired bead, and a width approximately the length of the bead. This was folded round a rod and the two ends pressed together and fused (fig. 53 *a*).

A slightly different way of making them was to prepare a strip of a similar form, and whilst it was plastic to press a rod through the centre of it perpendicularly to the face, and then bend the two ends of the strip up so as to join together, enclosing the rod between them (fig. 53 *b*).

4. *Double strip beads.* In this method two strips of glass were taken and

placed on top of each other with a rod between them (fig. 54 *a*). They were then pressed together and cut off at the correct length to form the diameter of the bead, which was finished by rounding it to shape by pressure whilst the glass was still plastic (fig. 54 *b*).

5. *Moulded beads.* These beads were made by taking a piece of plastic glass and pressing it into a mould.

6. *Blown-glass beads.* A small bubble, or a portion of a tube of glass was blown into a bead, either as a smooth ball, or else by blowing it into a mould, as a more complicated or decorative form.

The decoration on a glass bead could be made by making the strips in methods (2) and (3), and the canes in method (4), out of a number of different

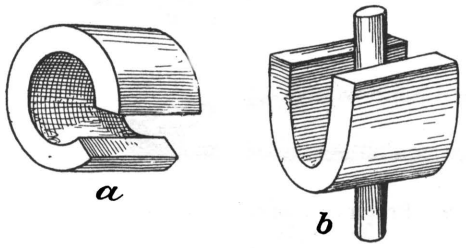

Fig. 53. Diagram showing method of manufacture of folded beads.

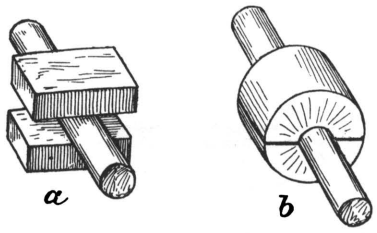

Fig. 54. Diagram showing method of manufacture of double strip beads.

coloured pieces of glass arranged in long strips, and fusing them together before the bead was made. In these cases the decoration is generally in the form of lines, although circles were sometimes made, due to the folding of the strip. Occasionally elaborate canes with complicated patterns were used. As a decoration, however, other kinds of glass were frequently applied after the matrix had been formed. This was the usual method of making elaborate beads, and an enormous variety of decoration was obtained in this manner.

Two of the most important elements of simple decoration are the spot, and the line. Both of these can be either simple or complex. The Spot is considered first.

Decoration by means of Spots or Eyes.

The *Spot* sometimes was only plain, at other times it was developed into an elaborate figure with numbers of circles round it.

Crumb glass beads. These were made by dusting on small crumbs of differently coloured glass whilst the matrix of the bead was in a plastic condition.

There are two varieties of these, one in which the crumbs are left standing above the surface of the bead. These are called *Raised glass crumb beads* (fig. 55).

In the other form the crumbs were pressed into the matrix of the bead, whilst the bead was still hot (fig. 34 a, A. 2. d). These are called *Impressed glass crumb beads.* In appearance they are sometimes rather similar to the blotched glass beads referred to above.

When crumb beads are referred to without the word glass, it generally means the faience crumb beads which are described later under Faience (see fig. 81).

Eye beads. Most beads in which there are distinct spots, other than crumb beads, are called *Eye beads.* Some of these have plain dots, whilst others have elaborate figures with circles round them.

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Fig. 55. Raised glass crumb bead. Cumae, 600 B. C.

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Fig. 56. Raised spot eye bead. Glass, Egypt, XVIIIth Dynasty.

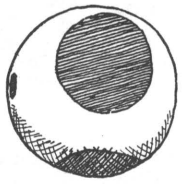

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Fig. 57. Flush spot eye bead. Glass, Egypt, XVIIIth Dynasty.

Spot eye beads. These are the simplest form of eye bead. They consist of one or more large spots of coloured glass attached to a matrix of another colour. The spots may have been left standing above the surface of the matrix, in which case they are called *Raised spot eye beads* (fig. 56). Or the spots may have been flattened down to the level of the surface of the matrix, in which case they are called *Flush spot eye beads* (fig. 57).

Impressed ring eye beads. These are the next form as far as simplicity of manufacture goes.

