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WALEED MOHAMED ABDULRAHIM AL-SADEQI

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**Department of Archaeology,  
Durham University**

**THE ANCIENT BEADS  
OF BAHRAIN:**

**A Study of Ornaments  
from the Dilmun and Tylos Eras**

**- Volume II -**

**Waleed M. Al-Sadeqi**

**The Ancient Beads  
of Bahrain:  
A Study of Ornaments  
from the Dilmun and Tylos Eras  
(Vol. II of III)**

**Waleed Mohamed Abdulrahim Al-Sadeqi**

**Submitted for the degree of PhD in Archaeology**

**Department of Archaeology**

**Durham University**

**2013**

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## **CHAPTER 9**

### **Manufacture, Morphology, and Bead Typologies**

#### **9.1 – Purpose**

Related to bead materials are the manufacturing methods and perforations employed to produce finished beads. Manufacturing methods are relevant because different techniques are applied to different substances and not all are the same. The reason behind perforation being associated with materials is simply that certain kinds are only encountered with certain substances and not others, whilst other kinds are primarily associated with this or that material and only occasionally experience modification. But once both have been applied to the raw material being worked with, the resultant bead exhibits peculiarities of shape that distinguish it from others of its kind. These, combined with considerations of material, produce our final bead types: the plethora that characterizes our bead typology of Bahrain.

The purpose of this chapter will therefore be to examine the Bahrain beads in terms of the above. Individually, manufacturing methods, perforations, shapes, and bead types will be considered as they feature in the Bahrain sample. Once all these have been covered, a return will be made to the archaeological narrative of the previous two chapters, but from the standpoint of these aspects of the beads, especially the bead types, which form the basis of the Bahrain typology, thus bringing new light to our understanding of the role beads played in ancient Bahrain.

## 9.2 – Manufacturing Methods

### The Most Prevalent Beadmaking Process: Drawing and Snapping

#### A. Defining the Drawing-Snapping Method

It is important, before discussing how specific manufacturing methods are exhibited in the Bahrain sample, to point out the range of actions involved. Many of these are based specifically on the raw material or medium being employed to produce a bead. Specific ones are “modifications” used either on the raw material or the finished product (e.g. heating to redden carnelian and paint applied to a bead’s surface, respectively) and often impinge on such qualities as colour, appearance, and even hardness. An example of the last is heating employed to harden steatite to Mohs’ 5 from its original Mohs’ 3 (Kenoyer, 2003: 15).

The actions referred to above, when performed as a definite series, comprise what may be regarded as a particular manufacturing method or “beadmaking process”. A number of these processes have been identified through examination of the Bahrain sample’s beads (see Fig. 1). The most prevalent is that of drawing (molten glass) followed by “snapping” the end of the glass tube so produced. 1,333 cases of this procedure (without any additional steps) have been noted in the Bahrain sample, out of the 4,813 total; it therefore dwarfs the numbers attributed to the other manufacturing methods. The prevalence is directly related to that of glass in the sample.

“Drawn” beads generally involve a hollow tube of molten glass having been “pulled” to its desired length before being separated from the rest of the tube to produce a distinct bead (see Fig. 2) (Francis, 2002, 11, 23, Pl. 8; Morrison, 1991, 379; Van der Sleen, 1973, 23-25, Fig. 2). Certain drawing procedures involved combinations that were aimed to produce specific bead types. For instance, a number of beads in the Bahrain sample were both drawn and segmented. With these, the tubes were “pinched” using a pincer-shaped device into respective segments (see Fig. 3) (Boon, 1977: 193; Francis, 1989: 28; Van der Sleen, 1958: 205). It should be added that another method of manufacturing segmented beads was through the use of “stone blocks with grooves in one face”, which produced “bulges” upon tubes of molten glass (Francis, 2002: 11).

## **B. The Drawing-Snapping Method and Glass Microbeads**

The abundance of drawn-snapped beads, indicated above by the 1,333 cases (that is, almost 27.7% of the Bahrain sample) may be explained through similar variations of the drawing method. This is because the drawing-and-snapping combination is represented for the most part (though not exclusively) by glass microbeads. Indeed, of the 1,937 microbead total in the Bahrain sample, 1,101 cases are of the drawn-snapped glass variety; that is, over 56.8% of the microbead total and over 22.8% of the sample (i.e., microbeads form over 40.2% of the sample) (see Fig. 4).

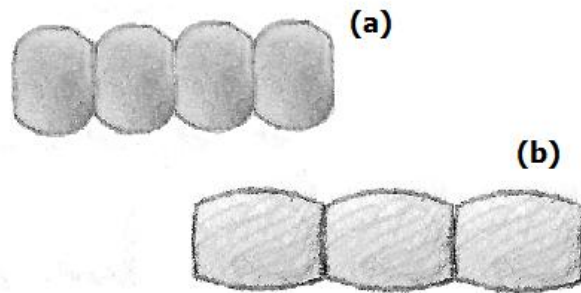
Since well over half the microbeads were manufactured via the drawing-snapping combination, and no other type is so conspicuously represented, we may turn to this variety to understand the prevalence of the combination in the Bahrain sample. What is immediately noticeable is that the small size of the microbeads (and the fact that they are usually found in large quantities) makes the drawing-snapping combination useful in three ways. Firstly, it provides an easier means of manufacturing since, for glass beads, a lengthy drawn tube of glass is first produced and then manipulated rather than minute items individually manufactured, whether drawn or wound (which is a painstakingly difficult task). Secondly, it allows large quantities of glass microbeads to exhibit uniform qualities and features, something otherwise difficult to do with individually produced specimens. This is especially important since microbeads were often displayed side-by-side and abundantly in many decorative pieces. And thirdly, it allows for these same large quantities to be easily produced; hence, “mass production” becomes a benefit altogether enticing when beadmakers are faced with the demand for such microbeads. Certainly uniformity and mass production are desirable when dealing with any product sought in numbers, but particularly so in the realm of microbeads.

From the foregoing, it may be deduced that the glassworking centres from which ancient Bahrain obtained its beads were not only skilled but catered to a demand fostered by large groups of consumers requiring a particular variety of product in great numbers. The features of an industry may thus be detected, with specialists to deal with the demand put upon them.

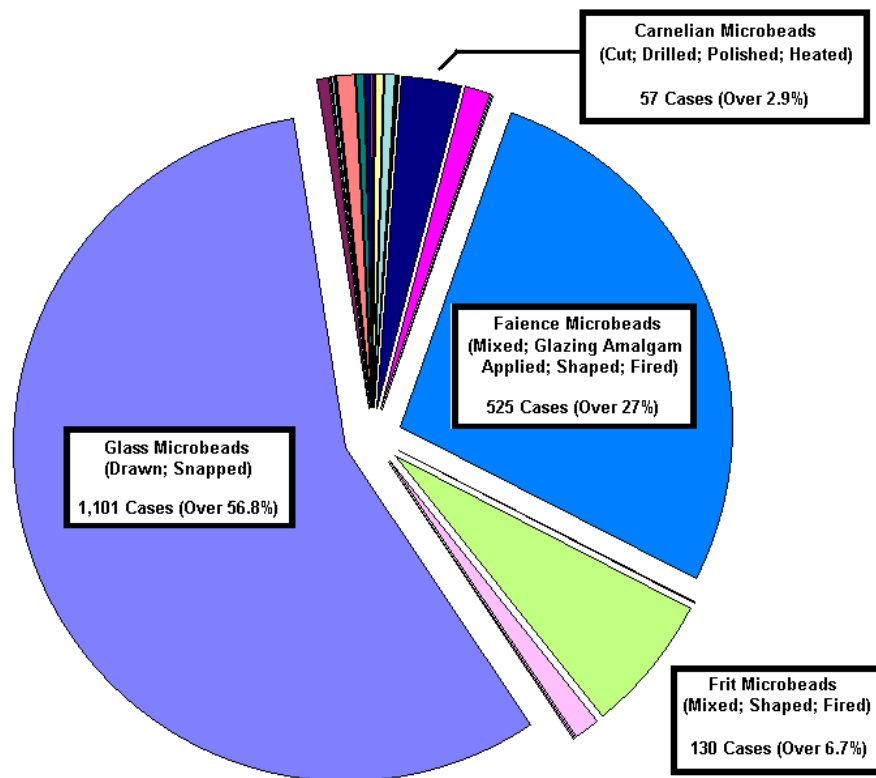




**Fig. 2.** An illustration of the drawing method of glass bead manufacture. A tube of molten glass is drawn out, before individual beads are produced and severed from it.



**Fig. 3.** Illustrations of segmented beads, exemplifying the (a) Long, Circular, 4-segmented Short Barrel and (b) Long, Circular, 3-segmented Long Barrel, according to the Tripartite Method (see below).



**Fig. 4.** Breakdown of the 1,937 microbeads in the Bahrain sample by material and beadmaking process, with the four main ones identified. It will be observed that the glass drawn-snapped microbead forms the majority.

### C. Drawn-Snapped Glass Microbeads from Period II

For further understanding of the picture so portrayed, it may be useful to turn to two of the three epochs best represented in the Bahrain sample: Periods II and V. Period IV need not concern us, because no drawn-snapped microbeads have been obtained from it. Before embarking on an examination of the epochs, it is useful to recall that Periods II and V are not equally represented in the Bahrain sample, though they are the two best-represented eras in it. Moreover, glass items (beads included), though manufactured, were not produced in abundant numbers till 1700-1500 BCE onwards (see Lankton, 2003: 39). We are fortunate to have Period II as our second best-represented epoch, which makes up somewhat for the last point, but owing to the conditions stated, it is probably best to examine the drawn-snapped variety of glass microbead against other varieties in each epoch respectively, and then attempt a cross-period comparison.

The earliest glass microbeads in the Bahrain sample belong to Period II; the preceding Period Ib had only produced four carnelian ones. 381 microbeads in the sample are from Period II, and the glass ones (totaling 49) were mostly drawn-snapped (see Figs. 5-6). The 42 drawn-snapped cases (just over 9% of the Period II microbead total) were recovered from two Iia-c contexts: 33 were obtained from 'Aali's Mound 29 whereas nine were recovered from an undetermined burial context in Shakhoura (see Pl. I).

That very few of the Period II microbeads were glass, and that the ones that were came from only two contexts, may be explained by the already-mentioned lack of widely available glass manufacture and products at that time, which situation did not change till Period Post Iic. However, only one microbead (B173), not of glass, may possibly be dated to the Post Iic period in the Bahrain sample; it has been assigned to a Iic-Post Iic chronological range (see Fig. 7). Post Iic glass microbeads are absent in the sample, which may reflect the breakdown of social complexity and economic importance towards the end of Early Dilmun as Bahrain experienced a decline and arrived at a low ebb in these areas.

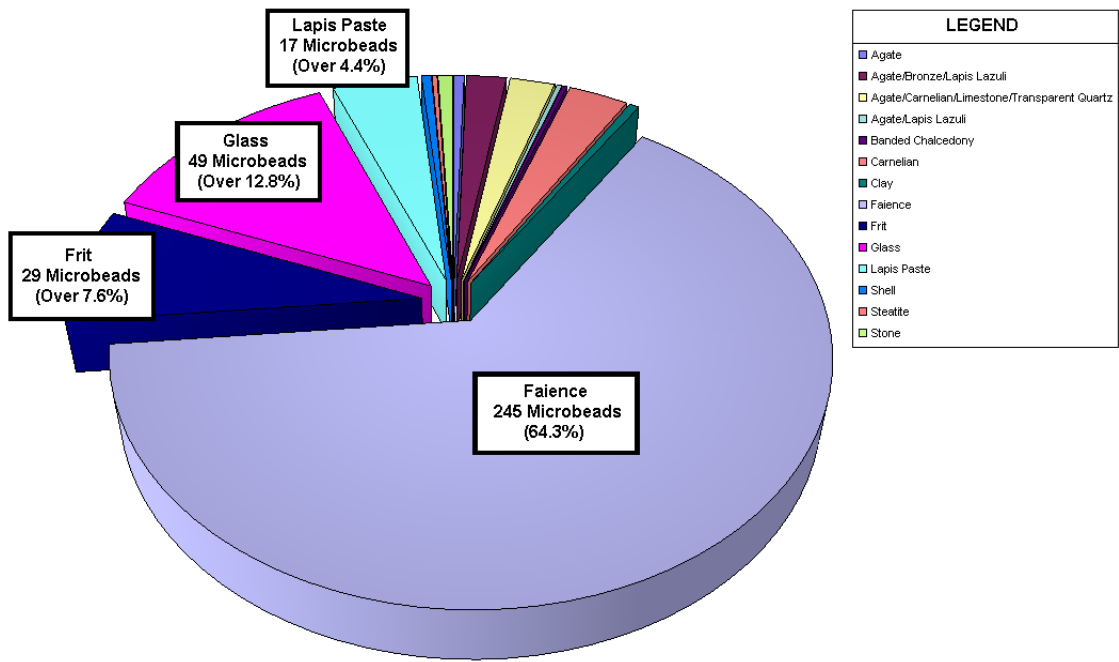
The two contexts that have provided Early Dilmun drawn-snapped glass beads seem more than coincidental, especially when one recalls that in Chapter 8.5 the suggestion was put forward that Shakhoura may have possessed or been near a glassmaking and/or glassworking centre in Period II and that 'Aali could have represented a limit of the geographic zone of this centre's influence. Since our microbeads were recovered from these two sites, they could

indicate the activities of a local glassworking centre (instead of or coupled with a glassmaking one), perhaps in the geographic zone so defined.

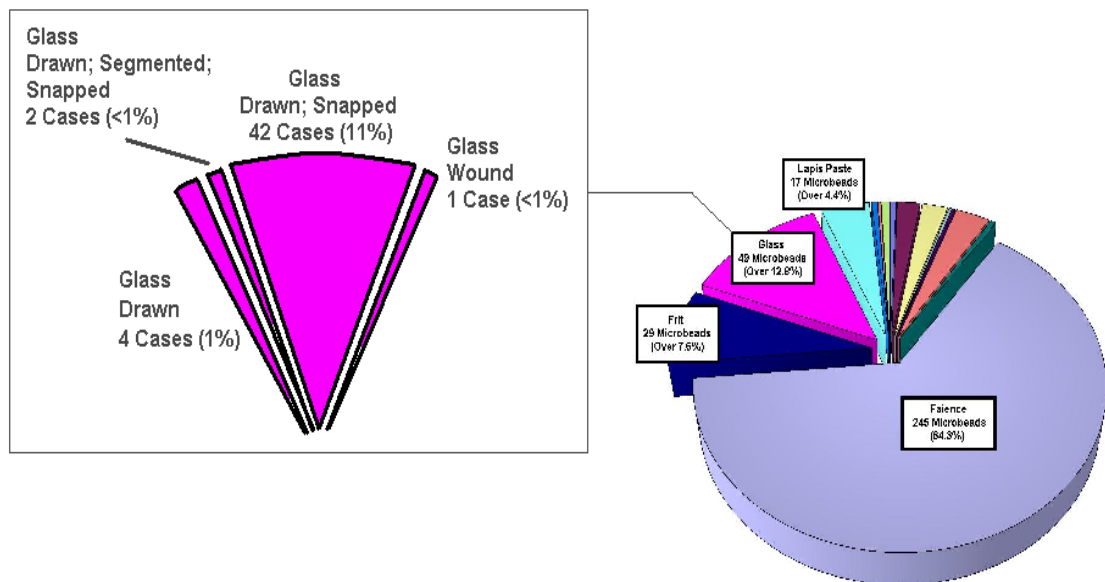
It is also important to point out that Shakhoura and 'Aali turning up with regard to drawn-snapped microbeads is not necessarily explained by these two sites having provided the largest glass bead amounts, if such an argument may be put against them. A flaw in this argument becomes evident when one considers that al-Hajjar is another site that has produced a significant Period II glass bead quantity (one of the largest) and yet, whilst five drawn-snapped beads (with a sixth being also a segmented case) have been contributed by it, no microbeads have been provided (see Figs. 8-9). Moreover, a number of other sites have also given us Early Dilmun glass beads – Hamad Town, Karranah, Qala'at al-Bahrain, and Saar – but none of these are drawn-snapped microbeads.

Finally, the observation may be put forward that whilst 'Aali has provided the largest drawn-snapped glass microbead amount of Period II, Shakhoura has contributed the greatest number of Early Dilmun glass beads overall, which state of affairs indicates that drawn-snapped microbead quantities do not exactly reflect glass bead amounts. If they did, Shakhoura would have (archaeologically) produced a far greater number of drawn-snapped glass microbeads. Most of the Shakhoura Period II glass beads (17 cases) were in fact made by the folding process, whilst the third most prominent manufacturing means amongst the Shakhoura Early Dilmun glass beads of the Bahrain sample, after drawing-snapping, is the plain drawing method (seven cases).

Of course, two contexts for drawn-snapped glass microbeads are not much to go on, and more evidence is required before a definite assertion can be made for a local glassworking industry. However, the glass bead quantity from Period II Shakhoura, examined in the previous chapter, provides a good case when augmented by drawn-snapped glass microbead numbers. For now, in the absence of further evidence, it is nonetheless equally feasible to assume that Dilmun obtained its glass microbeads from another, perhaps foreign, site. Such beads were the province of glassworking centres in West Asia as well as India, from which numerous archaeological examples have been obtained. Bahrain was in contact with these regions, as epigraphic sources and certain bead materials attest (e.g. the cuneiform letters from Mari and the presence of carnelian in the Bahrain sample) (see Højlund, 2007: 124). Dilmun could therefore have easily obtained finished glass microbeads from its commercial contacts abroad.



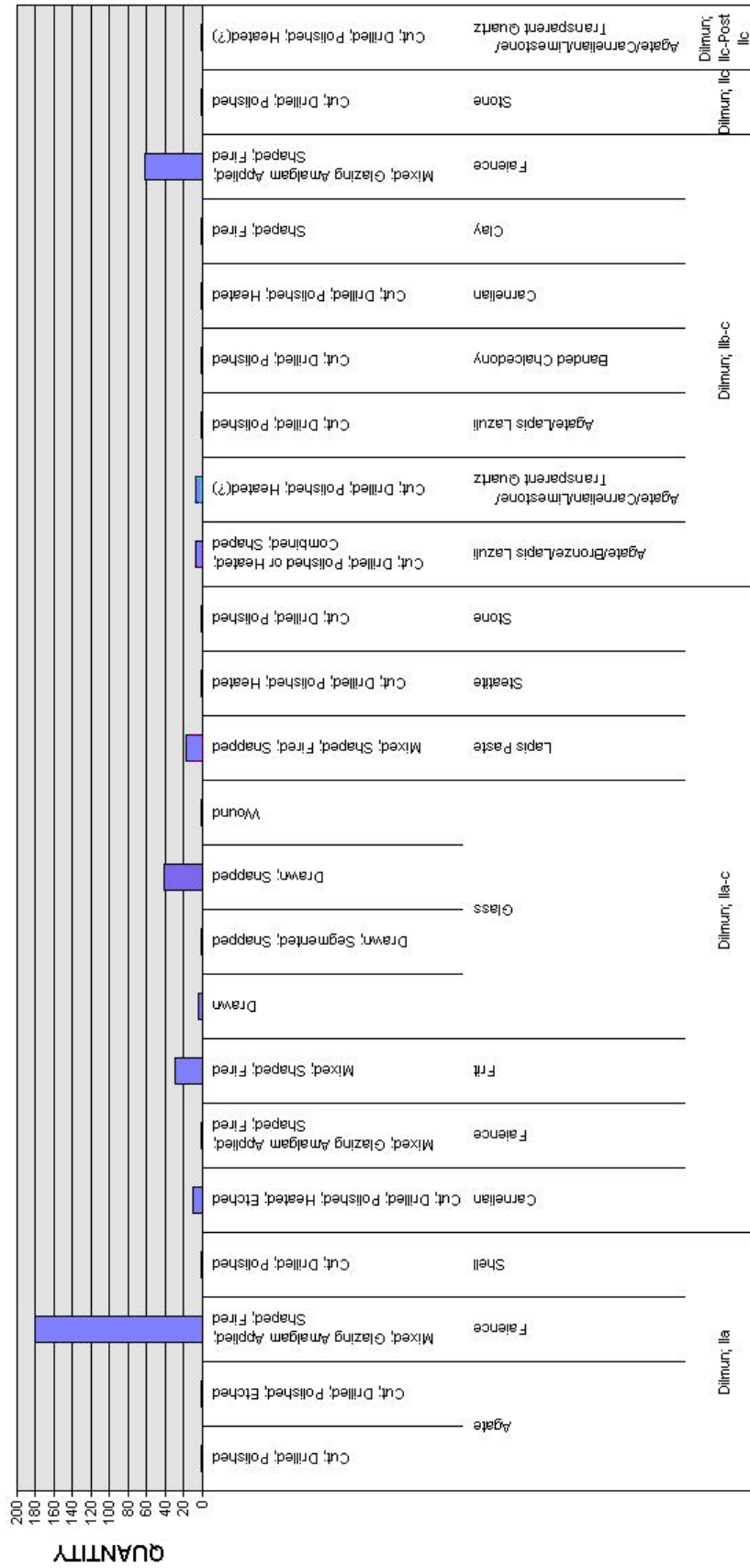
**Fig. 5.** A material breakdown of Period II microbeads (totalling 381), with the amounts and percentages of the four main ones indicated.



**Fig. 6.** A further breakdown of Period II glass microbeads according to beadmaking process. It will be noticed that the drawn-snapped variety forms the majority.

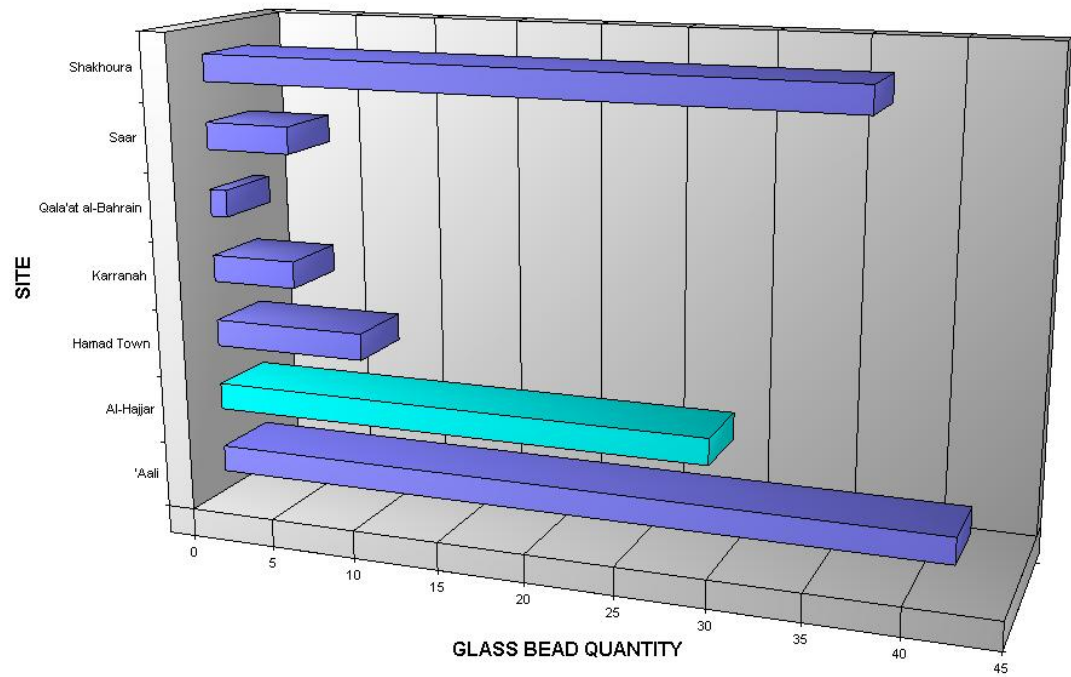


**Pl. I.** A2288, representing B2240 to B2294, from a Period IIa-c burial at Shakhoura. The collection contains 11 glass microbeads (highlighted in the plate), 9 of which are of the drawn-snapped variety. These 9, along with 33 cases from 'Ali, comprise all the drawn-snapped glass microbeads of Period II in the Bahrain sample.