There are two varieties: the usual one has a ring of one coloured glass which has been pressed into a matrix of another colour, the matrix being one of the regular forms. These are called *Impressed ring eye beads* (fig. 58; the portion broken out of the bead shows that the ring is impressed).

In the second variety the matrix of the bead was shaped so as to have horns, and the other coloured ring was impressed into the base of the horn. These are called *Horned impressed ring eye beads* (fig. 59). Occasionally the horns were made of a different glass from the matrix.

Comma beads. These are another variety of impressed bead, in which, instead of complete rings, small open pieces shaped like commas were impressed.

Stratified eye beads. Another way of making eye beads was to superimpose one coloured glass on another. There are two forms: the more usual was

made by impressing a spot of glass of one colour into a different coloured matrix, and then pressing a spot of a different colour into the centre of the first spot, the whole being levelled down to the surface of the original matrix. By this means the different layers of glass became like saucers resting in one another. This process was carried on indefinitely, so that eyes with a great number of rings round them were produced; as many as five were quite common. Beads with eyes made in this way are called *Stratified eye beads* or

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Fig. 58. Impressed ring eye bead. Glass, Mediterranean Area, 800 B. C.

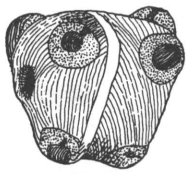

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Fig. 59. Horned impressed ring eye bead. Glass, Cumae, 600 B. C.

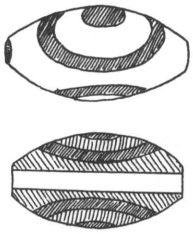

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Fig. 60. Stratified eye bead. Glass, Egypt, XVIIIth Dynasty.

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Fig. 61. Triangular stratified eye bead. Glass, Cumae, 600 B. C.

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Fig. 62. Stratified eye bead, with matrix scarcely showing. Egypt, XXIIIrd Dynasty.

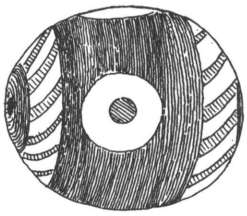

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Fig. 63. Eye bead with spiral threads. Egypt, XVIIIth Dynasty.

Flush stratified eye beads (fig. 60), to distinguish them from the horned stratified eye beads described later. They are sometimes triangular (fig. 61).

In one form of flush stratified eye beads, the eyes seem to have been made separately, and then cemented together with a very small amount of matrix, which is scarcely visible in the finished bead (fig. 62).

Horned stratified eye beads. In this variety the horn was made of a series of layers of different coloured glasses. The horns may have been made separately from the matrix, and then brought to the required shape either before or after being attached. Such beads are called *Horned stratified eye beads.*

All the above stratified eye beads may have impressed lines of plain or spirally wound glass threads as well as the eyes (fig. 63).

Spiral eye beads. These were made by several methods. One was to impress a thread of glass into the matrix in the form of a helix (fig. 34 b, A. 10. a and 10. c). Another was to take two glasses and twist them together on the

bead so as to make a spiral (fig. 64), whilst a third way was to form a spiral thread by twisting together threads of different coloured glass, and then applying them as spiral horns to the matrix (fig. 34 b, A. 10. d).

Inserted cane eye beads. To make these beads, glass canes were made, with concentric rings of different coloured glass, and sometimes with other decoration also. The section of these canes was the pattern required for the eye. Pieces were broken off the canes and inserted in the matrix of the bead, so that the section of the cane came on the surface of the bead. Such beads are called

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Fig. 64. Eye bead with spiral eyes. Egypt, XVIIIth Dynasty.

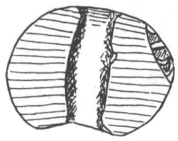

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Fig. 65. Section of an inserted cane eye bead. Mediterranean Area.

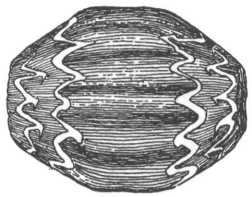

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Fig. 66. Cane chevron bead. Glass, Egypt, Roman Period?

Inserted cane eye beads (fig. 65). Sometimes they were made so that the sections of the cane all touched each other and no matrix was visible (fig. 34 b, A. 9. c). Also, sometimes a piece of cane got at an angle, giving a very distorted effect to the eye.

Decoration by means of Straight Lines.

Next to the Spot the straight line is probably the most important element in the simple decoration of beads.

Cane chevron beads. The case in which the strips or canes of glass used for making beads had patterns in them before they were used, has been referred to above, but the special case, in which the cane had concentric zigzag layers of different coloured glass, must be specially mentioned, as when such canes were cut off and made into beads by grinding down the ends, they formed the well-known *Cane chevron beads* (fig. 66). These are also sometimes called *Sun beads.*

Longitudinally striped beads. These were sometimes made from a cane with lines upon it, at other times by applying threads of a different coloured glass. In the latter case they could be left raised, when they are called *Raised longitudinally striped beads*, or be pressed flat, when they are called *Impressed longitudinally striped beads* (fig. 67).

A special variety of these are the beads which are made from a cane of transparent glass with lines of white or coloured glass either on the surface or in the material. These beads were often twisted so as to give a spiral effect. They are called *Spiral lattice beads.*

Zone beads. Some beads have straight lines running round at right angles to the axis, these become circles and divide the bead into zones. The lines can be either *Raised* or *Impressed.* Such beads are called *Zone beads* (fig. 68).

Glass beads with spiral lines. There are several varieties of these. The spiral can be either *Raised* or *Impressed*, it can have one or more starts, and can be either right- or left-handed (fig. 69).

Impressed helical beads. A special form of disc bead with a spiral impressed on one end is frequently found amongst Saxon beads, and is called an *Impressed*

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Fig. 67. Longitudinally striped bead.

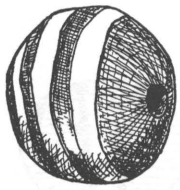

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Fig. 68. Zone bead. Glass, Cumae, 700-600 B. C.

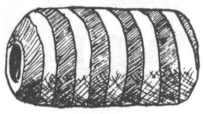

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Fig. 69. Glass bead with spiral line. Crimea, 400 B. C.

helical bead (fig. 70). These beads were sometimes made by coiling up a small cane of glass which had a narrow strip of another coloured glass along one side of it.

Zigzag beads. Zigzag lines parallel to the axis of a bead were made by winding two canes round a matrix. One cane consisted of two or more different coloured threads of glass twisted into a right-hand spiral, and the other cane was similar but had a left-hand spiral. These two canes were wound round close together for the whole length of the matrix, then the surface was smoothed down, with the result that the whole surface became covered with zigzag lines parallel to the axis. Such beads are called *Impressed zigzag beads* (fig. 71).

Chevron beads. Beads with zigzag lines at right angles to the axis are called *Chevron beads.* One variety, the cane chevron bead, has been described already.

Another method of making them was to wind a thread of glass in circles or spirals round the matrix, then heat it until it was thoroughly plastic, and draw a wire along it, first towards one end of the bead and then towards the other. When this was done at the correct temperature the result was a series of chevrons with approximately straight sides. Such beads are called *Wire-drawn chevron beads* (fig. 72).

Wire-drawn scallop beads. These beads were made in the same manner as the last, but the wire was only drawn towards one end of the bead (fig. 73).

Both these beads and the last can be either *Raised* or *Impressed.*

Wire-drawn ogee beads. These beads were made in the same way as the wire-drawn chevron beads, but the temperature was so arranged that the portion of the band in between the points was very little moved, with the result that a series of ogees was made (fig. 74). These are sometimes called *Feather pattern beads.*

Beads with wavy lines. A thread of glass was often applied to the perimeter

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Fig. 70. Impressed helical bead. Anglo-Saxon, glass, A. D. 500.

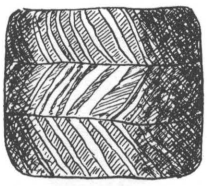

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Fig. 71. Zigzag bead. Glass, Anglo-Saxon.

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Fig. 72. Wire-drawn or combed chevron bead. Glass, Italy, 300 B. C.?

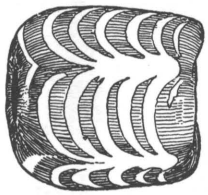

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Fig. 73. Scallop bead. Glass, Greek Islands, 300 B. C.?

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Fig. 74. Ogee bead. Glass, Cumae, 500 B. C.