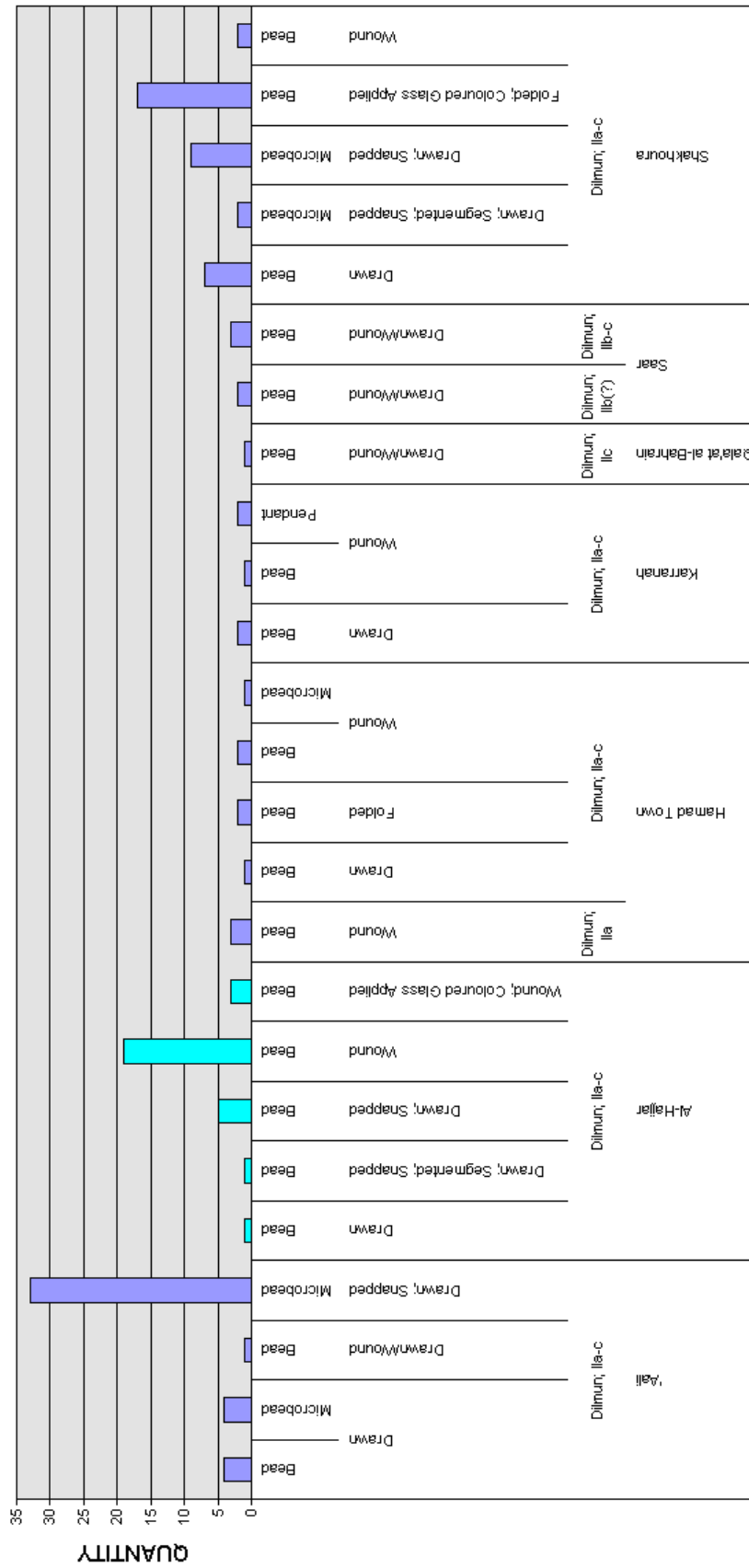


**CHRONOLOGICAL SUBDIVISION/RANGE, MATERIAL, AND BEADMAKING PROCESS**

**Fig. 7.** Period II microbead amounts according to chronological subdivision/range as well as material and beadmaking process. Amounts barely visible represent minute quantities or single cases. It will be noticed that only a single stone microbead belongs to the Ila-Post Ila chronological range.



**Fig. 8.** Relative glass bead quantities from Period II in the Bahrain sample, organized by site. The amount from al-Hajar is highlighted in bright green. It should be noted that beads B1582 to B1584 and beads B1589 to B1591 are not taken into account in this graph, since they could belong to a chronological era other than Period II.



**ARCHAEOLOGICAL SITE, CHRONOLOGICAL SUBDIVISION/RANGE, BEADMAKING PROCESS, AND FUNCTION**

**Fig. 9.** Period II glass beads from various sites, organized according to chronological subdivision/range, method of manufacture, and function (denoting microbead status or otherwise). The quantities from al-Hajjar are highlighted in light green. Beads B1582 to B1584 and beads B1589 to B1591 are not taken into account in this graph, since they could belong to a chronological era other than Period II.

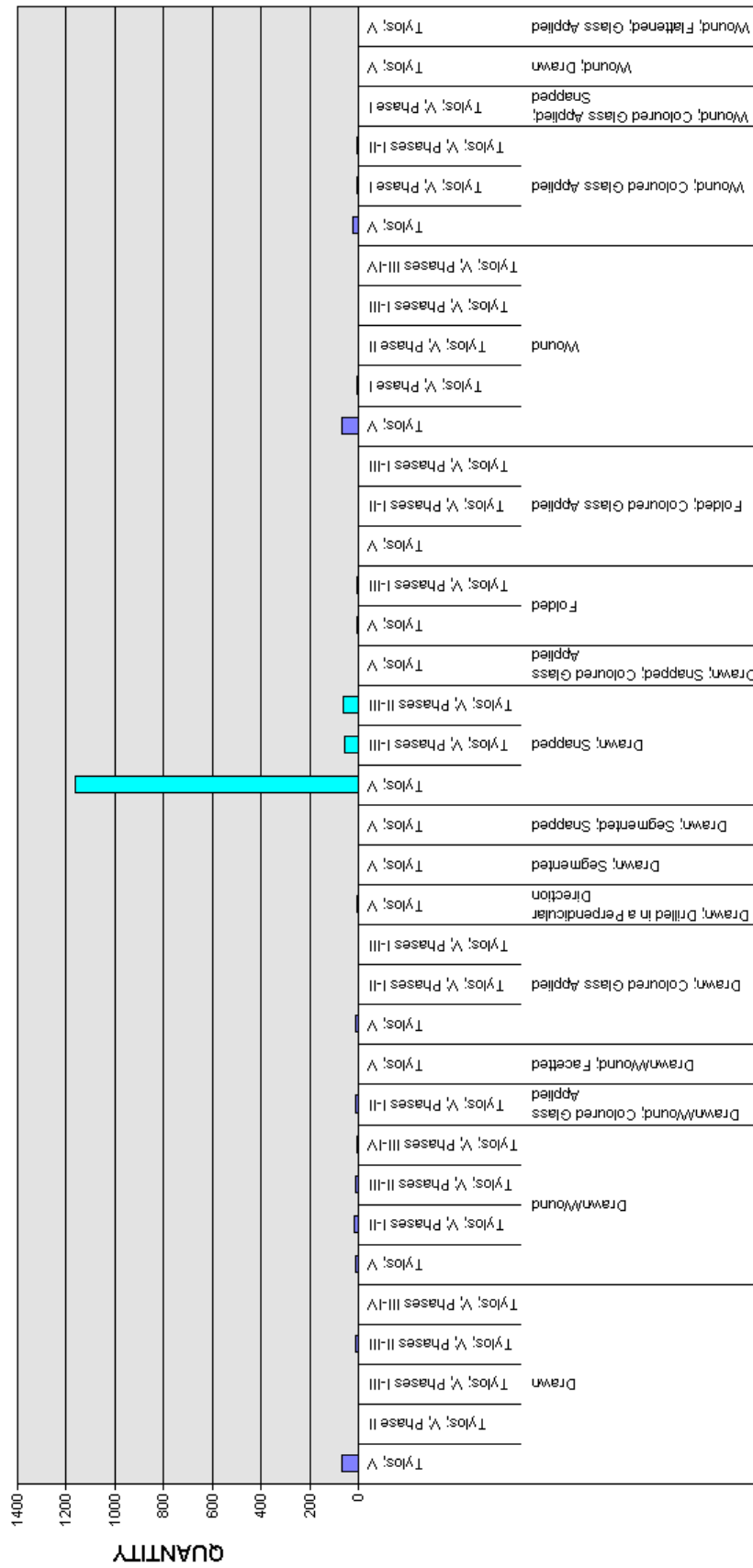
#### **D. Drawn-Snapped Glass Microbeads from Period V**

The Bahrain sample has 1,059 drawn-snapped glass beads from the Tylos era, most broadly defined as Period V specimens (see Fig. 10). Exceptions have been assigned to Phases I-III or II-III chronological ranges. The 1,059 drawn-snapped specimens form over 97.2% of the 1,089 glass microbead total and 70% of the 1,511 Tylos microbead amount (see Figs. 11-12).

Compared to their Period II counterparts, both percentages show a marked increase in Period V. In terms of the enormous leap from just over 9% in Period II to 70% in Tylos with regards to the second, the huge difference must be partly attributed to the great amount of glass in Period V; which is understandable given the flourishing glass industries of the Hellenistic and Roman eras (see Francis, 2002: 87-88; Lankton, 2003: 53-54, 63). The first Period V percentage indicates a greater reliance upon the streamlined mass production method of drawing and snapping in the Tylos era, whilst the second takes the information provided by the first further by showing us that the method became the preferred means of producing microbeads even as glass became the preferred medium for their manufacture as a result of the Hellenistic and Roman flourishing described above.

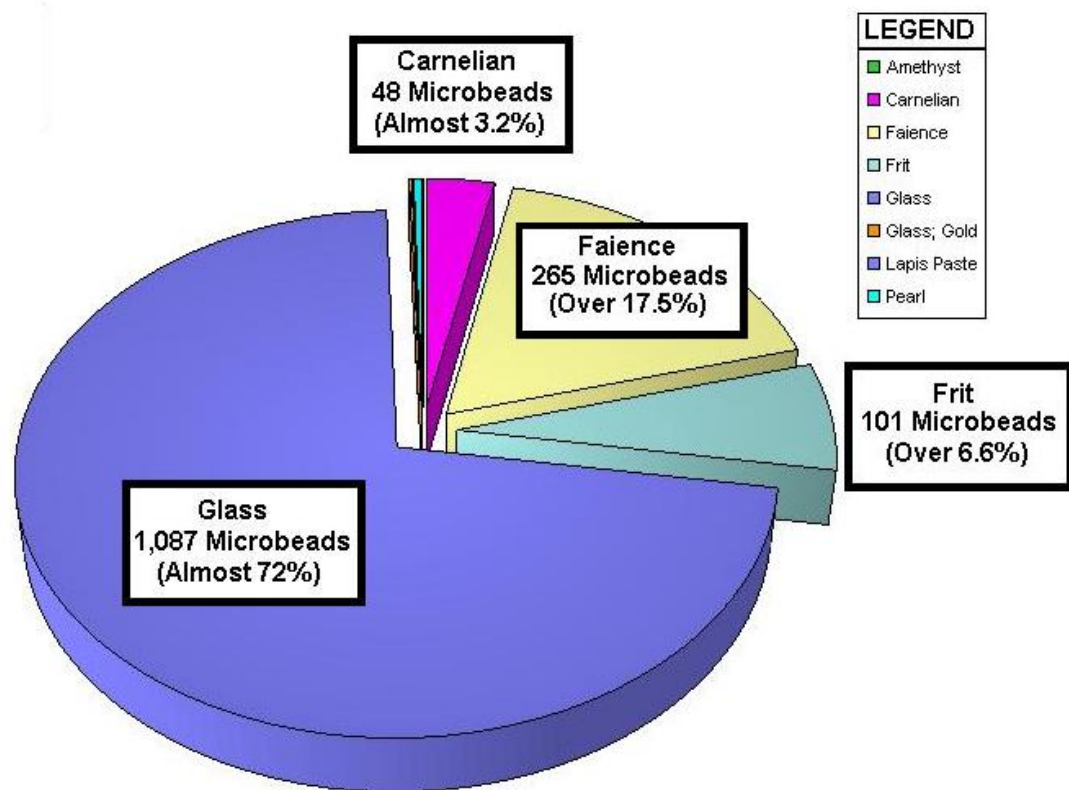
In terms of the breakdown of the drawn-snapped glass microbeads by site, some interesting observations may be made once again in support of a glassworking centre (instead of or alongside a glassmaking one) in the geographical zone associated with Shakhoura, eclipsed somewhat by Saar and augmented by the possibility of a further centre located at or near Hamad Town. This has already been suggested by glass bead amounts in the previous chapter.

Since Period V drawn-snapped glass microbeads form such a huge percentage of the total Tylos glass bead amount (almost 67.9% of 1,560 beads), it may be assumed that their numbers more precisely reflect glass bead amounts from various sites. In the cases of Saar, Shakhoura, Hamad Town, and some of the other sites, this assertion is indeed true (see Fig. 13). Whilst a good percentage of glass beads from each site are not of the drawn-snapped variety, over half from Saar, Shakhoura, and Hamad Town certainly are; and definitely the majority in terms of Saar. It should therefore be borne in mind that these three sites have not only given us the largest Tylos glass bead amounts, but also the largest drawn-snapped glass microbead quantities as well; and these in the order of decrease in which they are listed above.

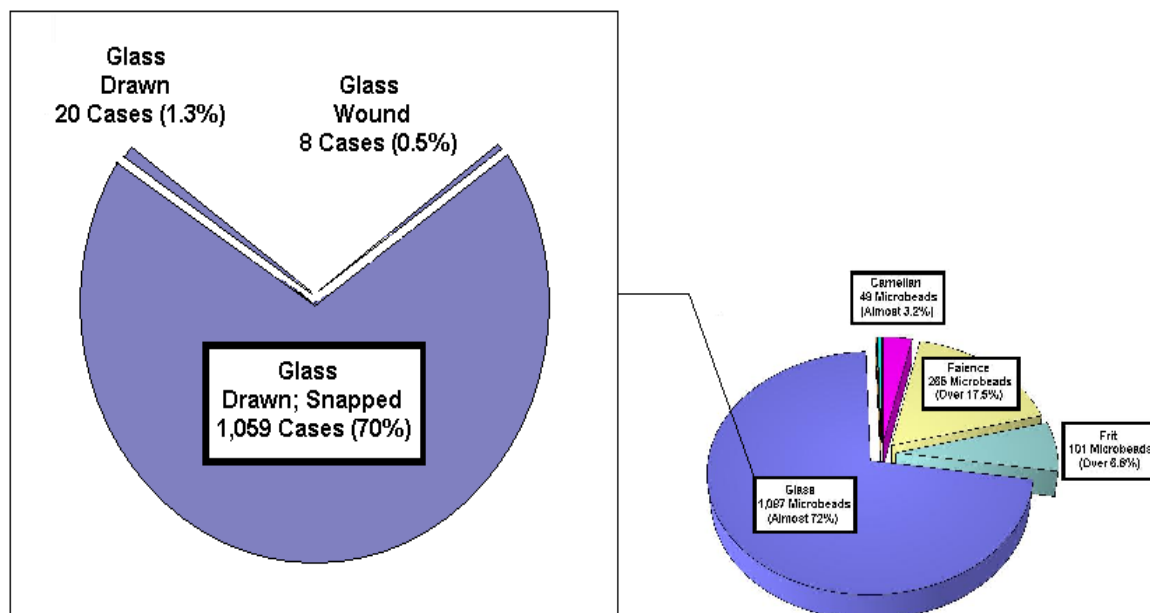


**TYLOS GLASS BEADS BY BEADMAKING PROCESS AND CHRONOLOGICAL DESIGNATION**

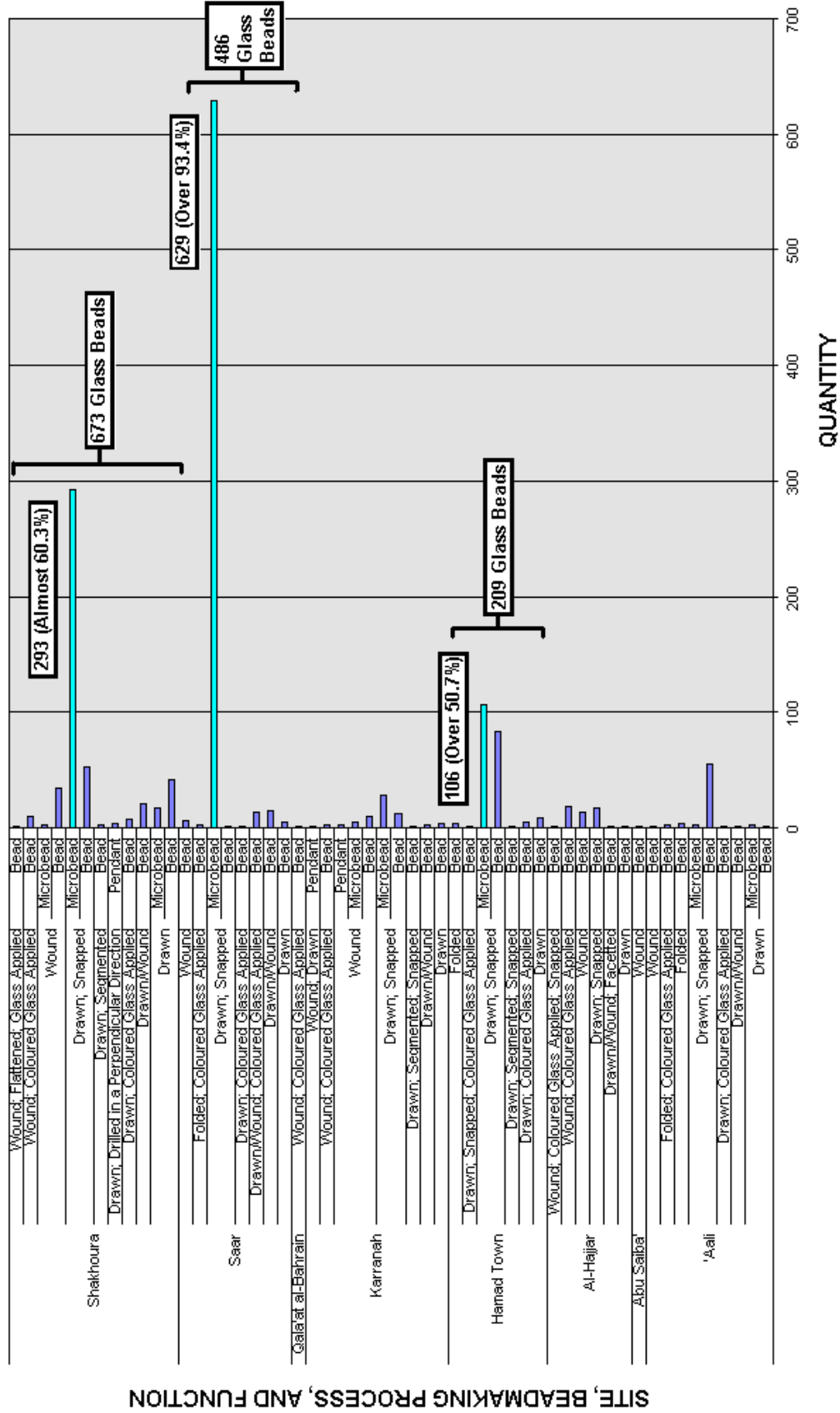
**Fig. 10.** An examination of Period V glass bead amounts from the standpoint of method of manufacture and chronological designation. Seemingly non-existent amounts indicate very minute numbers or else single cases. Moreover, it will be noticed that the greatest number of Tylos glass beads are of the drawn-snapped variety, highlighted in light green.



**Fig. 11.** A material breakdown of Period V microbeads (totalling 1,511), with the amounts and percentages of the four main ones indicated.



**Fig. 12.** A further breakdown of Period V glass microbeads according to beadmaking process. It will be noticed that the drawn-snapped variety forms the majority.



**Fig. 13.** Period V glass bead amounts by site, beadmaking process, and function (i.e., possessing microbead status or not). The drawn-snapped microbead amounts from Saar, Shakhoura, and Hamad Town have been highlighted, and their respective numbers and percentages given.

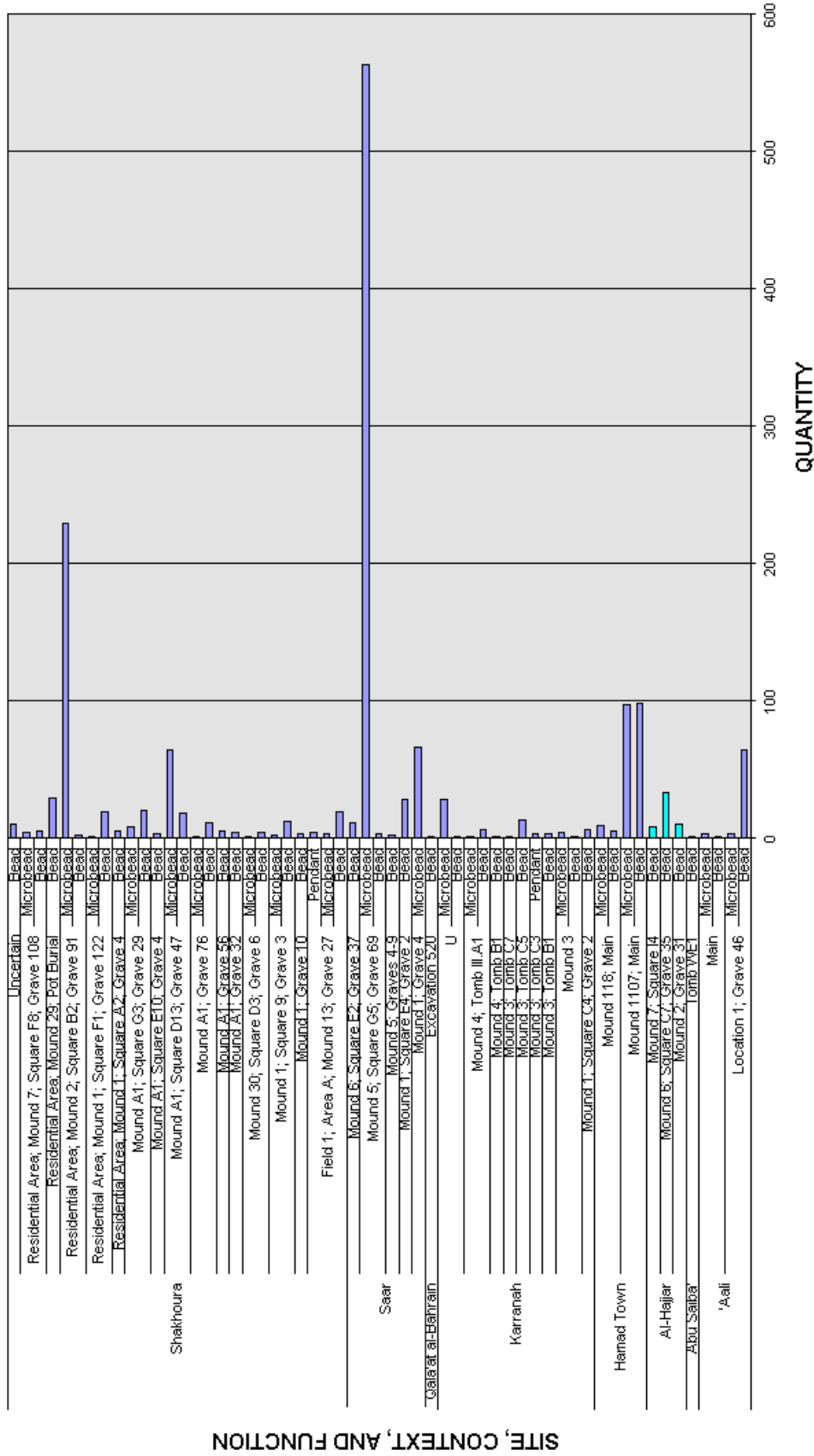
Karranah (28 beads and almost 41.2% of its glass specimen total) and ‘Aali (three beads or almost 14.3% of its total) are other sites that have contributed drawn-snapped glass microbeads to the Bahrain sample. The former indicates another locale – with a fairly prominent drawn-snapped percentage – within the geographic glassworking zone attributed to Saar and Shakhoura whilst the latter marks the southern limit of the zone and where it meets another based at or near Hamad Town (see Chapter 8.5).

Sites that have contributed Period V glass beads but not drawn-snapped microbeads of this material include Qala’at al-Bahrain, Abu Saiba’, and al-Hajjar. Whilst the first two have only one Tylos glass bead in the Bahrain sample, and so any lack of drawn-snapped glass specimens is understandable, the last presents an interesting case in that it is one of the sites with a more visible Tylos glass bead turnout (51 cases) but also one without drawn-snapped microbead cases.

Why the absence of such microbeads at al-Hajjar, particularly when it is within such close proximity of Shakhoura and Karranah (given that a glassworking centre may have functioned within their vicinity)? The simplest explanation lies in that all 51 glass beads from al-Hajjar were obtained from three burials; this is a very small number compared to two of the other sites with major glass bead amounts mentioned above (e.g. 15 contexts at Shakhoura and 9 at Saar; Hamad Town is the only exception with two contexts) and so the lack of a certain variety is comprehensible (see Fig. 14).

Based on drawn-snapped glass microbead amounts as well as glass bead amounts in general as they relate to Period V, four observations may be made. Firstly, the enormous difference (and the enormity must here be stressed) in glass bead numbers between certain sites and others indicates more than a preferential leaning towards this material, particularly in a spatial area the size of Bahrain; one possibility is local manufacture based on two geographic zones delineated by the glass bead amounts. Secondly, it is uncanny that two of the sites (Shakhoura and ‘Aali) possibly associated with a similar Period II geographic zone should again feature in Period V; this suggests that more than mere coincidence is involved. Thirdly, extensive usage of the drawing-snapping manufacturing procedure amongst the glass beads at the sites concerned implies a specialized industry involved in mass production being active behind the beads so produced. And fourthly, since the ratio of drawn-snapped glass microbeads to glass beads in general at the sites concerned displays a very high tendency towards the former, and this across most sites (‘Aali being an exception), it is reasonable to assume that either all the locales in the geographic zones associated with manufacture were

similarly affected (thus supporting the notion of one or more local production centres) or else that a preference towards such beads was exhibited, necessitating their arrival from a foreign specialized source (if local manufacture is to be discounted).

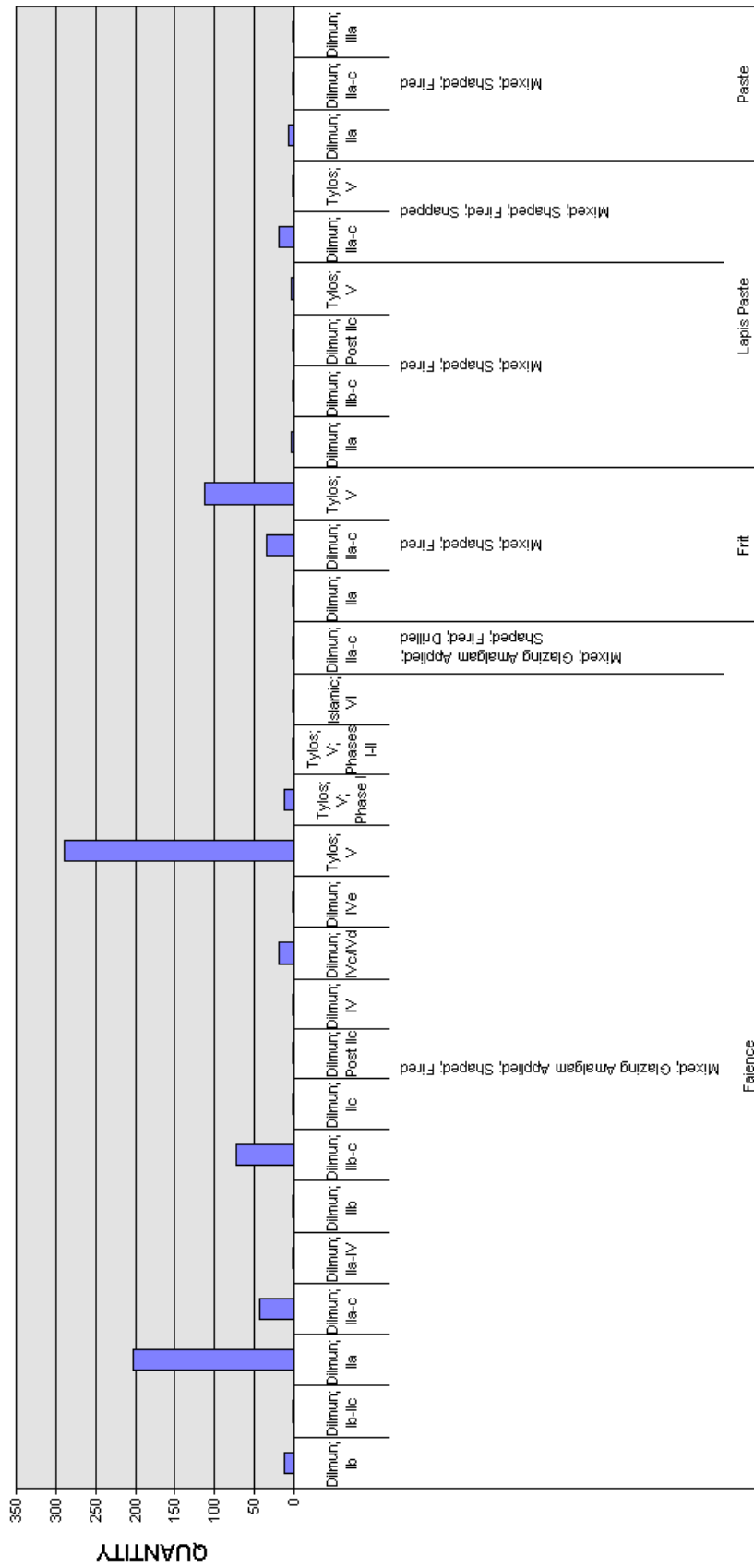


**Fig. 14.** Distribution of regular beads and microbeads across contexts at Period V sites. Those from al-Hajjar are highlighted in bright green. Beads B367, B368, B374, and beads B3744 to B3752 are not taken into account in this graph, since their attribution to Period V is questionable.

## **The Beadmaking Process behind Faience Specimens**

Following the drawing-snapping method of glass bead production, the second most widely used means of manufacture conveyed by the Bahrain sample is a procedure consisting of the following: mixing (silica, lime, and alkali), applying a glazing amalgam, shaping the mixture so produced, and firing the whole to produce a bead. This is the common basis behind the manufacture of faience beads (Lankton, 2003: 45; Van der Sleen, 1973: 17, 61).

The 662 definite and ten possible cases (almost 13.8% or 14% depending on whether or not the latter are included) of the procedure's use exhibited by the Bahrain sample all depict faience specimens. Amongst the definite cases, a variation requiring the drilling of a faience bead following all other manufacturing steps has not been counted. The procedure that had been used to make the 149 frit beads in the sample is identical to that of faience, except that no glazing amalgam is employed for frit (see Lankton, 2003: 45; Van der Sleen, 1973: 17, 61). Ten respective cases of general paste and lapis paste beads in the Bahrain sample were also made following almost the same manufacturing procedure; that is, the one assigned to frit. There are also 21 lapis paste beads in the sample that were formed in the same manner, but had their ends snapped and so are "severed" individual specimens that originally belonged to one or more paste tubes. The use of the manufacturing procedures characterizing faience and frit/paste/lapis paste in the Bahrain sample charts the developments associated with each material respectively across the chronological periods of Bahrain's past (see Fig. 15). These have been described to some extent in the previous chapter.



**MATERIAL, BEADMAKING PROCESS, AND CHRONOLOGICAL PERIOD/SUBDIVISION/RANGE**

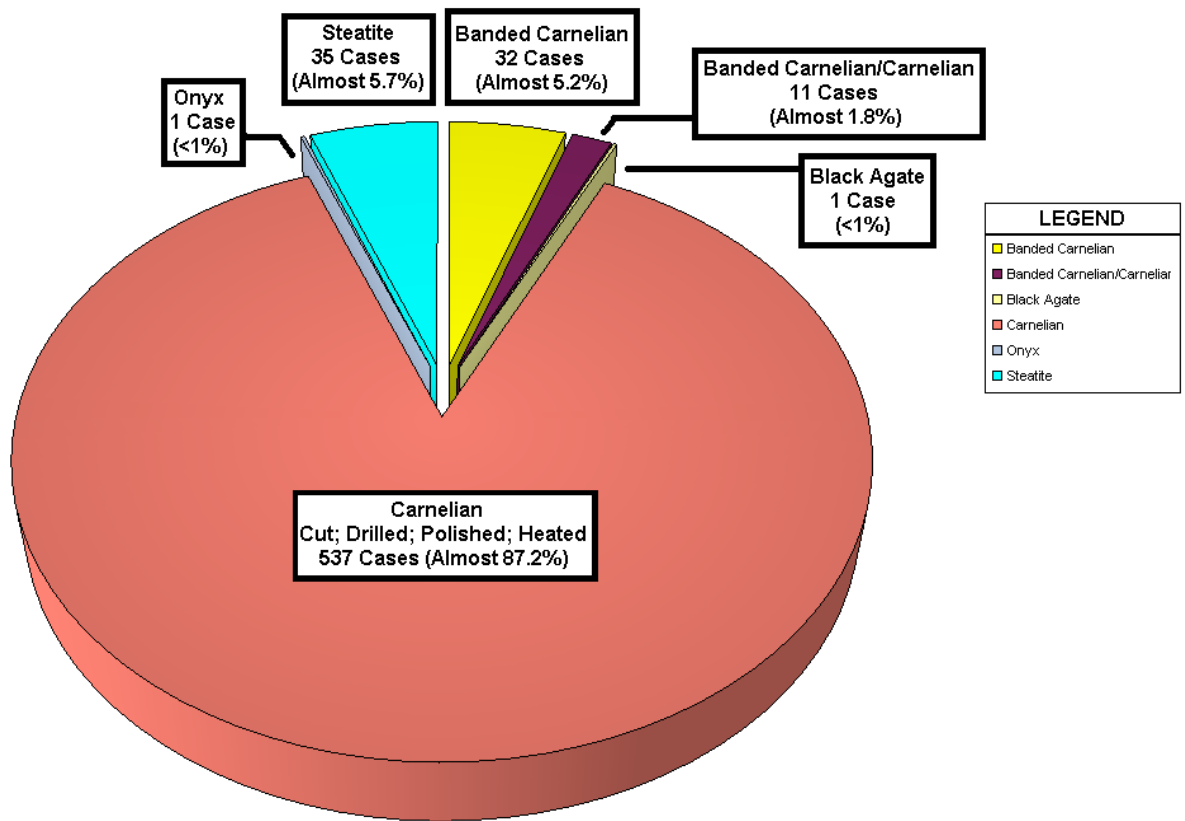
**Fig. 15.** The number of cases in the Bahrain sample involving beadmaking processes associated with faience, frit, lapis paste, and standard paste.

## **Mineral Bead Manufacture: Processes Associated with Carnelian/Banded Carnelian Specimens (Etched or Otherwise) and Other Stone Specimens**

### **A. The Manufacturing Method Used to Produce Non-Etched Carnelian/Banded Carnelian Beads**

The third most visible manufacturing procedure in the Bahrain sample, in terms of the number of beads produced thereby, is that of cutting (the raw material, in this case a stone), drilling the bead blank so formed, polishing it, and heating it (see Francis, 2002: 12-13, 112-113; Kenoyer, 2003: 14-19; Mackay, 1937: 3-5). This last was sometimes initially applied to the raw material itself rather than as a final step, and only occasionally repeated at the end (De Waele and Haerinck, 2006: 33; Kenoyer, Vidale, and Bhan, 1991: 51-52, 55; Mackay, 1937: 15). This procedure, whilst identical with that used for most stone beads apart from the heating (the latter having been employed in 426 cases in the Bahrain sample, in over 8.8% of the bead total), is a variation specific to particular materials. In most cases, carnelian (both the regular and banded variety) is the material that displays such treatment; exceptions indicated by the Bahrain sample include 35 steatite beads (that had been heated to harden the stone) as well as a black agate and an accidental onyx specimen (both had been turned dark by exposure to high temperatures) (see Fig. 16) (see Francis, 1991: 36-37; Francis, 2002: 13; Lankton, 2003: 27; Mackay, 1937: 15). B3736, a definite black agate bead, reveals traces of red indicating that it was a carnelian turned almost entirely black (see Pl. II).

616 definite and 62 possible cases representing the cutting-drilling-polishing-heating method have been noted in the Bahrain sample; that is, almost 12.8% or else 14% (if the 62 possible cases are counted) of the bead total. The above figures refer to cases in which the manufacturing method was employed without any additional step such as etching or painting.



**Fig. 16.** Pie chart depicting percentages of the cutting-drilling-polishing-heating beadmaking process in the Bahrain sample attributable to different materials. The percentages were acquired against a backdrop of only those 616 cases of the process' use which are certain.



**Pl. II.** Some of the beads from the collection designated A511 by the Bahrain National Museum and obtained from a Period IIa-c context (Grave 2 of Mound 614) at Hamad Town. The dark bead at the very bottom of the plate is B3736, a black agate specimen that resulted from the overheating of carnelian.

### **B. The Manufacturing Method Used to Produce Etched Carnelian/Banded Carnelian Beads**

The manufacturing method described above – cutting, drilling, polishing, and heating – can be treated as a wholly distinct procedure when augmented by etching. Despite the “misnomer”, etching actually refers to the application of an alkaline solution to the surface of a bead (usually of carnelian) to create particular patterns (De Waele and Haerinck, 2006: 33; Francis, 2002: 147-148, 239; Mackay, 1933: 144-145; Van der Sleen, 1973: 69, 73-74). Once the bead has been heated, the patterns are reproduced upon its surface in white, often in stark contrast with the natural colour of the material being employed (De Waele and Haerinck,

2006: 33; Francis, 2002: 147-148, 239; Mackay, 1933: 144-145; Van der Sleen, 1973: 69, 73-74).

There are also other forms of etched beads, such as those possessing black designs produced through the application of a “metallic solution” instead of an alkaline one, or even black designs upon a white etched bead, where both metallic and alkaline solutions have been employed (De Waele and Haerinck, 2006: 33; Francis, 1999: 52; Francis, 2002: 147; Reade, 1979: 5). None of these other varieties are encountered in the Bahrain sample.

Moreover, decorative etching – in which deliberate patterns are employed – are quite rare in the sample (see Pl. III). Most examples of etched beads – and the majority are of etched carnelian – depict a wholesale application of alkali to the bead; that is, the bead was entirely soaked in alkali so that the entire surface (or almost the entire surface) could be turned a white or cream-coloured hue (see Pl. IV). Often such etching was done without much care being given to thoroughness, so that patches of red have been noted on many carnelian specimens; the same goes for the base hues of other materials in certain cases.

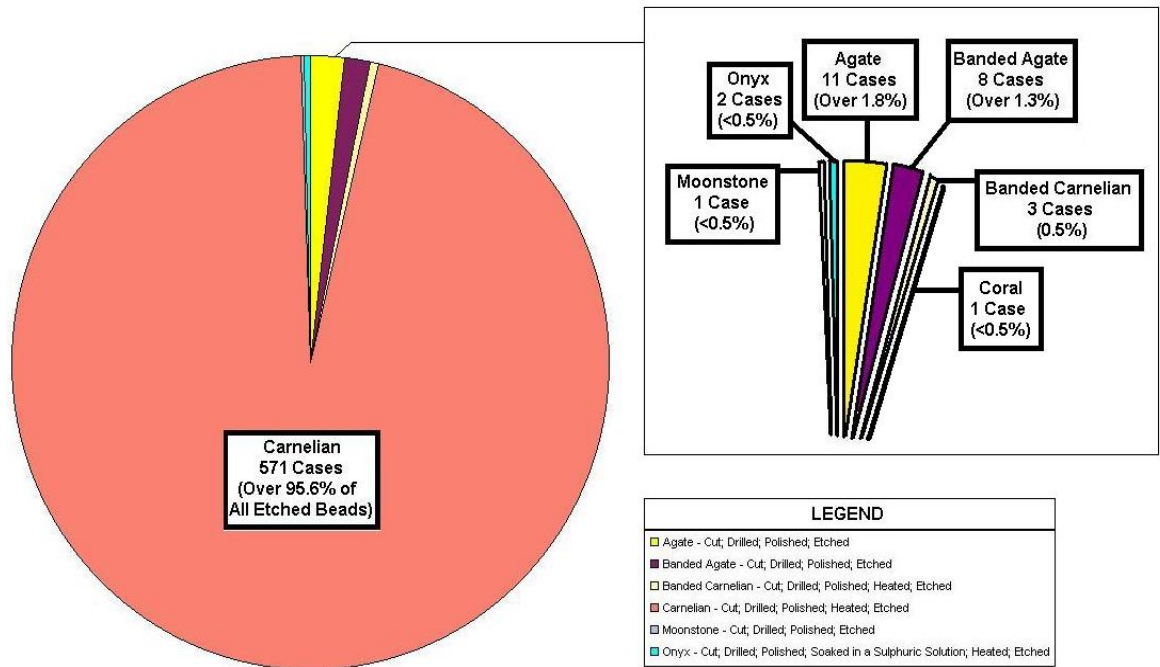
In the Bahrain sample, there are 20 cases (and an additional possible one) in which etching was added on to a cutting-drilling-polishing procedure; this was observed primarily with agates (see Fig. 17). Etching was also applied to black-and-white onyx in two cases (B4638 and B4642). Both onyx beads were from the same burial – Grave 4 of Mound A1’s Square E10 – and belong to Phase II of the Tylos era. However, the majority of etched beads in the Bahrain sample is of carnelian and was produced by the cutting-drilling-polishing-heating-etching procedure. There are 574 definite cases (and a further possible one) in the Bahrain sample manufactured through this procedure (see Fig. 18).



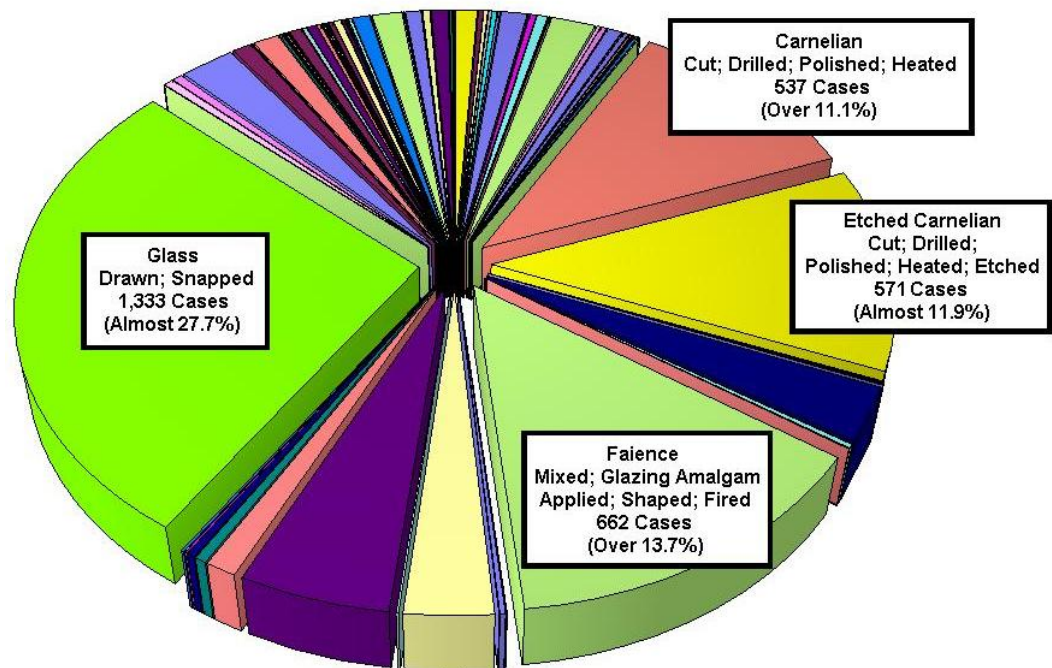
**PI. III.** B4201, recovered from a Ila-c context at Karranah (Mound 1; Square C5; Grave 6), is one of the few beads in the Bahrain sample representing the finer examples of etching. There are only four other such finely etched specimens in the sample: B1239 (also from Ila-c) as well as B3368, B4638, and B4642 (these three from Period V).



**PI. IV.** The Bahrain National Museum's A11065 collection, covering B1910 to B1918, from Mound 414 in the Lowzi area of Hamad Town. These beads exhibit the wholesale etching characteristic of the vast majority of etched beads in the Bahrain sample.



**Fig. 17.** Etched beads by material, quantity, and percentage as well as beadmaking process. All percentages were obtained against the backdrop of the Bahrain sample's 597 etched specimen total.



**Fig. 18.** Pie chart showing the four major material and beadmaking process combinations in the Bahrain sample. The numbers and percentages attributed to regular and etched carnelian bead manufacture are indicated.

### **C. Period II: A Comparison between the Standard and Etching-Geared Methods of Manufacturing Carnelian/Banded Carnelian Beads**

When comparing the standard cutting-drilling-polishing-heating procedure used to make carnelian beads (and occasionally steatite and black agate ones) to its variation (which includes etching as an additional step), certain aspects of bead production come into focus. This is especially the case when the quantities attributed to these two manufacturing procedures are compared across the three best-represented epochs in the Bahrain sample: Periods II, IV, and V.

In Period II, 270 beads were definitely produced via cutting, drilling, polishing, and heating whilst 60 beads may have been made in this manner (see Fig. 19). As with all considerations of Period II when taken solely in this work, we are excluding uncertainties as well as chronological ranges that extend beyond Early Dilmun or begin in Period I. Similarly, we find that 450 Period II beads were made through the cutting-drilling-polishing-heating-etching variation. The former represents over 15% or over 18.4% (the second percentage if one includes the 60 possible specimens) of the total amount that can be ascribed with certainty to Period II (1,792 beads). The latter represents over 25.1%. In terms of definite cases of the former manufacturing procedure, this last percentage is more than double it and indicates over a quarter of all Period II stone beads. It may therefore justifiably be assumed that etched carnelian beads (for this stone does indeed form almost the entire amounts just referred to) were appreciated far more than regular carnelian ones in Period II (see Fig. 20).

Set against the backdrop of regular stone bead manufacture (usually only cutting, drilling, and polishing) – 267 definite and 11 possible cases – and its own etching variation – merely twelve cases – certain leanings become clear. These form over 14.9% (or over 15.5%) and over half-a-percent respectively of the total Period II bead amount.