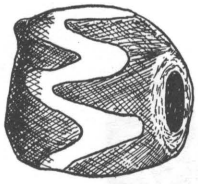

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Fig. 75. Single wave bead. Glass, Cumae, 300-150 B. C.

of a bead in the form of a wavy line. There are several varieties of these. They could be either *Raised* or *Impressed.*

Single-wave beads. These are the simplest form. A thread of glass makes a wavy line going once round the bead (fig. 75).

Double-wave beads. These are of two varieties. In one form the two wavy lines go round the bead side by side without crossing; these are called *Adjacent or not-crossed double-wave beads* (fig. 76).

The other form is called *Superimposed or crossed double-wave beads.* In this case the two waves cross one another so as to make a pattern consisting of a series of ellipses (fig. 77).

Wave and spot beads. These beads are similar to the last but have in addition a spot in the centre of each ellipse. The spots are usually of another colour (fig. 78).

Scrabble beads. When a bead has a thread of glass of another colour, which thread has been applied in an entirely irregular manner, it is sometimes called a *Scrabble bead* (fig. 79).

Mosaic glass beads. Beads with the more elaborate combinations of different kinds of coloured glass are generally called *Mosaic* or *Millefiore beads.* The latter name, however, strictly speaking should only be applied to those forms in which there are representations of flowers.

Chequer beads. When beads have a large portion of the surface divided up into squares of different colours, they are called *Chequer beads.* These

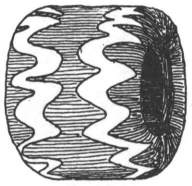

Fig. 76. Double wave bead. Not crossed. Glass, Anglo-Saxon, 6th century A. D.

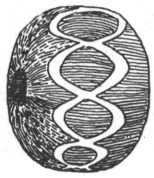

Fig. 77. Double wave bead. Crossed. Glass, Cumae, 500–300 B. C.

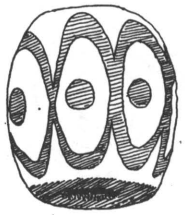

Fig. 78. Wave and spot bead. Glass, Anglo-Saxon, 600 A.D.

Fig. 79. Scrabble bead. Glass, Syria, Roman Period.

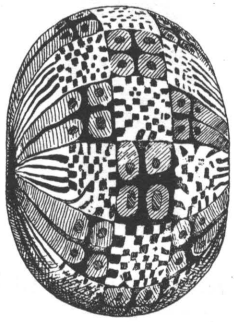

Fig. 80. Chequer bead. Glass, Gotland, A. D. 850.

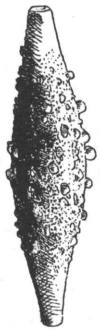

Fig. 81. Crumb bead. Faience, Egypt, XIIth Dynasty.

sometimes consist of simple squares; at other times the canes used to make the squares are themselves very elaborately built up, in which case the bead becomes extremely decorative (fig. 80).

The more elaborate forms of mosaic beads are far too numerous to attempt to describe here, but there is one type which has already been figured in group XXXI. These are called *Glass face beads* (fig. 28; A. 1. b). In these one of the canes is made up so that the cross-section represents a face. There are usually several faces on each bead.

Gilt glass beads. Another form of decoration employed in making glass beads was to put gold leaf into them. The usual method seems to have been to take a hollow cane of glass and cover it with gold leaf, then add some more glass on the outside, and press or mould it into shape. In a few cases there does not seem to have been any additional glass added on top of the gold leaf, which was only fused on to the surface.

A different form was made by blowing a hollow bead and then gilding or silvering it by depositing the metal on the inside of the bead.

Enamelled or glazed glass beads. Occasionally glass beads are decorated with thin bands of enamel or glaze over portions of their surface. This may be combined with other forms of decoration, but somewhat the same remarks apply to these beads as to the faience beads, where the question of glaze is discussed more fully.

2. *Frit*

The decoration of frit beads is almost entirely limited to the original colour of the material, and to the shape into which it was made.

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Fig. 82. Splashed glaze bead. Faience, Egypt, XIIth Dynasty.

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Fig. 83. Faience bead with glazed spiral. Egypt, XVIIIth Dynasty.

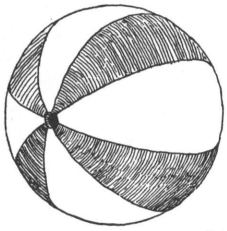

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Fig. 84. Sector globe faience bead. Egypt, XIIth Dynasty.