In Period II, etched carnelian was by far the most preferred variety of stone bead, its manufacturing procedure taking centre stage. Just over half as prominent was the manufacturing procedure associated with most stone beads. The manufacturing method used for regular carnelian beads featured somewhat less than that of other stone beads, but when taken individually, it still bore great significance in comparison to these in Period II. The etching of other stones beads was scarcely performed, and only occasional examples are met with in the Bahrain sample. The only manufacturing procedure to come close to that of etched carnelians in the Bahrain sample is the one associated with faience production; this reflects

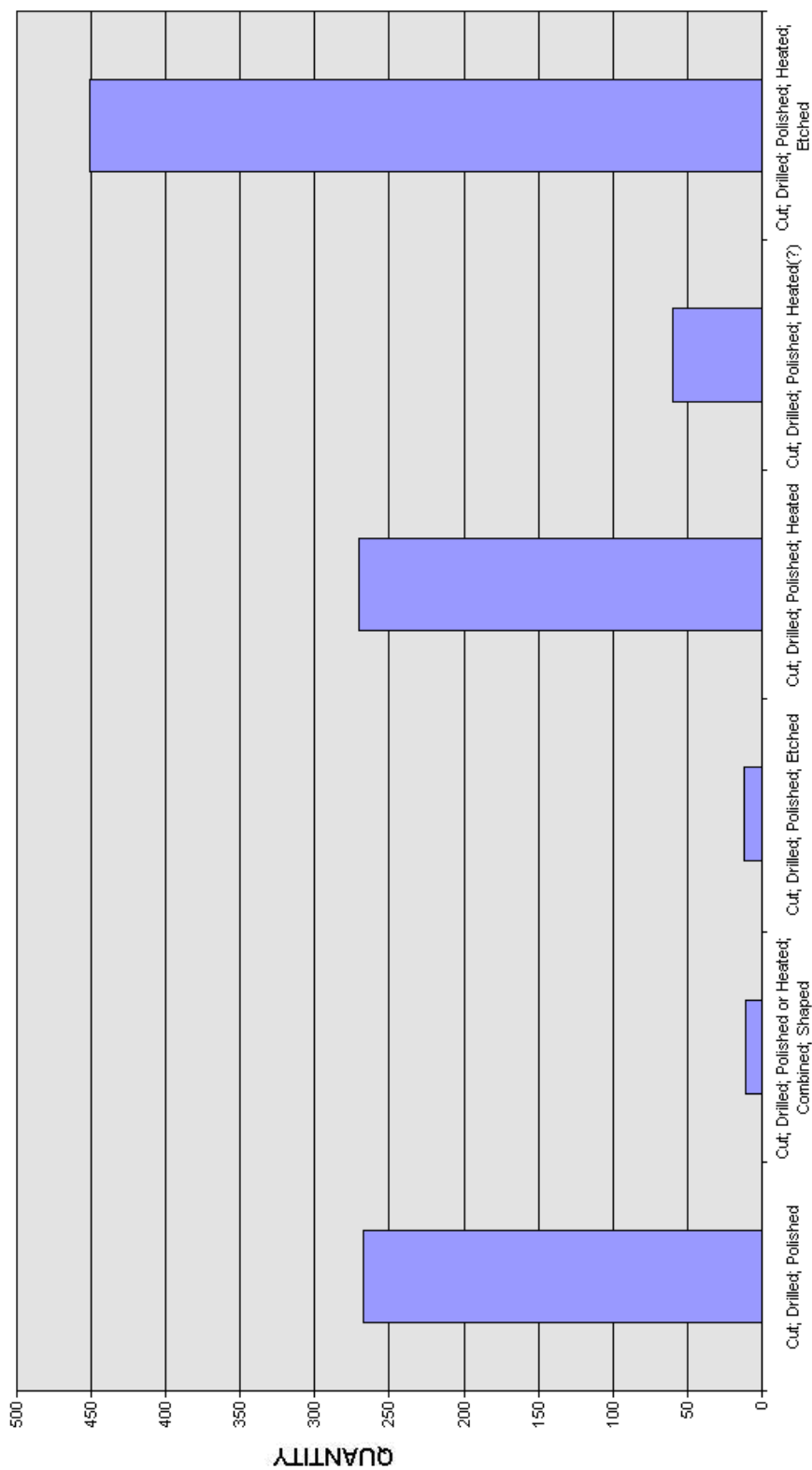
the importance of faience in Early Dilmun, concerning which remarks have already been made earlier in this work.

#### **D. Period IV: A Comparison between the Standard and Etching-Geared Methods of Manufacturing Carnelian/Banded Carnelian Beads**

In the Late Dilmun era, 32 beads were definitely produced via cutting-drilling-polishing-heating; just over 9.6% of all beads securely dated to Period IV (333 specimens) (see Fig. 21). These have proven to be regular carnelian beads except for a single banded carnelian specimen (B2851) and one steatite bead (B2819) (see Fig. 22). Three more beads (B400, B401, and B412) could have been produced via the above procedure; these were from Qala'at al-Bahrain. 57 beads, forming over 17.1% of the total Period IV bead count, were made using the etching variation of the above procedure. These are all of regular carnelian and, with four exceptions from Qala'at al-Bahrain's Snake Sacrifice 9 (B387, B392, B393, B403), came from Late Dilmun reuses of Period II Hamad Town tumuli.

Compared to the above amounts, there are 15 cases exhibiting standard stone bead manufacturing (cutting-drilling-polishing) in the Bahrain sample; this is 4.5% of the Period IV bead total. Only a single case (B390) has been noted in which this procedure may have been supplemented by etching.

In all three cases – the manufacturing process used to generate carnelian and banded carnelian beads, that used for etched ones, and that used for regular stone bead production – the extent to which these featured in Period IV was far less than that of Period II. This makes sense, given that: 1) Period II represents a larger portion of the Bahrain sample; 2) it was a time of greater economic prosperity and social complexity; and 3) a time in which the connection between Bahrain and the Indus was at its height (i.e., in IIa) and would not be regained to anything nearing the same level till the Tylos era.



### BEADMAKING PROCESS

**Fig. 19.** Relative quantities of the cutting-drilling-polishing, cutting-drilling-polishing-etching, cutting-drilling-polishing-heating, and cutting-drilling-polishing-heating-etching beadmaking processes amongst the Period II beads in the Bahrain sample. Possible cases have also been noted independently. However, cases involving additional beadmaking steps such as painting have been excluded as representing distinct beadmaking sequences in their own right. This graphic representation only takes into account those beads that can be securely dated to Period II.

However, when considered “internally” (that is, amongst the beads securely dated to Late Dilmun), the percentages concerned seem informative when compared with the earlier Period II ones. The percentage owed to etched carnelian and banded carnelian beads is still noticeable: over 17.1% compared to Period II’s over 25.1%. Certainly it is significantly lower than the Period II percentage, but still relatively conspicuous. The drop suffered by regular carnelian and banded carnelian manufacture is more severe, with it being over half the “higher end” of the percentage spectrum afforded its Period II counterpart. The severest is that associated with the manufacturing method used for regular stone beads: what was once over 14.9% or 15.5% of the epoch bead total in Period II becomes only 4.5% of the Period IV total.

#### **E. Period V: A Comparison between the Standard and Etching-Geared Methods of Manufacturing Carnelian/Banded Carnelian Beads**

Turning to Period V, we notice that 292 cases of the manufacturing method associated with regular and banded carnelian have been observed amongst the beads dated securely to the Tylos era in the Bahrain sample, and only 47 specimens (as well as one additional uncertain case) in which the etching variation of this method was employed (see Fig. 23). Against this we may set the 114 Period V beads made using the cutting-drilling-polished procedure of regular stone bead manufacture and the six cases in which this was augmented by etching. Out of the Tylos total of 2,564 beads, the regular and etched carnelian manufacturing procedures feature in almost 11.4% and over 1.8% respectively whereas the regular stone bead manufacturing procedure and that of its etched variation represent over 4.4% and over 0.2% respectively.

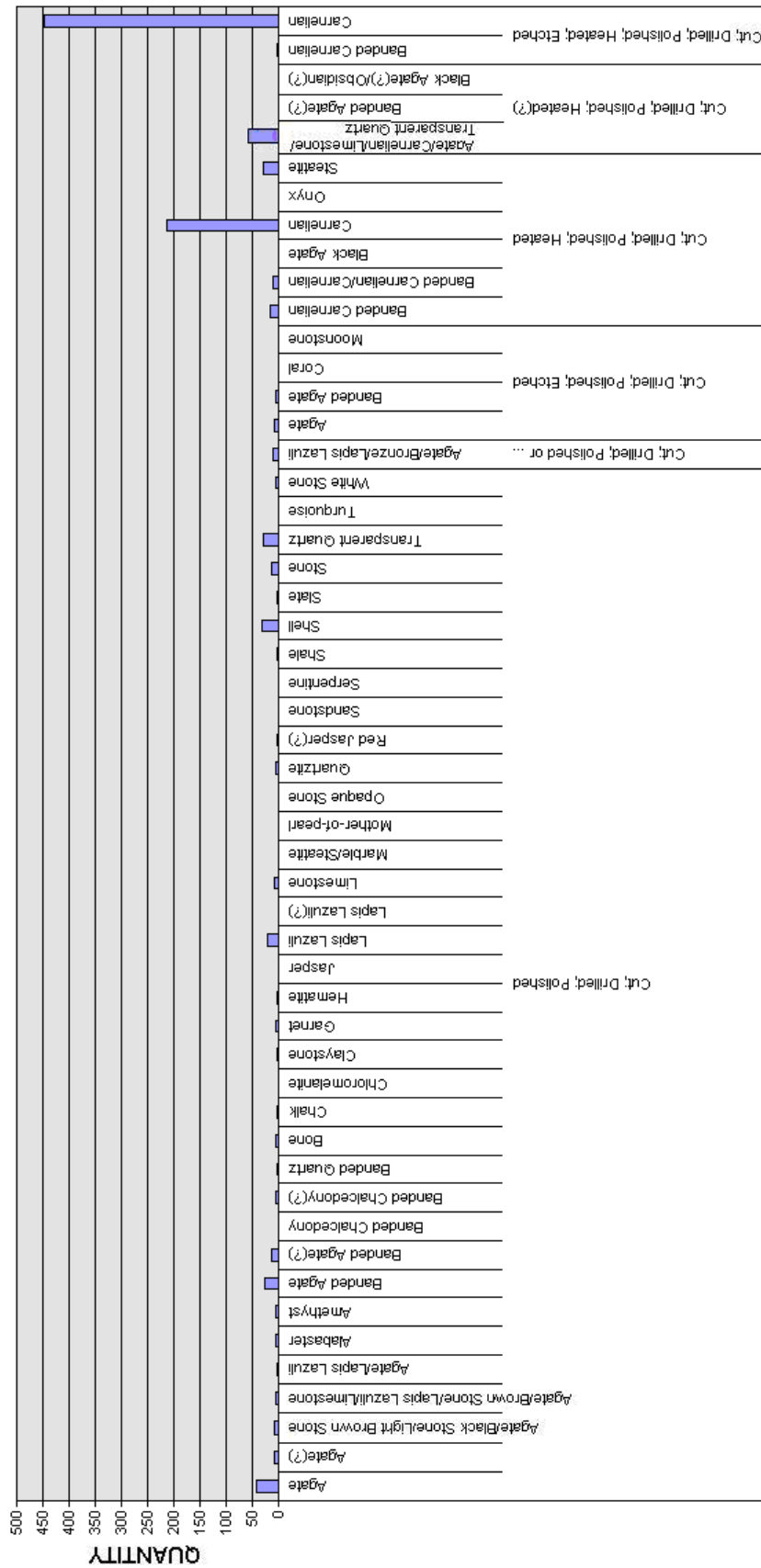
#### **F. Examining the Period II, IV, and V Comparisons Side-by-Side**

Putting the figures and percentages from all three eras – Periods II, IV, and V – side-by-side, it becomes possible to observe a decrease in the percentages over time and from period to period. Period II, the one furthest back in time and with burial sites that have suffered the most robbing (having been afforded the time to be so plundered), still tops the list in terms of all manufacturing procedures discussed in the cross-period analysis.

We thus find that in Period II, owing to carnelian and other stones as well as the etching process being involved, commercial contact with the Indus as well as cultural influence exerted by the latter likely explain the figures associated with its beads.

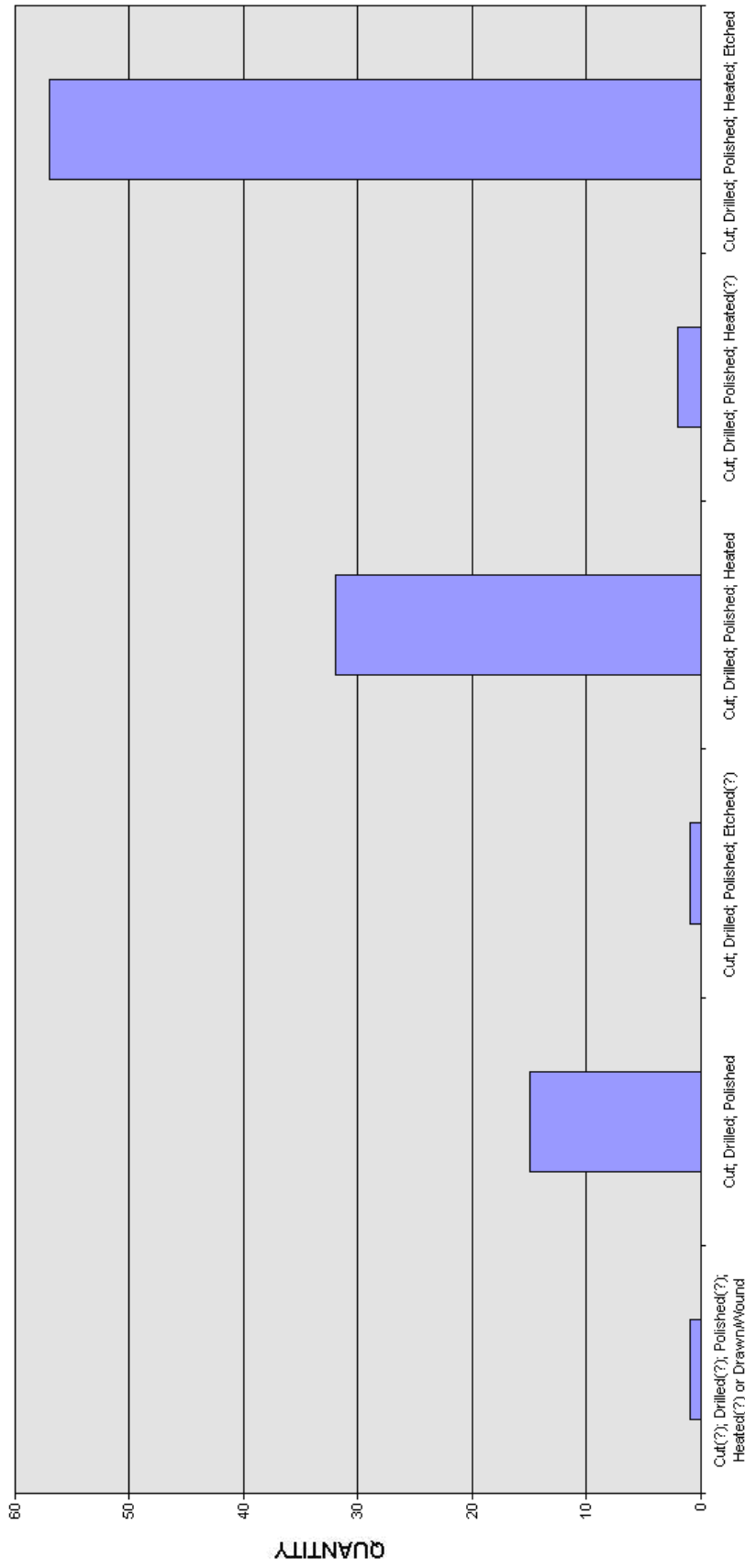
In Period IV, we have the same implications, though to a far lesser extent, indicating that contact with the Indian Subcontinent was present though hardly as strong as during the Early Dilmun epoch. Nonetheless, the inclination towards etching and appreciation for this facet of carnelian beadmaking was still a distinct part of Dilmun material culture.

In the Tylos era, whilst all percentages continue their decrease, a reversal of tendency is observed and for the first time, etched carnelian and banded carnelian beads are outnumbered by their regular counterparts; and severely so, with around a 9.6% difference (see Fig. 24). Compared to the percentage differences in favour of etched carnelians associated with those beads securely dated to Periods II (10.2% or 6.8%, the latter counting possible regular carnelian cases) and IV (7.5%), we find the Period V difference exceeding these (except for the 10.2% one to which it comes within a single percent). To consider this a “reversal” seems therefore accurate.



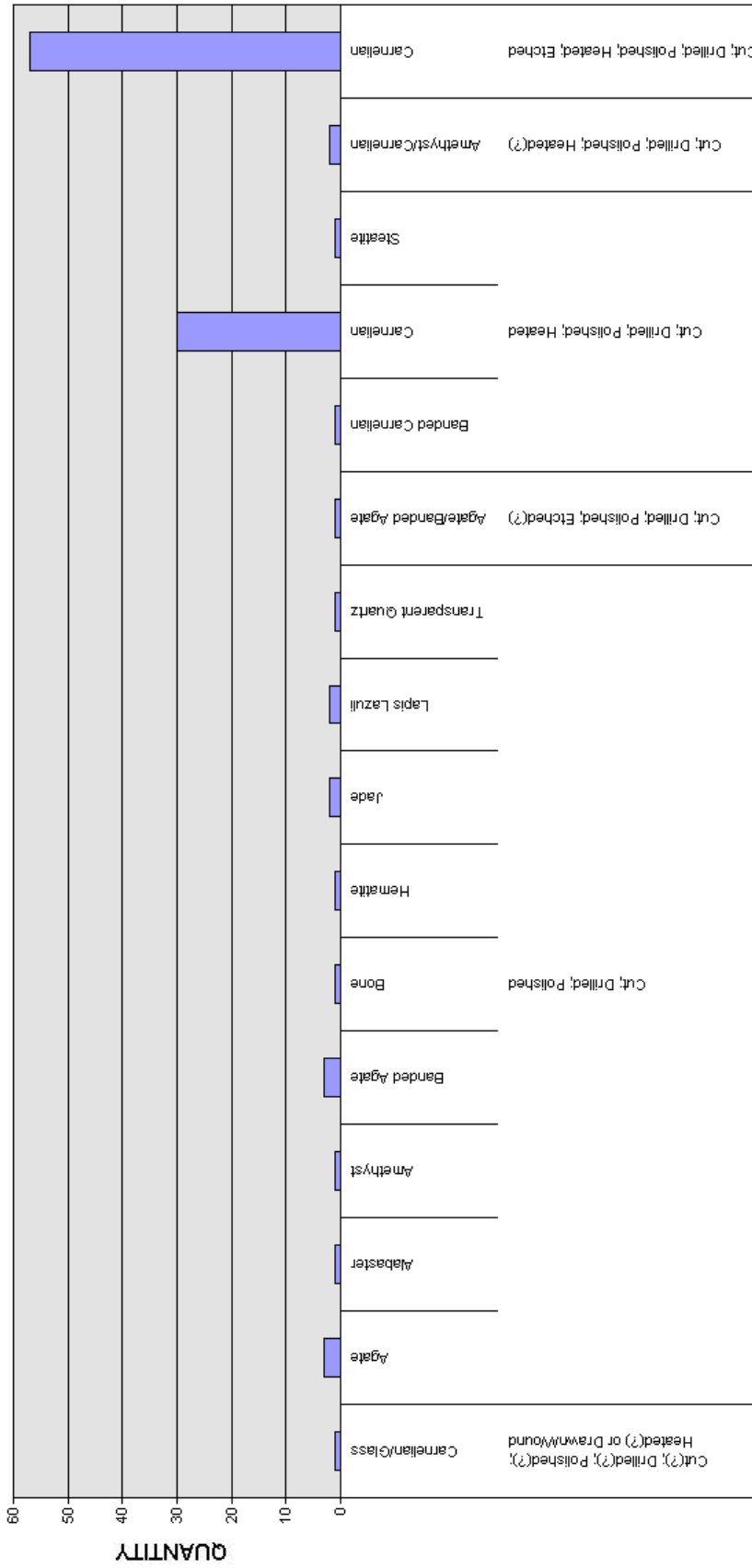
**BEADMaking PROCESS AND MATERIAL**

**Fig. 20.** The beadmaking processes from Fig. 19 with amounts organized by material. It will be noticed that carnelian forms the largest two quantities. Of course, banded carnelian, treated separately herein, can also be regarded as an extension of the influence of carnelian amongst the beadmaking processes associated with such materials. Amounts that are seemingly non-existent represent minute quantities or single specimens. This graph only takes into account those beads securely dated to Period II.



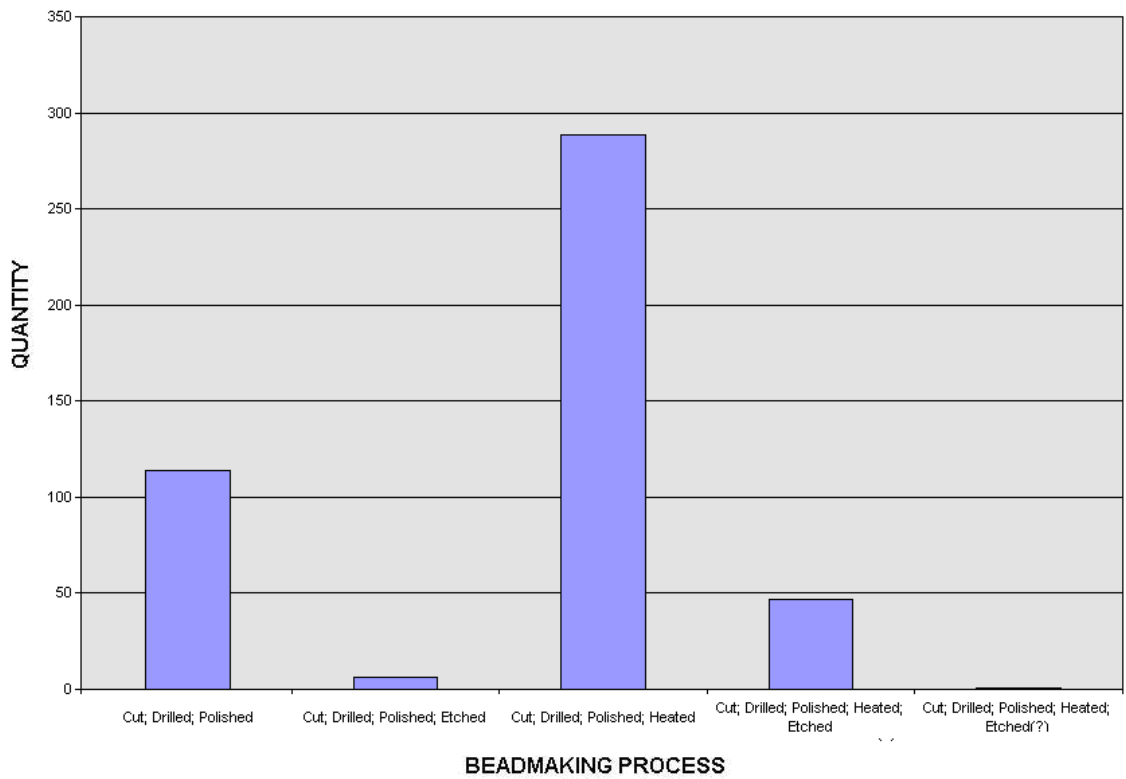
**BEADMAKING PROCESS**

**Fig. 21.** Relative quantities of the cutting-drilling-polished, cutting-drilling, polishing-etching, cutting-drilling-polishing-heating, and cutting-drilling-polishing-heating-etching beadmaking processes amongst the Period IV beads in the Bahrain sample. Possible cases have also been noted independently. This graph only takes into account those beads that can securely be dated to Period IV.



**BEADMAKING PROCESS AND MATERIAL**

**Fig. 22.** The beadmaking processes from Fig. 21 with the amounts organized by material. This graph only takes into account those beads that can be securely dated to Period IV.

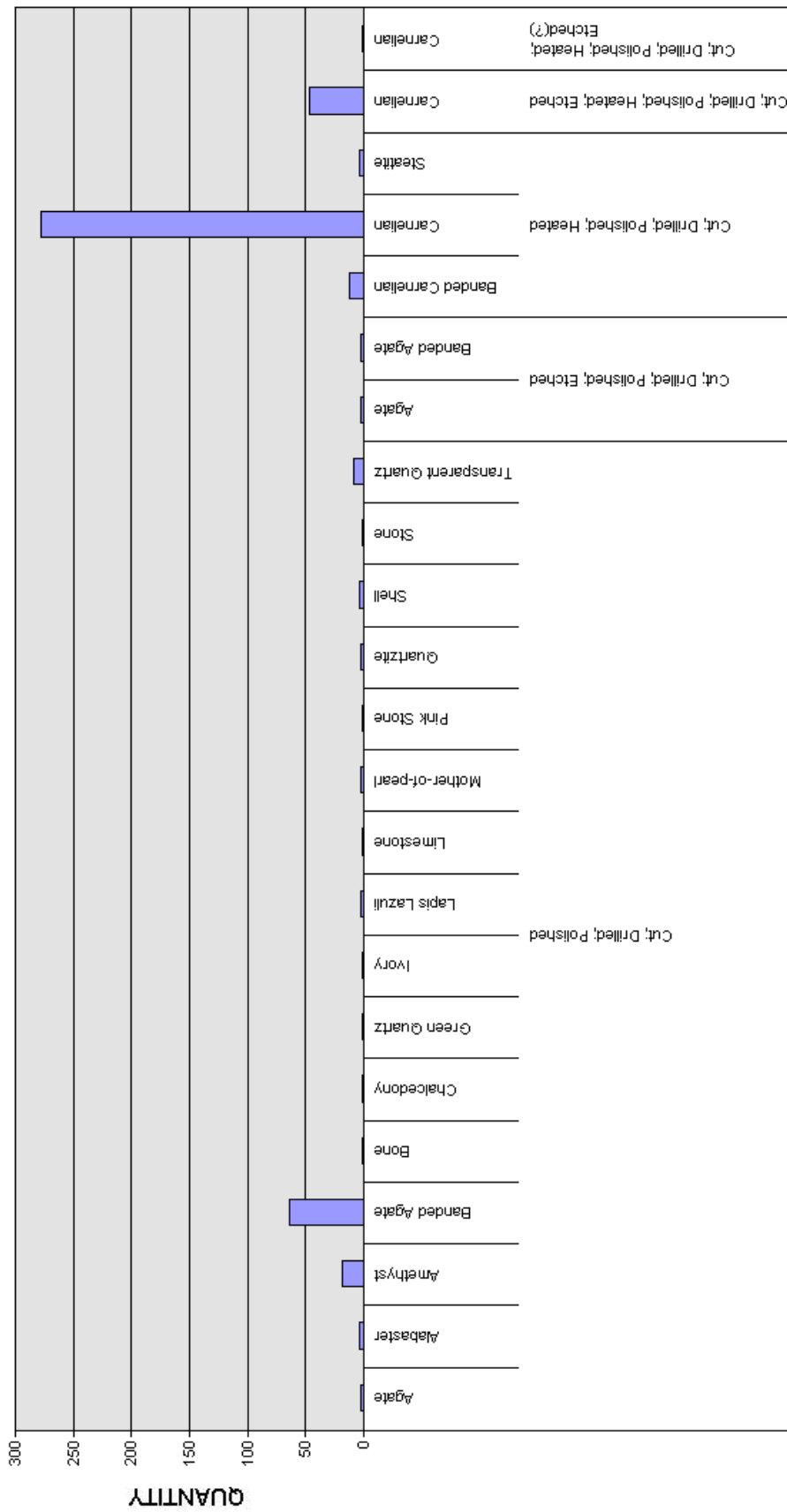


**Fig. 23.** Relative quantities of the cutting-drilling-polished, cutting-drilling, polishing-etching, cutting-drilling-polishing-heating, and cutting-drilling-polishing-heating-etching beadmaking processes amongst the Period V beads in the Bahrain sample. Possible cases have also been noted independently. However, cases involving additional or fewer beadmaking steps have been excluded as representing distinct beadmaking sequences in their own right. This graph only takes into account those beads that can be securely dated to Period V.

With the manufacturing procedure used for regular stone beads, we have a drop from the over 14.9% or 15.5% of Period II to only 4.5% and just over 4.4% in Periods IV and V respectively. The marked difference lies between the Early Dilmun amounts and those of later epochs; the latter two do not indicate a significant change.

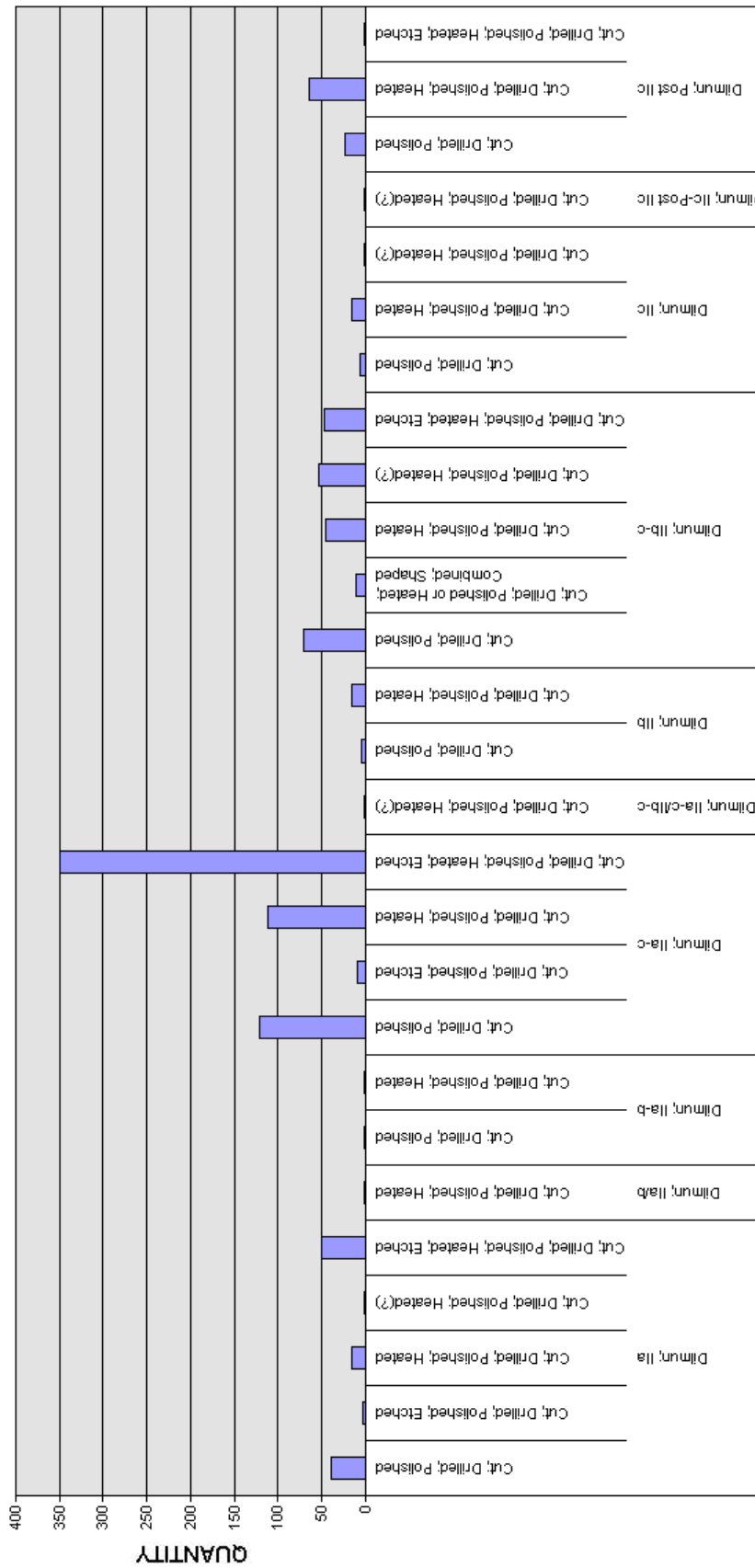
### **G. The Chronological Subdivisions of Period II: A More In-Depth Look at the Era's Standard and Etching-Geared Methods of Manufacturing Carnelian/Banded Carnelian Beads**

Since Period II appears to have been the “golden age” of etched carnelians upon Bahrain, it is useful to examine how the regular and etched carnelian variations of the same manufacturing procedure feature across the subdivisions of Period II, especially the beads that can securely be dated to one or another of the subdivisions of this period as well as the IIa-b and IIb-c chronological ranges (the last two not covering most or the whole of Period II and so capable of providing some insight) (see Figs. 25-26).



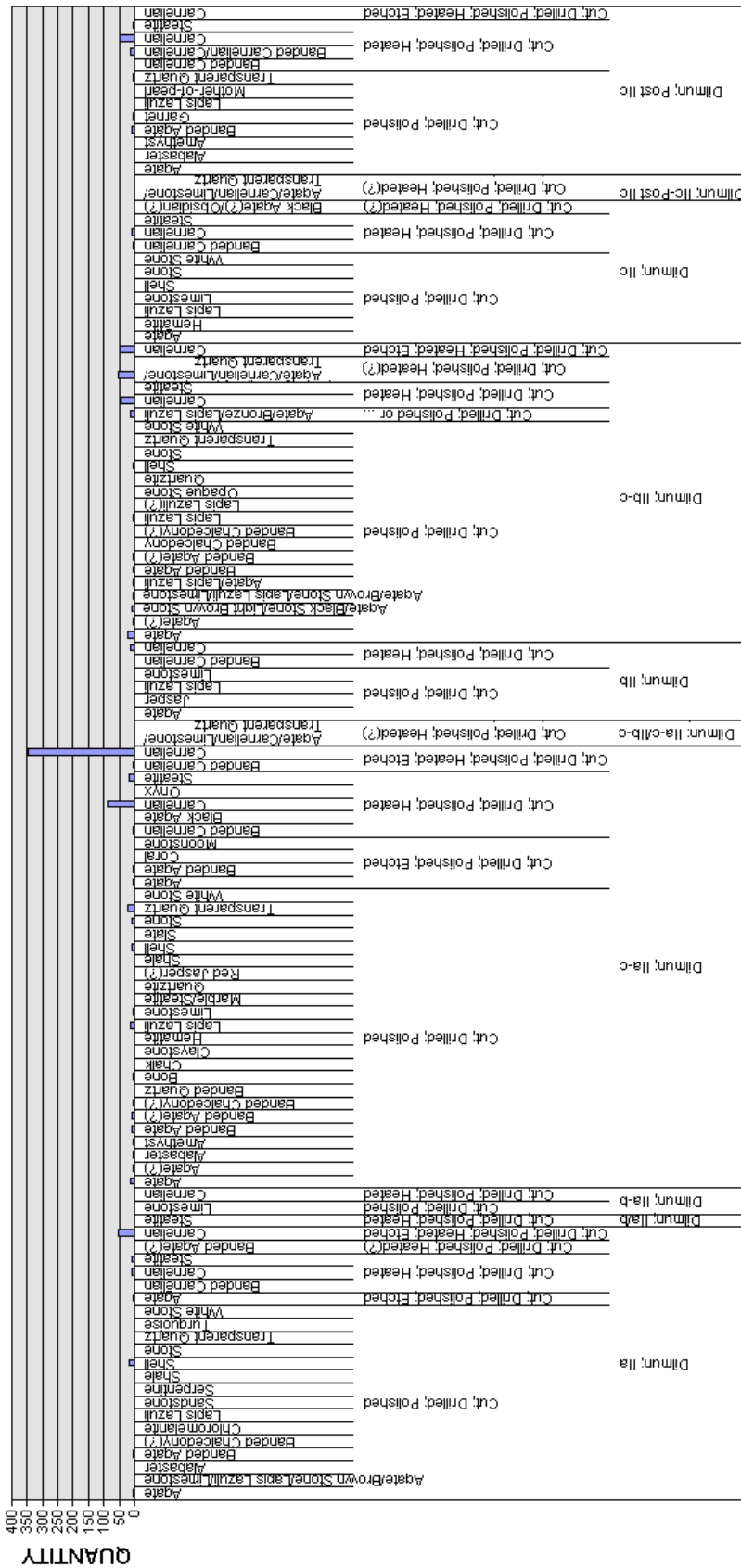
**BEADMAKING PROCESS AND MATERIAL**

**Fig. 24.** The beadmaking processes from Fig. 23 with the amounts organized by material. This graph only takes into account those beads that can be securely dated to Period V.



**PERIOD II CHRONOLOGICAL SUBDIVISION/RANGE AND BEADMaking PROCESS**

**Fig. 25.** The beadmaking processes of Fig. 19 organized according to Period II chronological subdivision/range. This graph only takes into account those beads that can be securely dated to Period II.



**CHRONOLOGICAL SUBDIVISION/RANGE, BEADMAKING PROCESS, AND MATERIAL**

**Fig. 26.** The Period II beadmaking processes of Fig. 19 organized not only by chronological subdivision/range, but by material as well. Seemingly non-existent amounts represent minute quantities or single cases. This graph only takes into account those beads that can be securely dated to Period II.

Doing so, certain details of non-carnelian stone, etched non-carnelian stone, and both regular and etched carnelian and banded carnelian production across Period II come into focus. The first observation that can be made is that the etching of regular stone is evidenced only amongst the IIA beads and not in any later subdivision of Period II; moreover only three cases of this sort have been noted. Etched carnelian beads and so the manufacturing procedure associated with it appear in 51 securely IIA cases, but in no cases belonging thus to IIB or IIC and only a single one from Post IIC. We may, however, “fill in the gap” associated with the subdivisions following IIA by including beads specifically assigned to a IIB-c chronological range. This gives us 48 cases of etched carnelian and banded carnelian beads, an amount which covers two chronological subdivisions and yet still does not overtake the IIA quantity.

Relevant to the above changes are the shifts that occurred in Dilmun’s relationship with its commercial partners. As Flemming Højlund has observed, “Period IIA reveals a considerable degree of influence from the Indus civilization” (2007: 125). Evidence of this exists in various domains such as those of seals, pottery, town-planning, the weight system adopted in Bahrain, etc. (During Caspers, 1979: 125-126; Højlund, 2007: 125; Rao, 1986: 379; Parpola, 1994: 309-310; Potts, 1990: 187-188). Carnelian (both the regular and banded varieties) and a great many stones employed in beadmaking were acquired from the Indus, either as raw material or finished products; this has been shown in the previous chapter. Etching is another facet of Indus beadmaking which likely arrived in Bahrain as a result of its contact with the Harappan civilization, even as the Sasanians would acquire a taste for it through contact with the Indian Subcontinent over two millennia later (see Lankton, 2003: 68). Of course, in the case of the Sasanians, the manufacture of etched beads actually took place in Persia; this has yet to be proven as far as Bahrain is concerned, though local or nearby production is not unlikely (see below).

Nonetheless, the taste for etched beads is certainly a feature of Indus influence, and so it is understandable that a great quantity of etched carnelian beads were obtained from IIA contexts. Moreover, etching in IIA seems to have extended occasionally to other stones, which may indicate a preoccupation with this process if not an especial value given it in this chronological subdivision. At a time when the influence exerted by the Indus upon Dilmun was at its peak, it is only natural that etching be so appreciated and even taken out of its carnelian context here and there.

In IIB, IIC, and Post IIC the situation appears to have been rather different. No cases of etched carnelian or banded carnelian can be specifically dated to any of these chronological

subdivisions with the exception of a single Post IIc specimen. 48 cases comprising etched carnelian and banded carnelian beads have been ascribed to a IIb-c chronological range, but it must be remembered that this range covers both subdivisions of Period II and even then in no way overtakes the etched carnelian/banded carnelian amount ascribed to IIa.

Since this drop in etched carnelian/banded carnelian amounts initially took place in IIb, we may turn to that chronological subdivision for a cause. Doing so, we find that in IIb, as Højlund explained, “The heavy Indus influence of the preceding period has declined” (2007: 125). Conversely, Mesopotamian cultural traits seem to experience a marked increase, including the appearance of the Dilmun settlement on Failaka, barrel-shaped weights organized according to a Mesopotamian monetary standard, and seal designs that echo Syrian ones (Crawford, 1998: 152-153; Højlund, 2007: 125-126; Potts, 1990: 266-267, 274). The early 2<sup>nd</sup> millennium BCE also saw Dilmun assume full control of the Gulf trade providing Mesopotamia with its much-needed commodities (Højlund, 2007: 126). Given that the Indus appears to have been overshadowed by Mesopotamia beginning in IIb and for the rest of the Early Dilmun period, the decrease in etched carnelian and banded carnelian beads becomes understandable. There was still a significant amount of such beads, even as Dilmun’s connection with the Indus persisted, but it was not as emphasized as it had been in IIa.

## **H. A Consideration of Crude Cutting**

Returning to the subject of carnelian and etched carnelian in the Bahrain sample, some very important deductions can be made from examples spread across the different chronological periods involved. For instance, carnelian and banded carnelian beads in the Bahrain sample that are from the Dilmun periods appear in some cases to be rough-cut. That is, these specimens were crudely shaped in the first stage of the beadmaking process, so much so that at times minute facets can be detected in places meant to be otherwise in a bead made according to a relatively uniform shape (see Pl. V). The polishing stage of beadmaking often smoothed the edges of the facets, but also highlighted that they were part of the earlier cutting stage. It may similarly be pointed out that such rough-cut beads are an indication of poor or hasty polishing.



**Pl. V.** Some etched carnelian beads from the A11065 collection. The second bead from the right (B1934) is an example of a crudely cut carnelian specimen.

This sort of workmanship, which might appear crude to most eyes, has not yet been encountered amongst carnelian and etched carnelian beads from India, where a relatively high standard of craftsmanship was always the hallmark of the Indus beadmaking centres as well as sites belonging to later Indian epochs (down to the end of the Tylos era on Bahrain). Whilst it is true that in Mature Harappan times, contemporary with most of Period II, beads of lower quality materials and manufacture were shipped abroad in commerce by Indus merchants, no carnelian beads (etched or otherwise) comparable to these crudely cut specimens have yet been found in the Indus. Moreover, it is unlikely that beadmakers specialized in stone bead manufacture and normally making items of a particularly high standard, as is evident from several Indus sites, would have simultaneously produced items of such inferior quality without leaving a trace of such workmanship at their own manufacturing sites. The same may be said for later Indian carnelian beads, contemporary with Period IV and the Tylos era.

Crudely cut carnelian beads like the ones found on Bahrain have also not yet been recorded amongst Mesopotamian beads at such sites as Ur (where we know local carnelian beadmaking took place, perhaps by migrant Indus beadmakers) nor amongst carnelian and etched carnelian beads from Persia (see Lankton, 2003: 35). It therefore seems strange that since Dilmun participated in the trade between the Indus and Mesopotamia, and transported carnelian from the former to the latter (viz. late 3<sup>rd</sup>/early 2<sup>nd</sup> millennium BCE cuneiform texts attesting to this, including implicit references in the tale of “Enki and Ninhurzag”, as well as what is known of Bronze Age carnelian sources), that no crudely cut carnelian beads similar

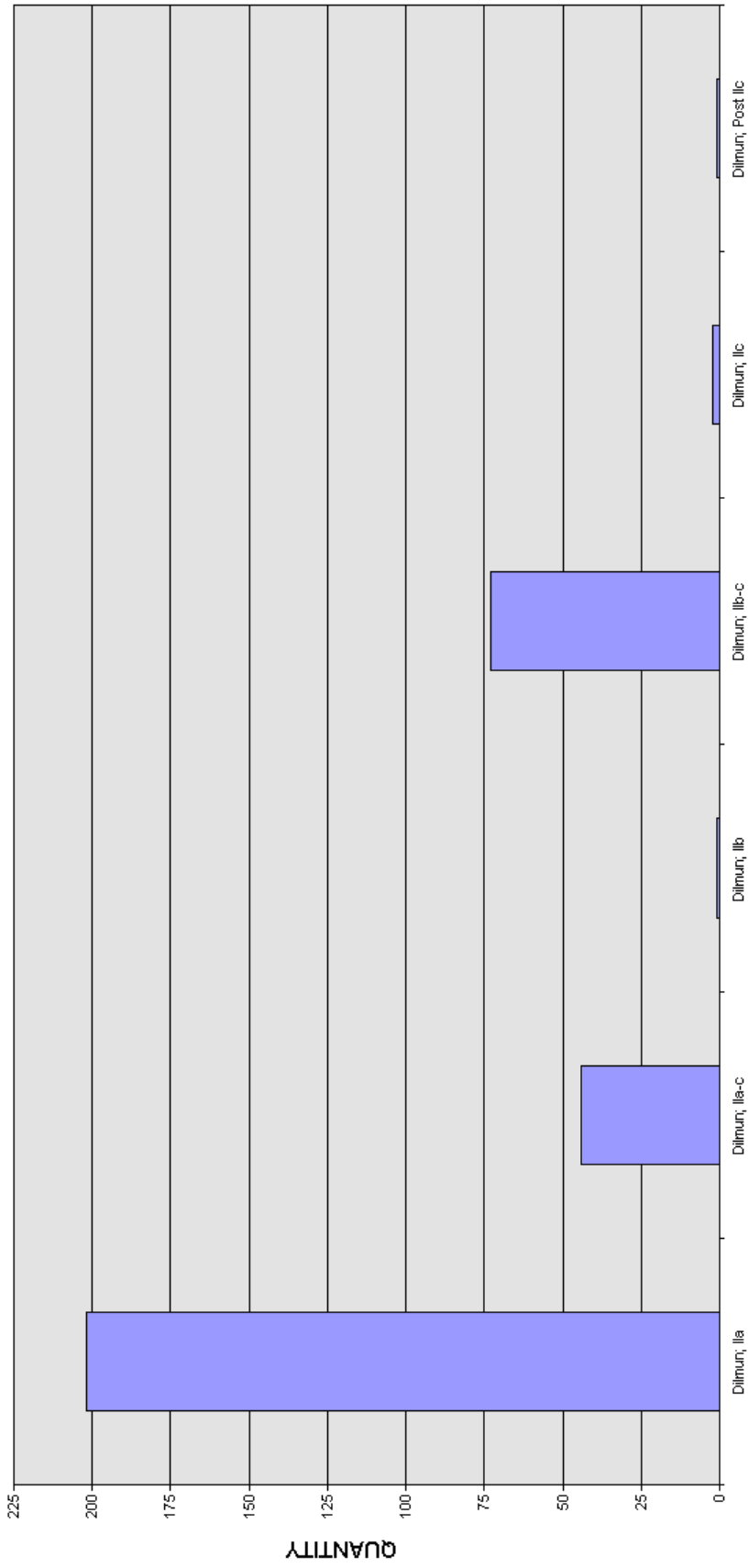
to those we are dealing with have been found at the two extremities of this trade but seem specific in occurrence to such sites as are associated with the Dilmun culture (i.e., on Bahrain and Failaka) (see André-Salvini, 2000: 28-29; ETCSL, 2006a: t.1.1.1.49A-49P). We may posit a local manufacturing centre responsible for the cutting of these beads, perhaps on Bahrain or within vicinity of it; surely within the cultural sphere of Dilmun.

### **I. A Consideration of Wholesale Etching**

Another conspicuous feature of Dilmun carnelian beads in the Bahrain sample, specifically in relation to the etched variety, is the wholesale application of the etching process to such beads. Unlike examples of etched carnelian beads from the Indus, Mesopotamia, or even mainland Arabia, most of those from Bahrain were apparently covered entirely in an alkaline solution rather than having a decorative pattern traced in alkaline upon them. After heating, these beads would turn entirely white or cream, or at least for the most part if not entirely; oftentimes the etching was carelessly done or not uniformly applied to the entire bead surface, resulting in patches of red or brown being visible. Since such etching did not penetrate into the perforations of the beads or only coated the perforation-mouths, we can assume that the alkaline solution was “painted” on, as it were, rather than such beads being entirely dipped in it (see Pl. VI). To suggest that they may have been dipped thus before drilling took place, in this way sparing the perforations, may be discounted based on what is known of the etching process: that it is a “finalization” of beadmaking rather than a stage along the process. The deduction that the alkaline solution was painted on the bead, as a surface coating, further explains the poor nature of wholesale etching as such coats may not have adhered to the entire surface of the specimens, leading to the patches mentioned above.