3. *Faience*

There are three principal methods of decorating faience beads:

a. By sticking on crumbs.
b. By glazing with different coloured glazes.
c. By moulding patterns on them.

a. *Crumb beads.* These are made by cementing crumbs of faience into the glaze. Several kinds of regular beads were treated in this manner. This form of decoration was continued for a great time in Egypt, where such beads were made from the Vth to the XVIIIth Dynasty (fig. 81).

b. *Glazing with different coloured enamels or glazes.*

Splashed glaze beads. One of the simplest forms of using glazes of two colours was to splash glaze of one colour on top of glaze of another colour. Beads so treated are called *Splashed glaze beads* (fig. 82).

Glazed spiral faience beads. These beads have a spiral band in a dark glaze painted on to a light coloured long cylindrical or barrel shaped bead (fig. 83).

Glazed zone faience beads. These beads are similar to the last, but they have a series of dark circles painted round the bead, instead of a spiral band.

Sector globe faience beads. These are large spherical beads which are divided into eight sectors. The sectors are usually alternately glazed dark and light blue, or black and blue (fig. 84).

c. *Faience beads with moulded patterns.* There is an enormous number of faience beads in which the pattern is made by moulding.

Ring and dot faience beads. This pattern is moulded on the bead and then glazed. The pattern is also sometimes painted with a darker glaze so as to increase the effect (fig. 34 a, A. 5. b).

Inscribed faience beads. These are faience beads which have inscriptions either moulded on them, or painted on them with a different coloured glaze.

Great numbers of beads of regular forms have amulets either moulded or painted on them. These are best included in the groups to which the amulets belong.

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Fig. 85. Painted eye bead. Egypt, XIXth Dynasty.

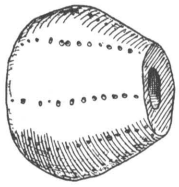

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Fig. 86. Pricked pottery bead. Italy, Etruscan.

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Fig. 87. Carved lacquer bead. China, 18th century A.D.

A spherical bead, with a uchat painted on it with some form of pigment which has been fired, is shown in fig. 85. This bead belongs to group XXXI, A. 3. c.

4. *China Beads*

There are two main methods of decorating china beads, Underglaze decoration, and Overglaze decoration.

Underglaze decoration. This was the usual form of decorating china beads. The pattern was painted on the bead with a fusible paint; the painting was allowed to dry, and then the bead was glazed all over.

Overglaze decoration. In this case the bead is glazed first, then the decoration is painted on the glaze, and the bead is fired again. This method is uncommon in beads.

The decoration of china beads is usually of a very elaborate nature, often being similar to the decoration on china vases.

5. *Pottery and Clay Beads*

These beads are frequently decorated by moulding, in which case many of the remarks made with reference to faience beads apply.

Pricked decoration. This form of decoration, although occasionally met with in faience beads, is so much more common in pottery ones, that it is

included here. There are two forms, *Irregular pricked beads* in which the pricks are quite irregular, and generally cover the whole surface of the bead (fig. 34 a, A. 3. b), and *Pricked pattern beads* in which a pattern is made by means of pricked holes (fig. 86).

Bucchero beads. These are made of the fine black Etruscan pottery called bucchero nero. Both simple and elaborate beads were made of this.

Gilt pottery and clay beads. These beads were decorated by cementing on to them a layer of gold leaf. This was not at all an uncommon method of decoration.

Pill beads. These are a special form of bead made out of clay, and sun dried. They appear to have been made by rolling a small piece of clay between the finger and the thumb, and then piercing it with a needle. This method sometimes leaves small marks on the surface.

6. *Beads made of Lacquer*

Lacquer beads. This term usually refers to the type which was made by taking a core of wood or papier mâché, and then painting it with a great number of coats of lacquer. If it is wished to separate them definitely from the carved lacquer beads, they can be called the *Painted lacquer beads.*

Carved lacquer beads (fig. 87). These beads have the pattern carved in lacquer. Some of them are solid lacquer, others have a core of some other material, with a thick layer of lacquer round it. A further coat of lacquer is occasionally added after the bead is carved.