**PI VI.** Photograph of one end of B1935 of the A11065 collection, showing the original colour of the etched bead's material unaltered within the perforation.



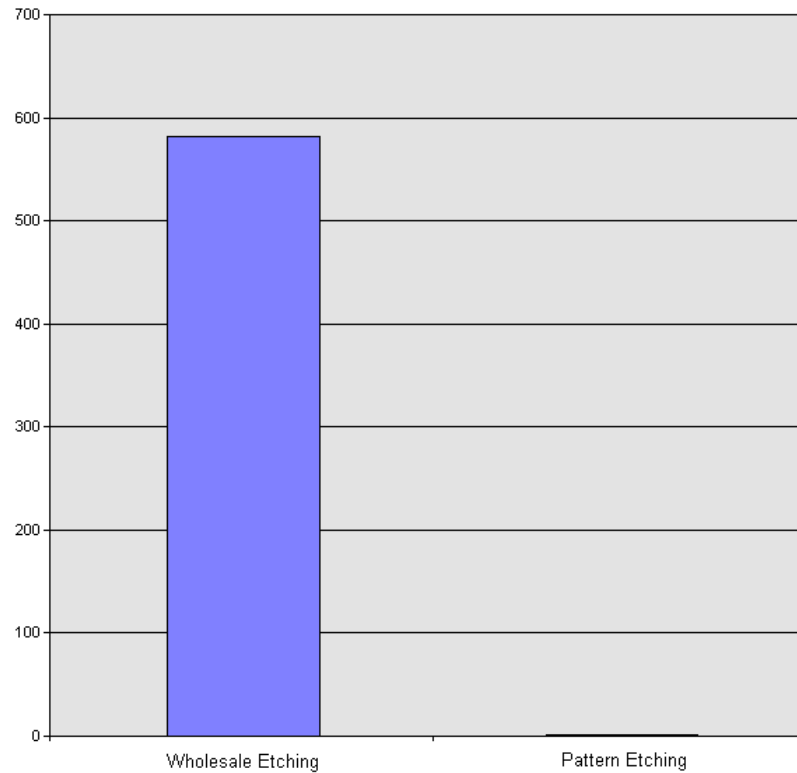
**Fig. 27.** Faience bead amounts across the different chronological subdivisions and ranges of Period II. This graph only takes into account those beads that can be securely dated to Period II.

This manner of etching is the predominant form in the Bahrain sample and covers all chronological periods and ranges (see Fig. 28). Only two IIa-c beads and three Tylos specimens (B1239, B4201, B3368, B4638, and B4642), the only exceptions in the entire Bahrain sample irrespective of material, have actual etched patterns of one sort or another upon them.

## **J. The Implications of Crude Cutting and Wholesale Etching**

Regardless of whether we are discussing the Dilmun periods or the Tylos era, wholesale etching has yet to provide parallels from the Indian Subcontinent or Mesopotamia. In this, it is quite similar to the crudely cut carnelian specimens of the Dilmun periods and, like such carnelian specimens, restricted to a geographical zone centred on Dilmun (i.e., Bahrain and Failaka). In the pre-Tylos periods, it could be surmised that the same local production centre (whether based on Bahrain or elsewhere in the region) could have been behind the wholesale etching, much as it was probably behind the crudely cut beads.

Based on a study of modern beadmaking at Khambhat in India, we know that the production of finished beads and their decoration are the responsibilities of two distinct groups of craftsmen situated in the same beadmaking centre, and that the group concerned with decoration relied on a supply of readymade products upon which to practice their skill (Kenoyer, Vidale, and Bhan, 1991: 56-59). If such contemporary beadmaking is anything to rely on, then we may assume that a beadmaking centre which could have existed on or in the same geographical region occupied by Dilmun in the Bronze Age would have functioned along similar lines. The crudely cut carnelian specimens would have been the work of a particular group concerned with producing finished beads whilst the wholesale etching would have been the result of a second “decorating” group’s handling of these beads; both would have been located at the same centre.



**Fig. 28.** Visual representation of the difference between wholesale etching and pattern etching amounts in the Bahrain sample, showing the former as undoubtedly the norm.

The modern bead industry at Khambhat has also shown us that merchants trading in finished items constitute a third group (Kenoyer, Vidale, and Bhan, 1991: 56-57). The existence of a similar third group at the centre with which we are concerned may account for raw carnelian being moved from the Indus to Mesopotamia but not crudely cut carnelian beads or those etched wholesale. These kinds of finished products, whilst not barred from participating in such movement, may have been restricted to the “Dilmun” geographical region of the Arabian Gulf due to the activities of such a third group.

Alongside the crudely cut carnelian ones, the majority of carnelian beads in the Bahrain sample were manufactured in a more refined style, indicating greater skill and workmanship. These were likely the products of a different manufacturing centre, perhaps even one or more in Harappan lands or else Mesopotamia, as these approximate more to carnelian beads manufactured in the Indus or Mesopotamia. In the latter case, though, it has been suggested that migrant Harappan beadmakers could have been settled and active in Mesopotamia, thus explaining the similarity between the products of the two regions and the

apparent skill exhibited by locally produced carnelian specimens from Ur. Despite where they were produced, many of these finer carnelian specimens, as found in the Bahrain sample, also exhibit wholesale etching. It would therefore not be far from the mark to suggest that either the different centre involved in the production of such finer carnelian beads also practiced wholesale etching (of comparable quality to the cruder bead examples) or else that such finely produced carnelian specimens were then sent on to another manufacturing centre (perhaps the one to which we have already referred in conjunction with cruder carnelian products) where they would have been etched wholesale. As we have already observed, secondary “decorative” groups of craftsmen applied their labour to readymade beads. Therefore, an influx of finished carnelian specimens from such places as the Indus and Mesopotamia, the former quite likely given that most if not all of the raw carnelian used at a local beadmaking centre associated with Dilmun by the first “production” group would have been shipped from the Indus, would have supplemented the amounts of locally finished beads (if not vice versa, owing to the renown of Indus beadmaking centres during Harappan times). These would have then also been sent, along with the locally finished items, to the second “decorative” group of craftsmen for etching.

This state of affairs seems not to have been restricted to Early Dilmun, but is exhibited by the Late Dilmun beads as well. In Period IV, we have examples of crudely cut carnelian beads as well as wholesale etching to suggest that the situation had not changed much since Period II. Likely the same beadmaking centre or a similar one associated with Dilmun was active in Period IV. Some might suggest that the crudely cut carnelian beads and wholesale etched specimens from Late Dilmun were heirlooms or a product of Period II burial reuses in Period IV. The fact that the Period IV crudely cut carnelian beads and etched carnelian specimens are sufficiently represented and were obtained from both burial and urban (i.e., Qala’at al-Bahrain) sites, and so from both funerary and other contexts (such as the Snake Sacrifices, for instance Nos. 10 and 11), generally suggests otherwise. In terms of etching, the entirety of the 17.1% represented by etched beads amongst the Late Dilmun specimens are of the wholesale type, which more than negates any suggestion of the reuse of older Period II beads being the seemingly continuous wholesale etching trend present amongst Period IV examples.

It has already been mentioned that wholesale etching existed in all chronological periods and ranges in the Bahrain sample. This includes the Tylos era. Again, the number of etched carnelian beads so treated (47 cases from ten different contexts), not to mention the

additional five agate and banded agate beads, precludes heirlooms or reuse being responsible rather than continued production (exceptions aside). As with cases from the Dilmun periods, such wholesale etching has yet to be found amongst the neighbours of the Iron Age culture then existent upon Bahrain. In this curious observation lies the possibility that the local manufacturing centre behind the wholesale etching, for which we are searching, may have existed in Bahrain itself; this possibility seems all the stronger when one considers how such etching was restricted geographically by the extent of Dilmun culture in earlier epochs. The fact that all ten contexts which have produced wholesale-etched carnelian beads came from three closely situated sites – al-Hajjar, Karranah, and Shakhoura – rather than any others on Bahrain may indicate the hub of such etching production. These three sites are located in Bahrain’s “fertile strip”, which has already been mentioned in association with possible glassworking in the Tylos era as well as Period II. Could this area have been an industrial zone associated with more than a single centre or line of production? Of course, further information will be required in confirmation or refutation of the possibility of local etching and indeed all hypotheses that may be derived from it. The geographical restriction of such etching to the domains of the Dilmun and Tylos cultures, however, does make a strong case for it if not local bead manufacture (as per observations associated with modern beadmaking at Khambhat) (see Kenoyer, Vidale, and Bhan, 1991: 56-59).

Based on the Bahrain sample, we can be sure that such a local centre for etching existed at least as late as Tylos’ Phase II, since we have three cases of such etched carnelian beads dating to Phases II-III from Grave 47 of Mound A1’s Square D13 at Shakhoura as well as a single example from Karranah’s Grave 1 in Mound 1, Square D7; these are the latest examples in the Bahrain sample identifiable in terms of the chronological subdivisions of Tylos. Of course, this does not mean such etching did not continue into the later phases of Tylos; only that the above observation regarding Phase II is based on the latest examples provided by the Bahrain sample.

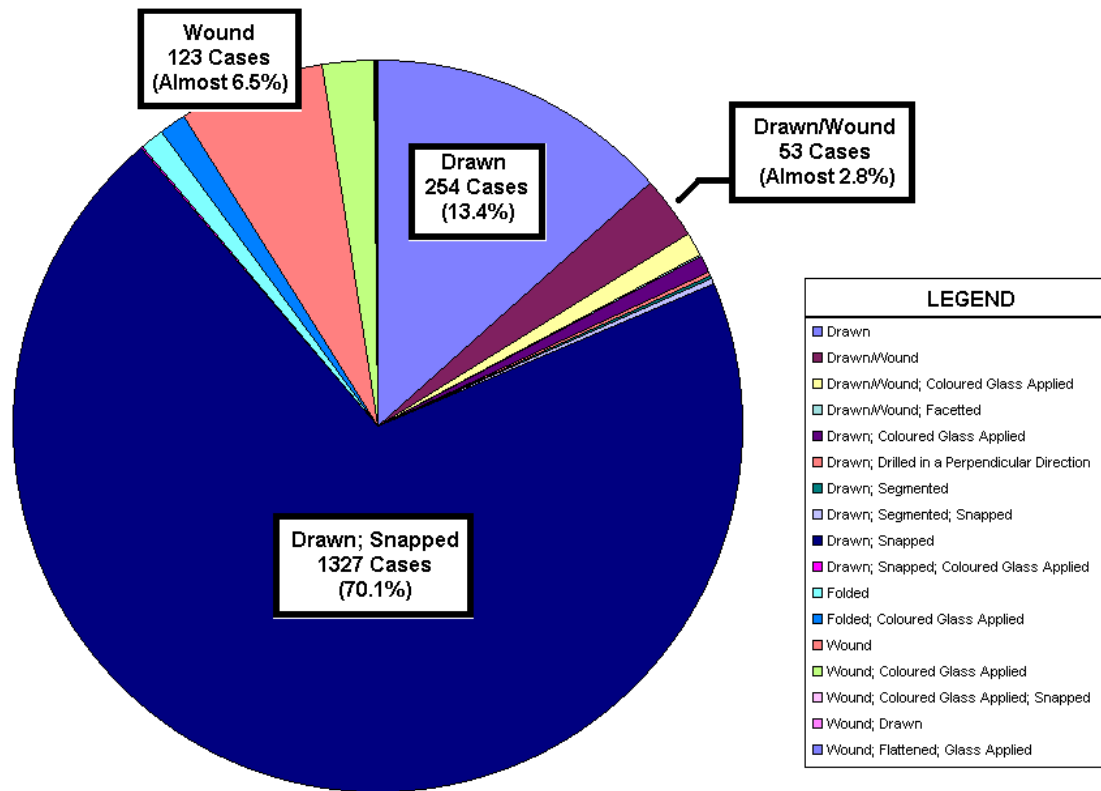
### **Other Beadmaking Processes Associated with the Bahrain Sample**

Following the manufacturing methods associated with drawing-snapping, faience production, and the making of carnelian and banded carnelian beads (etched or otherwise) and their stone counterparts, the next manufacturing processes to feature quantitatively in the Bahrain sample is that associated with glass; specifically the drawing method without any

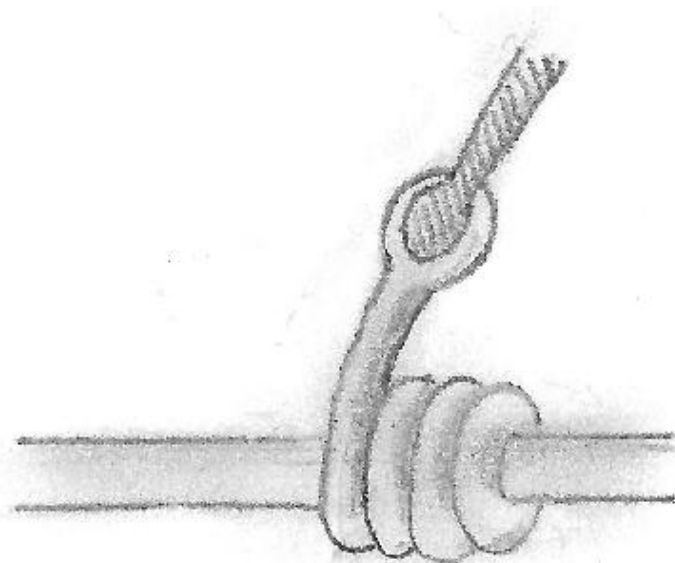
snapping of the bead-ends. 312 beads (or 254, not counting gold-glass cases) made in this fashion have been noted in the sample, compared to 123 glass beads produced only through the winding method (that is, the winding of viscous glass around a wire or rod to produce a finished bead) (see Figs. 29-30). These form respectively almost 6.5% and over 2.5% of the Bahrain sample total, but 13.4% and 6.5% of the (solely) glass bead total. The sample also contains 53 glass beads that could have been made by either method, being 1.1% of the sample but 2.8% of the (solely) glass bead total. Between the definite amounts attributed to drawing and winding, we have the manufacturing processes used for frit (already referred to above) and clay beads; 148 examples of the latter have been noted in the sample, accounting for almost 3.1%.

Interestingly, eight IIC clay beads from the Saar Settlement's Building 224 (Area 316) display fingerprints indicating that they were "hand-rolled". Apparently the beads were produced by the clay being rolled into shape about a piece of string and then fired, with the result that the string was burnt away and the beads were hardened. String impressions were also found in the perforations of the beads. The same method used to produce these eight beads likely accounted for a great many of the clay specimens from various periods in the Bahrain sample.

Though noticeable numbers of drawn and wound glass beads in the Bahrain sample do derive from the subdivisions of Period II, and we even have cases from Period I (specifically from Ib rather than a chronological range in the case of wound beads), the general trend observable in the sample is one of gradual increase in the number of cases as one moves forward in time. This is completely compatible with what we know of increased glass manufacturing following 1700-1500 BCE and the great glass boom of the Hellenistic and Roman eras (see Eisen, 1919: 92-101; Francis, 2002: 87-88; Lankton, 2003: 39, 53-54, 63; Stern, 1999: 442). It is also reflected in glass bead percentages attributed to Periods II, IV, and V respectively and how these compare to each other (see Chapter 8.2).



**Fig. 29.** The 1,893 glass bead total in the Bahrain sample divided by beadmaking process. All percentages represent those from the glass total. Cases of gold-glass drawn beads have not been included.



**Fig. 30.** An illustration of the winding method of glass bead manufacture. Molten glass is twisted around a metal rod to produce glass beads of the wound variety.

Even the seemingly ambiguous greater amount of wound glass beads belonging specifically to the IIa-c chronological range, in comparison with Late Dilmun beads, can be accounted for by the 130 Period IVe beads which were either drawn or wound and which surely include a large quantity of the latter type. Nor should this amount cast doubt on wound Tylos beads being greater in number than their Period IV counterparts; for 53 Tylos beads have also been designated as either drawn or wound and certainly affect the Period V quantities of these manufacturing methods.

## **The Manufacture of Gold-Glass Beads**

Before concluding our examination of the manufacturing processes of the Bahrain sample, there are a few methods of beadmaking which are represented by only small amounts in the sample (if not single cases at times) but which are particular enough to deserve some comment. One of these is the manufacturing method of gold-glass beads. The beadmaking process used for gold-glass beads requires a combination of thin layers of gold-foil and colourless glass, the latter often produced by primary glassmaking centres and then bought by secondary glassworking ones for such things as gold-glass manufacture (Lankton, 2003: 54). We have already observed in the last chapter how Bahrain's gold-glass beads, previously regarded as simply from Tylos without greater precision in dating, may be placed within a subdivision of Period V based on the peculiarities of their form and manufacture (for instance, whether or not they are segmented).

The segmented variety of gold-glass beads in the Bahrain sample, belonging to Phases II-IV of the Tylos era, include "collared" specimens (28 to be exact), where the collars of the bead were produced through "pinching" in the same manner as regular segments (see Pl. VII). Four other segmented glass beads (not of the gold-glass variety), more generally dated to Period V, are also included in the sample; these were produced through simple drawn tubes of glass being "pinched".



**Pl. VII.** A selection of Tylos gold-glass collared beads appearing at intervals amongst glass barrels. The beads in this photograph are from the Bahrain National Museum's A298 collection, excavated from Mound 5 of the Museum's 1996-1997 season at Saar, and have been given designations ranging from B1091 to B1107 in the Bahrain sample.

## **The Manufacture of Eye Beads**

A number of specimens in the Bahrain sample may be described as “eye beads”, possessing distinct patterns on their surfaces resembling “eyes” (see Pl. VIII). Such beads have a long history in the Near East associated with the warding away of evil and misfortune (De Waele, 2007: 303; Francis, 1989: 32; Van der Sleen, 1973: 48). 21 (possibly 22, due to a likely additional case) such beads have been noted in the Bahrain sample, two of which have “protruding” eyes. Of the eye bead total, two (possibly three) belong to the Early Dilmun period (IIa-c); the rest are from the Tylos era, with three being from Phase I of Period V (B3910, B3911, and B3913 from Mound 7’s Square I4 at al-Hajjar).

The Dilmun eye beads were all made by the addition of subsequent layers of coloured glass, one atop another, on the items’ surfaces. This was the traditional manner of making such “stratified” eye beads and continued unabated till the mosaic cane revolution of the Hellenistic era (Lankton, 2003: 53). When the use of mosaic glass took over early in Period V, specifically during its Phase I, it provided a swifter means of mass producing such beads and with higher quality end products obtained for less labour; as a result of this, stratified eye beads became scarce (see Lankton, 2003: 53). The Tylos eye beads in the Bahrain sample

predominantly (if not entirely) represent the new use of mosaic glass in streamlining their manufacture. The three Phase I beads even date to the very early years of this innovative process.



**Pl. VIII.** Examples of eye beads recovered from Hamad Town, Bahrain. These two specimens each possess three stratified eyes and have been designated B3602 and B3610 respectively in the Bahrain sample.

## **The Drilling of Natural Objects**

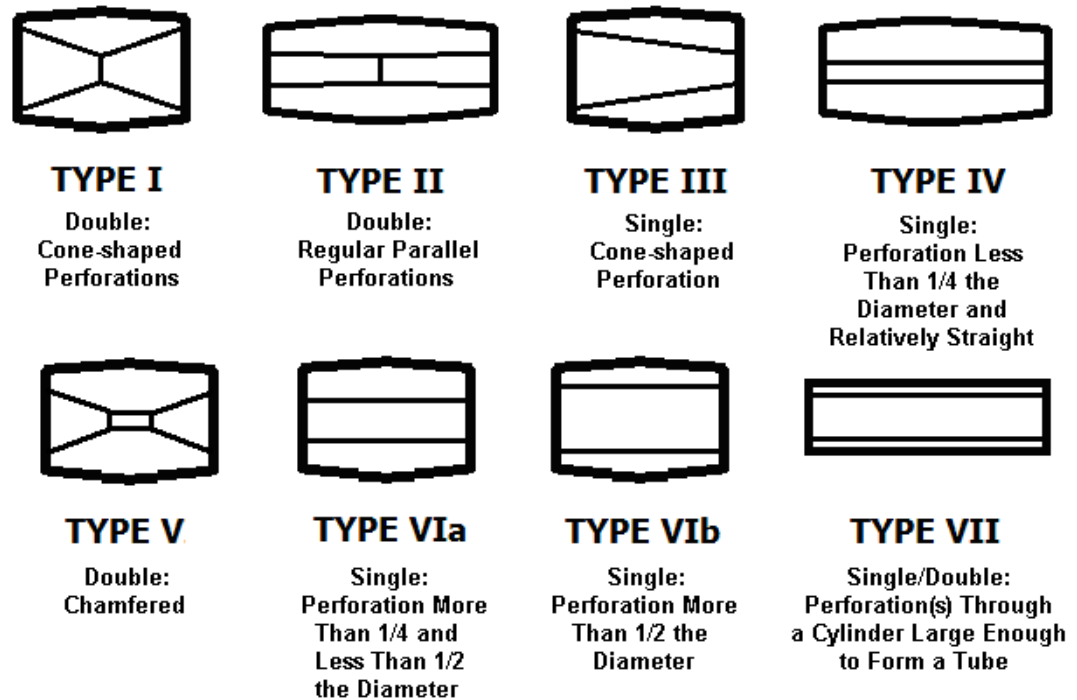
Whilst other examples of manufacturing processes and combinations of these are represented by specimens in the Bahrain sample, after covering the above varieties, we will end this section with an examination of the simplest: the drilling of natural objects to produce ornaments. The earliest beads known to archaeology were made in this way and even one of the earliest in the Bahrain sample, made of a fish otolith, was so produced (see Van der Sleen, 1973: 17). Several shell beads in the sample are nothing more than perforated items that were drawn directly from the sea without additional modification; the 67 beads so made form the

sample's greatest number produced in this simple manner. Two animal tooth beads were also simply drilled and strung, whilst the few stone examples include two green quartz specimens (the material used itself being a rarity) and one of dark stone. The second largest number of beads made by perforation alone is represented by pearl specimens. The 17 such pearl beads, four from Period IVe and 13 from Tylos, were almost certainly perforated in Bahrain. This is because pearls were often drilled for stringing close to where the fisheries that harvested them functioned (Francis, 2002: 13).

## 9.3 – Bead Perforation

### Perforation Types: An Introduction

When considering the different perforation types represented in the Bahrain sample, these should be examined from two distinct angles. The first is whether or not the perforation in question is a “single” or “double” drilling; that is, whether only one bore (or an immediately produced perforation, in the case of a synthetic bead) or two were employed to create the perforation (Beck, 1928: 51-52, Pl. IV). The second angle from which to consider perforations, once the former has been defined, is to what specific type the single or double example belongs. Of types, eight different ones have been noted in the Bahrain sample, based on those designated by Horace C. Beck (see Fig. 31) (see Beck, 1928: 51-52, Pl. IV).



**Fig. 31.** The eight perforation types found in the Bahrain sample and originally described by Horace C. Beck in his monograph (1928: 51-52, Pl. IV).

## **A Comparison between Single and Double Perforation Numbers**

In the Bahrain sample, single perforations outnumber double ones, since there are 3,245 definite and 18 possible single cases and 1,271 definite and 272 possible double cases; 16 beads overlap between the possible cases of the two groups. Set against a chronological backdrop, particularly of the two best-represented epochs in the sample, it will be noticed that both single and double perforations compared fairly well in quantity in Period II, but in Period V single perforations became the most numerous.

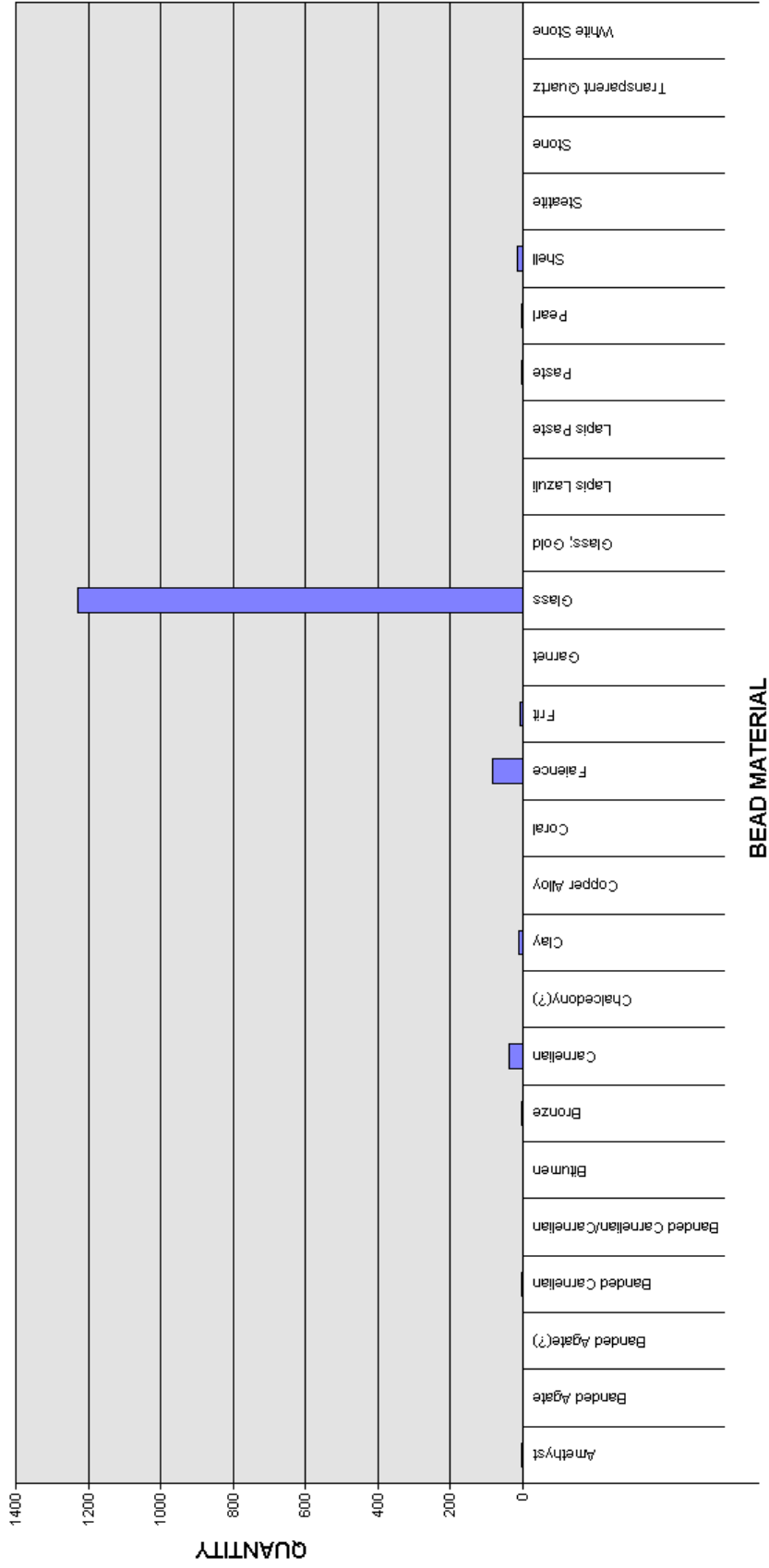
Considering the Bahrain sample's Period II beads, 811 definite and 14 possible single perforations (forming over 45.25% and less than 1% respectively of the period perforation total of 1,792, which total only takes into account beads securely assigned to Period II) are set against 744 definite and 229 possible double perforations (over 41.51% and almost 12.78% respectively); again, there may be some overlap between the single and double groups due to the uncertainty surrounding the possible cases mentioned. In terms of definite ones, the percentages speak in favour of single perforations. The inclusion of possible amounts, however, tips the scale in favour of double perforations. And this may perhaps be closer to the truth, for it directly corresponds to the predominance of carnelian (659 regular and 19 banded examples, counting only definite cases) and then faience (323 cases) amongst material amounts securely dated to Period II. Since double perforations were used primarily with stone, carnelian included, they would have been well represented in Period II. Only occasionally do such stone beads possess single perforations, which are more the domain of faience beads and those of other synthetic materials as well as (in many cases) natural substances that have been simply drilled without further alteration.

The Bahrain sample's Period V beads show 2,151 single perforation cases (all definite) compared to 392 definite and 20 possible cases of double perforations. Single perforations thus form almost 83.9% of the 2,564 Tylos perforation total whilst definite double cases represent almost 15.29% of the same and possible double cases less than 1%. Single perforations clearly dwarf double ones in the Tylos era, an understandable occurrence given that glass is the most widely encountered Period V bead material, though augmented by faience (the third most widely encountered one) as well as several other synthetic and (drilled only) natural materials. The percentage of double perforations given above was due mainly to carnelian (the second most encountered material, slightly more than faience) and all other stones alongside natural substances requiring such perforations (e.g. shaped shell beads, not in

their natural form). Of course, exceptions do exist and 44 Tylos carnelian beads (not counting banded ones) bear single perforations whilst a single Tylos faience specimen was double-drilled. This last was an unusual case, already referred to in this chapter, apparently involving a faience bead made without arranging for its perforation in the manufacturing process and which needed to be added later.

### **Type IV Perforations in the Bahrain Sample**

In considering particular perforation types (that is, the eight defined by Beck), the greatest quantity in the Bahrain sample is that of the Type IV perforation, described as a single one of a size smaller than that attributed to Type VIa (Beck, 1928: 51). 1,417 definite cases of the Type IV perforation have been noted in the Bahrain sample, forming over 29.4% of the total number of perforations (as per the total amount of beads in the sample). That this type possesses the greatest quantity is due to the overwhelming presence of synthetic materials in the sample, particularly glass (1,230 of the 1,417 cases) and to a far lesser extent faience (82 of 1,417 cases) (see Fig. 32). Frit only accounts for six such perforations. The remaining 99 beads that have exhibited Type IV perforations are of various materials: some natural (e.g. shell and pearl, with respectively 17 and four cases), some synthetic (e.g. bronze and bitumen, with respectively three examples and a single one), though the majority are of the mineral variety. Of these, the greatest amount belongs to carnelian beads, with 39 regular and two banded cases (as well as a single additional case which could be banded or otherwise). We even have a case where the synthetic and mineral are combined: a gold-glass bead with a Type IV perforation.



**Fig. 32.** Material breakdown of the 1,417 definite Type IV single perforations in the Bahrain sample. Seemingly non-existent amounts represent minute quantities or single cases.

The significance of glass and faience/frit amounts to Type IV perforations, as to all other varieties of single perforations, lies in the fact that the production of a perforation is an inherent part of the beadmaking processes involving these materials rather than something that is added as a separate step. The drawing of a hollow tube of viscous glass to make a drawn bead automatically makes for a perforation, as does the rod about which molten glass is twisted to make wound beads. The use of wooden sticks set in the glazed (or non-glazed, for frit) amalgam, and which burns away as the amalgam is fired, results in a readymade single perforation in faience and frit beads. The above case of a double-drilled faience bead is an exception to the norm. The same basic process used with faience and frit beads applies to clay specimens formed around a string that is then burnt away as the ornaments are fired. In the case of a metallic bead, the metal is folded or else manufactured in such a way that a perforation running through the item is retained. In all the above cases, the beadmaking process used automatically produces a perforation in the bead.

### **Type VIa and Type II Perforations in the Bahrain Sample**

The 1,256 definite examples of the Type VIa perforation form the second largest group (26%) in the Bahrain sample. These are single perforations that exceed  $\frac{1}{4}$  but are less than  $\frac{1}{2}$  the diameter of the bead concerned (Beck, 1928: 51). 531 such perforations were found in faience beads whilst 407 were found in glass ones (see Fig. 33). 139 cases were noted in frit beads. Lesser amounts of the Type VIa perforation belong to other materials.

The third most visible variety of perforation in the Bahrain sample is the Type II perforation. This type involves a double perforation in which two drillings are made from either side of the bead and which meet at roughly its centre; the bores are ideally meant to be parallel but in actual cases they are not always even nearly so (Beck, 1928: 51). Type II drillings are primarily used with stone beads, the two bores employed to reduce the risk of the bead blank being broken during perforation (Francis, 2002: 12-13; Van der Sleen, 1973: 17-18). We find it therefore understandable that its association with stone beads is carried on into the Bahrain sample, and that its principal representation is carnelian (see Fig. 34). The Type II perforation has been observed in 875 regular and 23 banded carnelian beads. Agate and banded agate beads have also producing a considerable number of Type II perforations, since (alongside carnelian varieties) the different agate varieties form the second largest mineral

group in the Bahrain sample. 26 regular and 90 banded agate specimens (definite ones) involving a Type II perforation have been noted as well as four and three possible cases of each kind respectively. All other stones have presented far smaller Type II amounts. There are also some of natural substances such as bone and shell (three and 17 cases respectively) as well as occasional faience examples. Across the Bahrain sample, the Tylos double-drilled faience bead mentioned above has three other comparable cases of the same material. On the whole, 1,197 definite cases of Type II perforations have been noted in the sample.

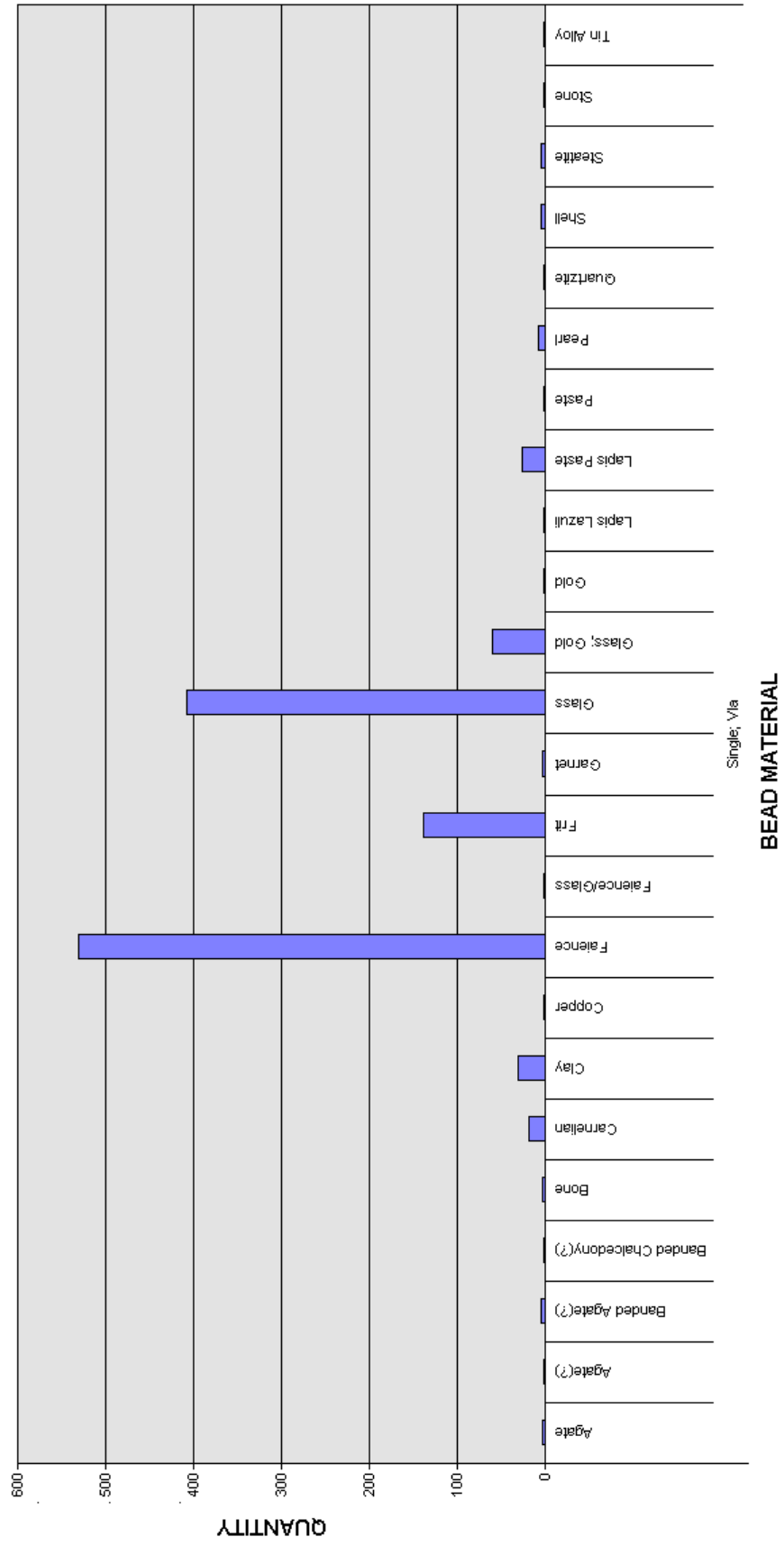
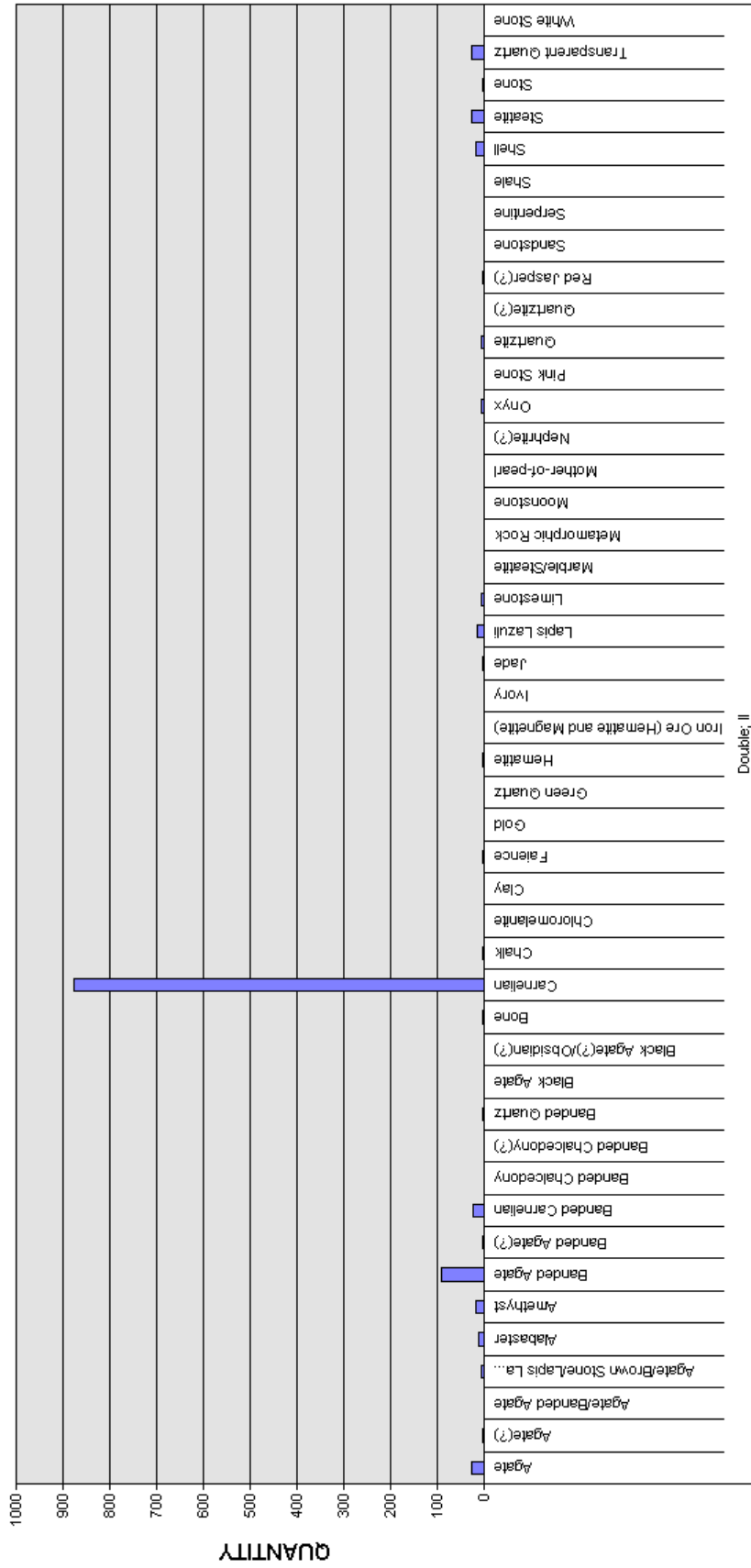


Fig. 33. Material breakdown of the 1,256 definite Type Via single perforations in the Bahrain sample.



**BEAD MATERIAL**

**Fig. 34.** Material breakdown of the 1,197 definite Type II double perforations in the Bahrain sample. Seemingly non-existent amounts indicate minute quantities or single cases.

There are also 289 possible Type II cases. The largest material group constituting this 289 amount is again that of carnelian: 66 regular cases, nine banded ones, and ten that could belong to either kind. A further seemingly carnelian example (B412) may also possess a Type II perforation. In addition to examples that are assuredly of carnelian, there are several more which could be considered so; for there are 58 beads with possible Type II drillings that are either of agate, carnelian, limestone, or transparent quartz. This group aside, 24 definite and three possible agate beads also may have such drillings, along with nine banded agate ones and two that are also possibly banded. 20 steatite and ten lapis lazuli beads also have tentatively been assigned Type II perforations, and the same may be written of many other mineral and natural-substance beads (though no synthetic ones). Eleven beads with possible Type II perforations could be either agate or lapis lazuli, and need to be individually considered.

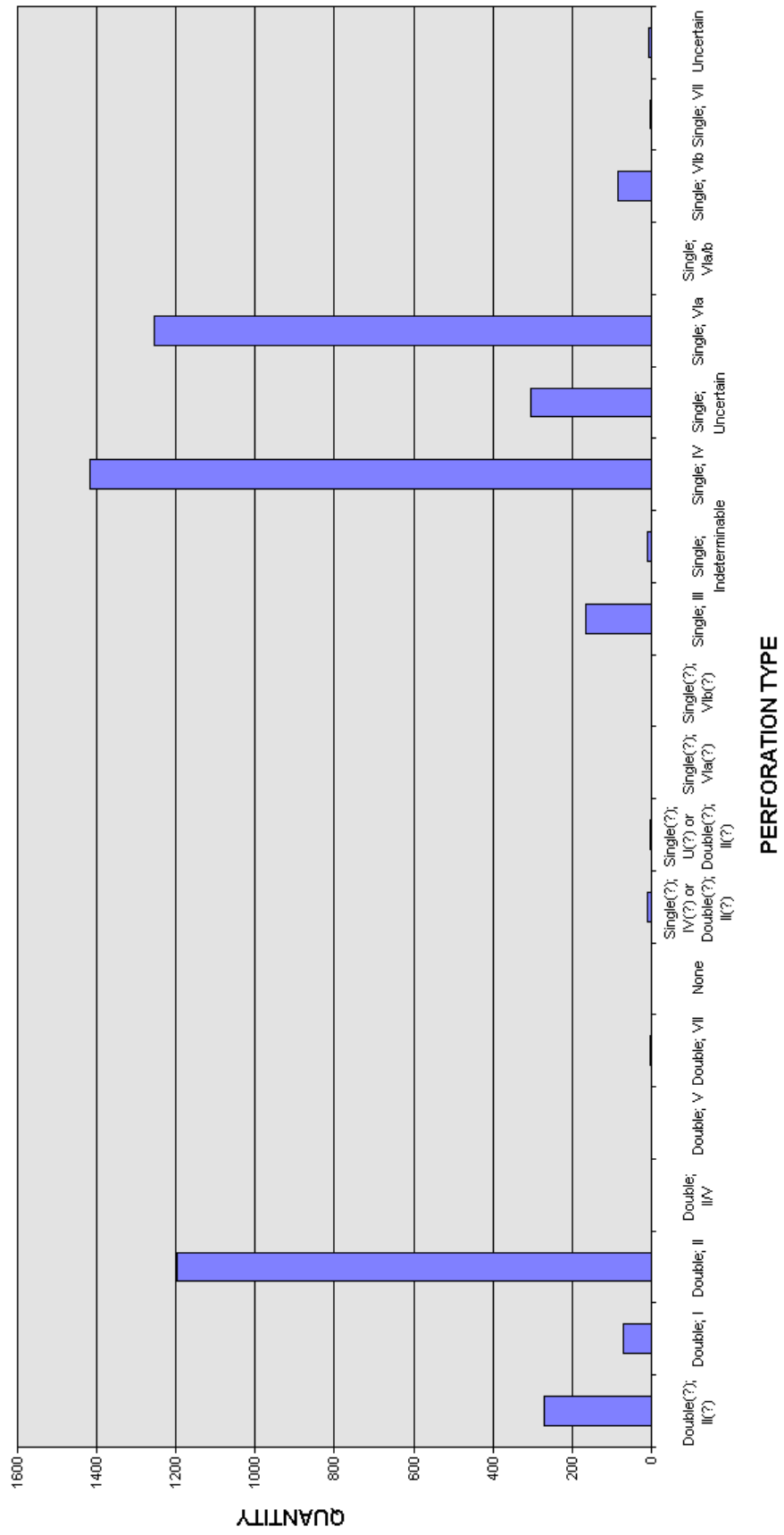
### **Other Perforation Types in the Bahrain Sample**

The three perforation types found in great abundance in the Bahrain sample are the II, IV, and VIa varieties (see Fig. 35). All the others are found in much smaller numbers. For instance, the Bahrain sample beads also contain 167 Type III single perforations (a drilled “cone”), 86 definite and two possible Type VIb single perforations (where the perforation is larger than  $\frac{1}{2}$  the size of the bead’s diameter), and 70 Type I double perforations (representing two parallel drilled “cones”) (see Beck, 1928: 51). The remaining perforation kinds are rare: only two cases each of the single and double Type VII perforation, where the final form of the same is so large as to constitute a tube (this type is only identified in cylindrical beads), and one case (possibly two) of the Type V perforation (B1616 and perhaps B962) (see Beck, 1928: 51).

### **Some Remarks Regarding Drills**

Generally, the different types of drills employed can be determined from the shape, angle, and style of perforation observed on a bead (Francis, 1999: 51; Kenoyer, 2003: 16-18, Fig. 3a). Microscopic analysis of a bead’s perforation, or even of a mold taken of the same, can provide great information in this regard (Kenoyer, 2003: 16, Fig. 3a). However, in the absence of this, a simple examination of the perforation of a bead would be sufficient, given

that each type of drill produces a distinct kind. Of course, this applies to stone beads and organic ones that require drilling rather than synthetic substances and those from clay with manufacturing methods that automatically produce perforations. The detection of different drills allows us to chart the development of this aspect of bead manufacture. Since this is a subject best defined by chronological period, it will be tended to in the archaeological narrative that will constitute a later part of this chapter. For the present, however, it is useful to observe that the most widespread variety of double drilling – Type II – was usually the result of “long tapered” drills (Kenoyer, 2003: 17, Fig. 3a). According to Peter Francis, Jr., these were “stone drills or copper or wooden drills with abrasives” (Francis, 1999: 51). Chert and jasper varieties were employed in West Asia and the Indus since c. 5500 BCE and remained in common use till around the beginning of the Tylos era (see Kenoyer, 2003: 17). Francis also noted that the “double-tipped diamond bit” on bow drills “was introduced in the late centuries B.C.” (2002: 12). According to Jonathan Kenoyer, the “use of tiny diamond chips for drilling dates to around 600 BCE in western India” (2003: 17). This anterior terminus with regard to its appearance naturally suggests that whilst the diamond-tipped drill may have been used at the very end of the Late Dilmun period, it was certainly employed during the Tylos era to follow.