These beads are generally of Chinese origin, although they are also found in Japan, whilst the painted lacquer beads are usually Japanese.

In both varieties the decoration is generally of an extremely elaborate nature, but some of the simple forms mentioned above may be found.

INDEX

Discussion

Prof. Myres expressed his indebtedness to the author for a masterly paper which had been illustrated by a beautiful set of examples on the screen. Archaeologists were at a loss when confronted with material of that kind, and modern excavators had felt the difficulties due to a want of method, but the ideal method, if it could be adopted, would be ruinously expensive. Beads had an enormous variety with subtle differences in technique which made them especially useful for dating. He had, when excavating in Cyprus, found beads in every tomb, but it was difficult to use the evidence, as the subject as a whole had been neglected, though certain classes had attracted undue attention. The author had complicated the scheme in a tantalizing manner by including pendants, which were above all difficult to define. Another point that challenged discussion was the place of manufacture; but apart from such debatable matters, a fixed classification and nomenclature of beads would be a boon to archaeologists.

Sir Herbert Jackson said it was interesting to note that while the Egyptians were familiar with the beautiful red beads made from cuprous oxide, the Saxons could make orange yellow beads from the same oxide. These often contained red portions. He esteemed it a privilege to have been of assistance to the author by chemical researches; and believed that beads would throw light on many vexed questions in history.

Sir Martin Conway thought that discussion could add little to the paper, and welcomed a scheme of classification for what he had been collecting in the form of illustrations for many years. The author had left off where his own interest began—in the Anglo-Saxon and the Merovingian periods; and the multitude of types in Europe involved many problems. A chronology was needed even more than a classification, but the former was complicated by the survival of beads through many generations. He thought the Aggri beads were earlier than the Egypto-Roman period to which they were often assigned: they had been seen in wear recently in the Sudan, and might be 2,000 years old.

Dr. H. R. Hall thought the Society had not had such an interesting archaeological paper for a long time: the illustrations had been specially instructive. With Mr. Beck's assistance he had re-classified the beads in his Department of the British Museum, and found that collectors of former days had been careless in stringing them, specimens of different dates and origins being often associated. Mention had been made of a piece of glass found by himself, not at El Obeid but at Abu Shahrein in Mesopotamia: it dated before the time of Bursin of the third dynasty of Ur. Unexpected materials were used for beads at various periods. He had found granulated beads, blue on blue, at Deir el Bahri; others were made of straw, and the scarab was sometimes a bead, sometimes a seal.

Mr. Reginald Smith inquired more particularly about the centres of origin, and asked if any types could be regarded as native to Britain. The segmented bead found in Bronze Age burials both in England and Scotland had been compared with Egyptian specimens of the XVIIIth dynasty; but there was some reason to regard them as home-made, and in any case it was difficult to account for their distribution. Chevron beads again could be seen in many museums of Britain, but there seemed to be no case of association with datable objects. A paper such as Mr. Beck's cried out for ample illustration in colour, but reproduction on that scale was expensive, and had been seldom undertaken by the Society, for example, Miss Layard's Anglo-Saxon necklaces from Ipswich in *Archaeologia*, lx. Beads were evidently plentiful in classical and post-classical times, but he could not call to mind many medieval specimens and it was only recently that they had again become fashionable. Their small size, durable material, and portability all added to the difficulty of tracing them to their homes and giving even limiting dates to their manufacture. He felt that Mr. Beck's first paper as a Fellow of the Society had been a great success.

The PRESIDENT returned thanks on behalf of the Society for a paper on what had rightly been called a fascinating subject. The universality of beads was remarkable, and indicated the value of beads as well as the immutability of sex. To judge from pictures beads were not uncommon in the middle ages, and ornaments of that kind had a very human interest, as they were connected with many incidents in life. Mr. Beck had done a service in showing that beads carried with them a lesson in science and history, and he hoped the matter would be followed up in another paper.

Mr. BECK replied that there were some beads of the thirteenth or fourteenth century in the Guildhall Museum, and referred to the large triptych in the Salting collection. He had not dealt with dates in the paper which was mainly concerned with classification, with a few hints as to methods of manufacture. He had endeavoured to fix several hundred technical terms, and thought that many difficulties would disappear under the microscope, which revealed differences in material invisible to the naked eye. Alleged similarities might in that way be put to a crucial test.