**Fig. 35.** Quantities belonging to the different perforation types in the Bahrain sample. Seemingly non-existent amounts indicate minute quantities or single cases.

## 9.4 – Bead Morphology

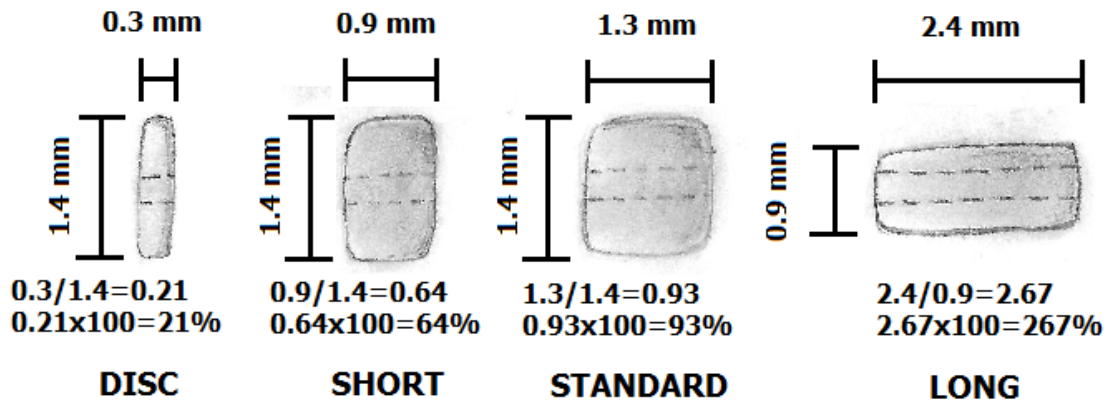
### Bead Sizes

#### A. How to Determine a Bead's Size

Whilst the majority of beads may be agreed upon by archaeologists to be small or large based on superficial observation, in some cases arguments may be raised to the contrary. Horace C. Beck attempted to settle the question of a bead's size by organizing various guidelines by which it can be determined (see Tab. 1 and Fig. 36). According to these guidelines, if a bead's length is less than 30 percent of its width, then the same can be considered a "disk" bead (Beck, 1928: 4). In a similar fashion, if its length is greater than 30 percent and yet less than 90 percent of its width, then the bead can be considered "short" (Beck, 1928: 4). "Standard" beads are those that present a difference between length and width which is greater than 90 percent and less than 110 percent of the latter (Beck, 1928: 4). "Long" beads are those that, naturally, exceed the 110 percent allocated as the upper limit of any standard beads (Beck, 1928: 4).

Size	Percentage Difference Between Length and Width
Disc	< 30% of the bead's width
Small	Between 30% and 90% of the bead's width
Standard	Between 90% and 110% of the bead's width
Large	> 110% of the bead's width

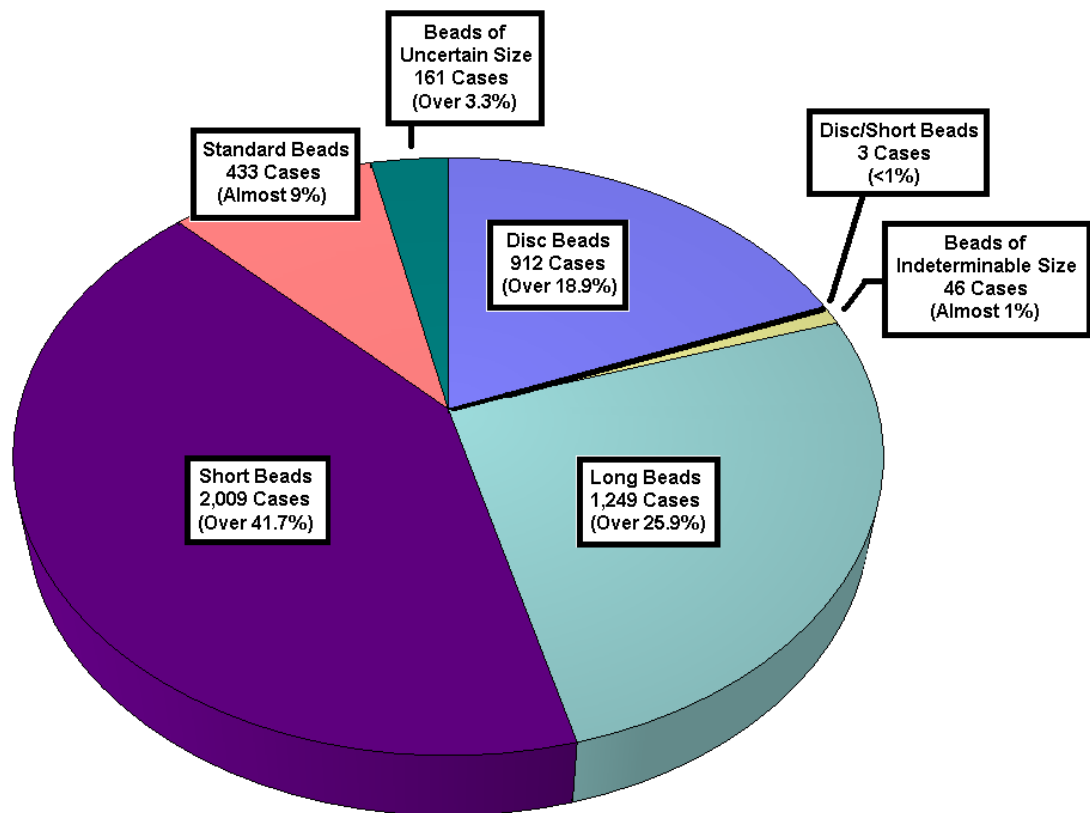
**Tab. 1.** The percentage differences between length and width determining the various bead sizes according to Horace C. Beck's guidelines (1928: 4).



**Fig. 36.** An illustration of how to determine bead sizes by employing the formula "(length/width)x100" to obtain the percentage required to do so based on guidelines, along with a graphic representation of the different sizes.

## B. Bead Sizes and the Bahrain Sample

A basic breakdown of bead sizes in the Bahrain sample shows a remarkable preference towards short beads, since 2,009 out of the 4,813 beads in the sample (over 41.7%) are of this kind (see Fig. 37). This preference towards short ornaments may have been carried on to such extent that it accounts for 912 disc beads coming in at third (over 18.9%) in terms of sizes in the sample; so much so that beads of standard size appear to have been relegated to a minority (only 433 cases, or almost 9%).



**Fig. 37.** Bead sizes as represented in the Bahrain sample.

Whilst synthetic materials run the gamut of bead sizes, they seem particularly predominant amongst short- and disc-sized specimens, thus allowing us to establish that their prevalence in the Bahrain sample (particularly with regard to definite cases of these materials) accounts for the comparable prevalence of such sizes (see Fig. 38a). There are 1,078 glass beads of short size; that is, over 22.3% of the entire bead sample. Faience beads have also

contributed significantly to the short bead total, with 196 cases, though this is nothing compared to the glass contribution and is actually outnumbered by confirmed short carnelian specimens (360 cases). With disc beads, glass and faience again predominate, though they are aided by frit, faience's synthetic cousin. Amongst the disc beads, however, faience seems to have outdone glass in a reversal of the situation with short beads (though not nearly as extreme in number differences). Faience specimens have contributed 403 examples of disc beads, whilst glass and frit have contributed 369 and 123 examples respectively.

Since carnelian is the third most prominent bead material in the Bahrain sample, it is only natural that it should represent significant amounts of different bead sizes as well. We have already mentioned its short-bead contribution. But there are two size categories in which carnelian predominates: the standard and long ones. 213 standard-sized beads are confirmed as being of carnelian whilst only 136 are of glass; all other materials come in too insignificant an amount to even compare (see Figs. 38a-38b). Amongst long beads, carnelian is even more important, appearing in 511 definite cases whilst glass appears in only 183. Long beads form the only size category in which materials other than glass, faience, frit, and carnelian seem to come in more significant numbers, and this only in two cases: that of clay (120 cases) and agate, especially of the banded variety (89 instances as opposed to 30 regular ones and other uncertain cases).

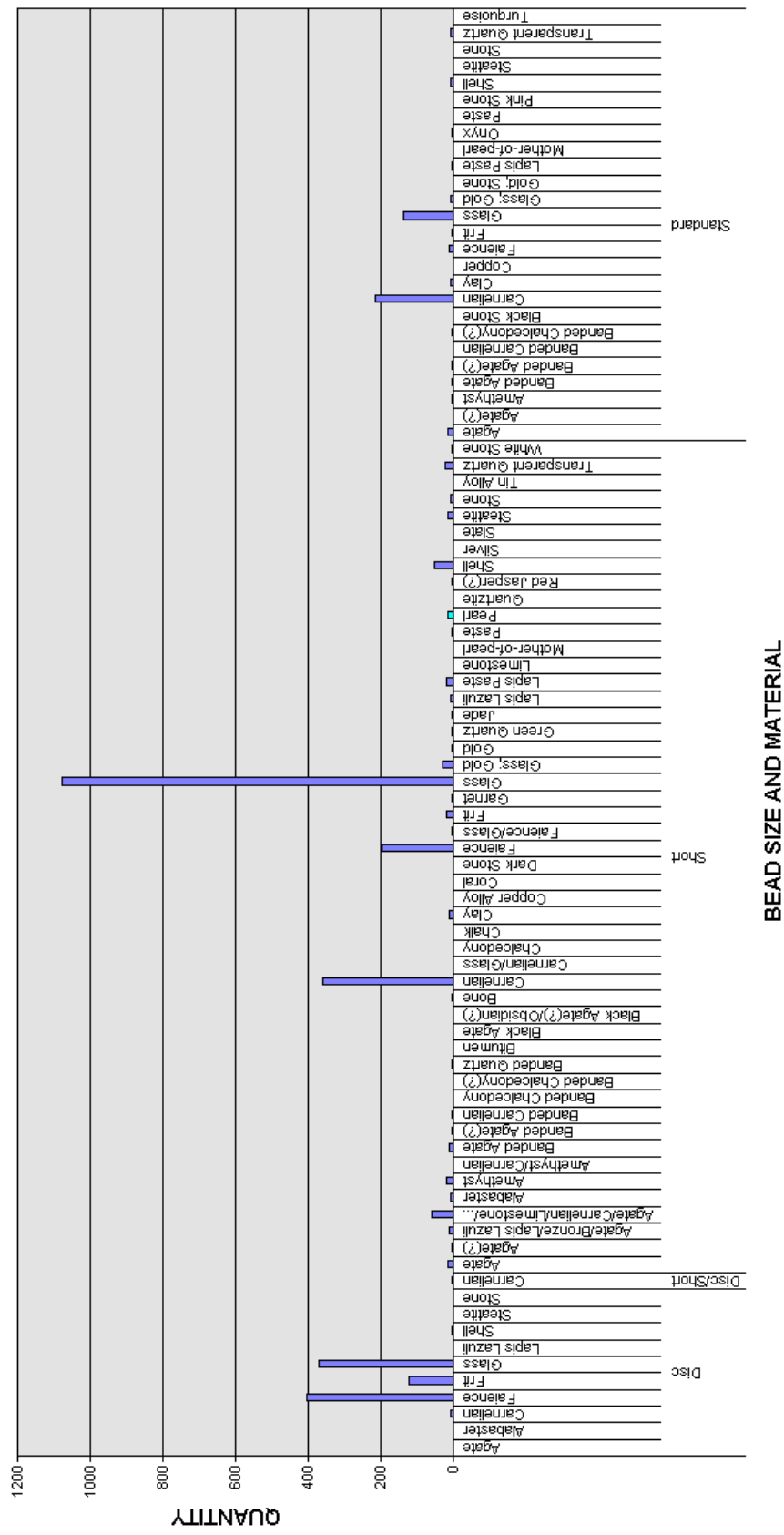
Thus, whilst various bead materials have provided examples of different sizes across the Bahrain sample, certain ones appear to be best represented by particular materials: short beads by glass; disc beads by faience and only secondarily by glass; and standard and long beads by carnelian. This suggests particular manufacturing tendencies as well as preferences in style across the sample. That clay and banded agate seem more visible amongst long beads also aids such a supposition.

### **C. Bead Sizes in Periods II and V**

This association between material preferences behind bead sizes and manufacturing/stylistic tendencies may be further substantiated when one examines the sizes by way of chronological period and site. As is to be expected, the best two chronological eras are Periods II and V. Whilst Period IV is represented to much the same level across all bead sizes, it is noticeable that hardly any disc beads (only three examples) derive from it: less than 1% of the entire 333 Period IV bead contribution (not counting those belonging to

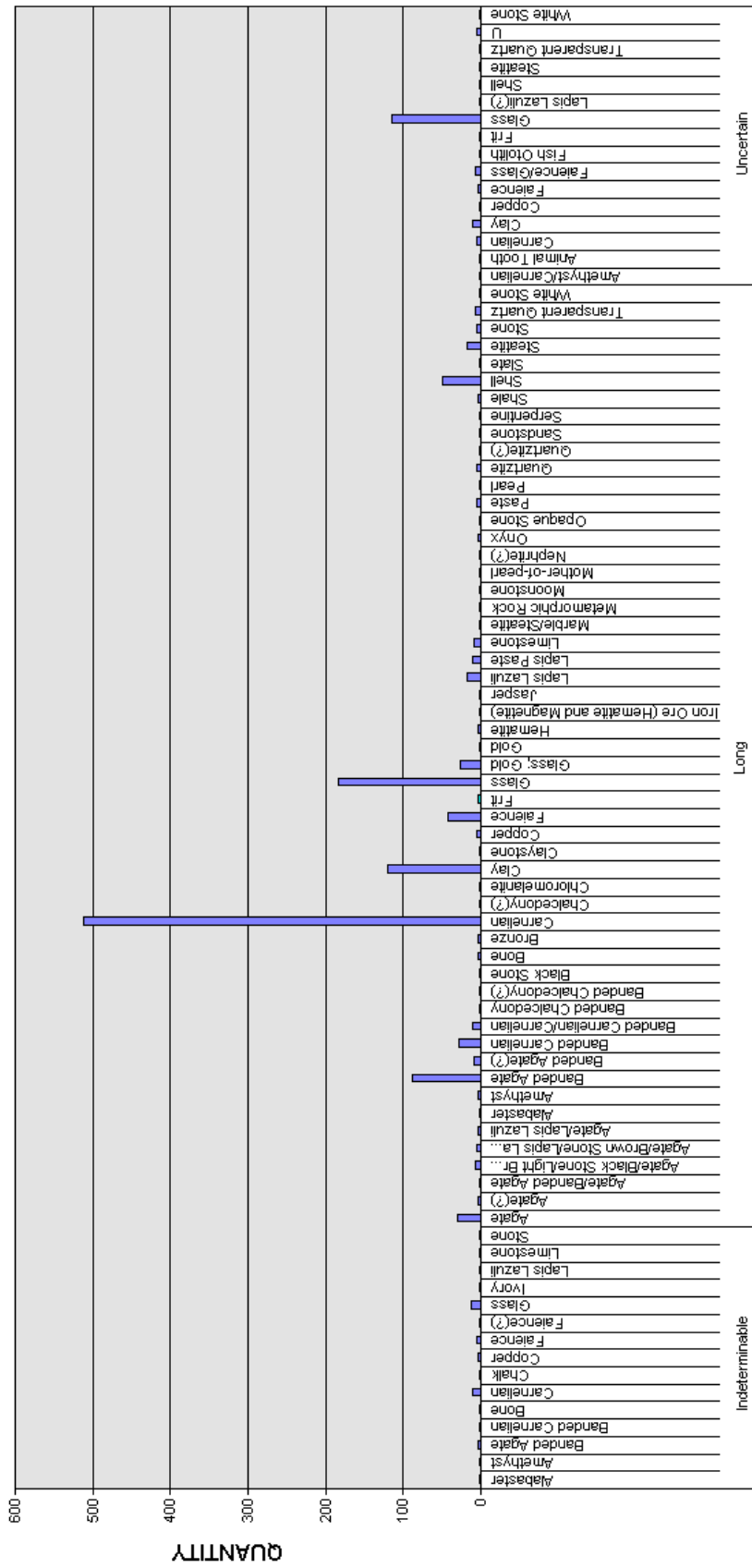
chronological ranges including Period IV). We can therefore conclude that though Late Dilmun is not as well represented in the Bahrain sample as Periods II and V, amongst its own beads the disc size is scarcely present.

The fact that the greatest quantity of short beads (1219 specimens) comes from the Tylos era is understandable given the importance of glass in Period V, particularly with the booms supporting the glassmaking and glassworking industries in Hellenistic and Roman times. Similarly, the observation that most disc beads (689 specimens) come from Period V also makes sense for much the same reason (glass-wise), but also because of the significant faience amount in the Bahrain sample and the fact that most of this amount hails from the Tylos era, as has already been explained in Chapter 8.5.



BEAD SIZE AND MATERIAL

Fig. 38a. Graph showing the material distribution of bead sizes, and covering disc, disc/short, short, and standard beads.



**Fig. 38b.** Graph showing the material distribution of bead sizes, and covering indeterminable, long, and uncertain ones.

The prevalence of long- and standard-sized beads in Period II as opposed to Period V seems to be due to carnelian amounts in each period. That long and standard bead quantities in Period II outnumber their Tylos equivalents is due to the prominence of carnelian in Early Dilmun ornamental culture; and a great deal of this may be owed to Bahrain's contact with the Indus during Period II.

Across the sites occupied or used in Period II, the differences between the bead amounts attributable to short and long beads seem quite close in many cases (see Figs. 39a-39b). At certain sites (e.g. 'Aali, al-Hajjar, Dar Kulayb, Hamad Town, and Qala'at al-Bahrain), this difference is in favour of short specimens. At others (e.g. Janabiyah, Karranah, Saar, and Shakhoura), in favour of long ones. At a few sites, which have provided the Bahrain sample with recovered beads of a very limited number (e.g. Diraz, Hamala, and Umm Jidr), only one or the other size has been noted. Many sites have provided meager disc or standard bead amounts and some none. The exceptions, in terms of standard-sized beads, are 'Aali (17 beads), Hamad Town (43 beads), Janabiyah (50 beads), Karranah (41 beads), and Saar (39 beads). These quantities in no way come close to those of short and long beads, but they are nonetheless intrinsically linked to the carnelian bead amounts contributed by the sites from which they have come.

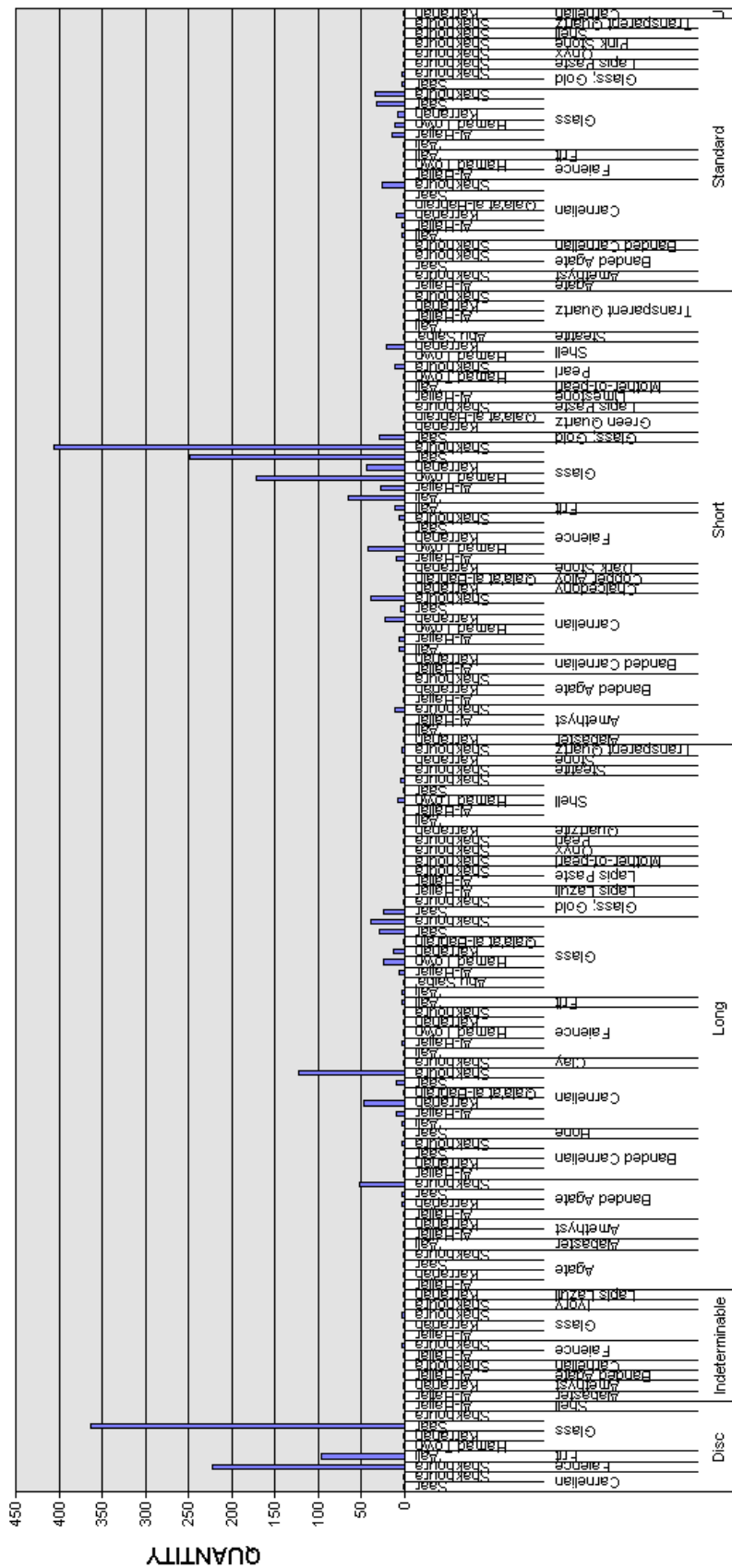
Period II disc beads were non- or hardly existent at most sites, as per the Bahrain sample. The exceptions, at which they had a more visible appearance, were 'Aali (28 beads), Hamad Town (180 beads), and Saar (eight beads); there is also a single disc bead from Shakhoura and three possible additional ones from Saar. Based on the relationship between faience and disc beads (particularly the drawn-snapped variety), mentioned above, it becomes reasonably clear why they would have been prevalent at Period II Hamad Town and 'Aali (especially the former). We may here recall the possibility of a faience-manufacturing centre located at or near Hamad Town, the influence of which would have reached as far as 'Aali.

The Tylos era beads in the Bahrain sample are dominated by short beads, mainly due to glass (see Fig. 40). Long beads, associated with carnelian and other stone materials, are significantly less important amongst these beads than their Period II counterparts, apparently overshadowed by the emphasis on glass in Period V. For instance, 238 Tylos long beads from Shakhoura have been noted in comparison to 478 short ones. The only sites at which the Period V difference, whilst yet pronounced, was not as severe were al-Hajjar and Karranah (from which 28 and 72 long beads have been contributed to the sample as opposed to 50 and 96 short ones respectively).

Tylos standard beads, owing much to carnelian and the mineral category, have few Bahrain sample representations across the different sites, with the exception of Shakhoura (which has produced 76). Glass seems to be the single material best represented by standard beads from Shakhoura, with carnelian coming in at second; this is in contrast to Period II. The possibility of a glassworking centre at or near Shakhoura, suggested previously, could account for a greater amount of this particular size at the site's cemetery (compared to others); particularly when one observes that glass was the most numerous material amongst beads from the site's burials. The importance of glass to the sizes in Period V may suggest this, though of course what cannot be explained is the dearth of similarly-sized glass beads at other sites across Bahrain. Glassworking being based at or near Shakhoura may account for it, but further evidence would be welcome before such an assertion can become more than a hypothesis.







BEAD SIZE, MATERIAL, AND SITE

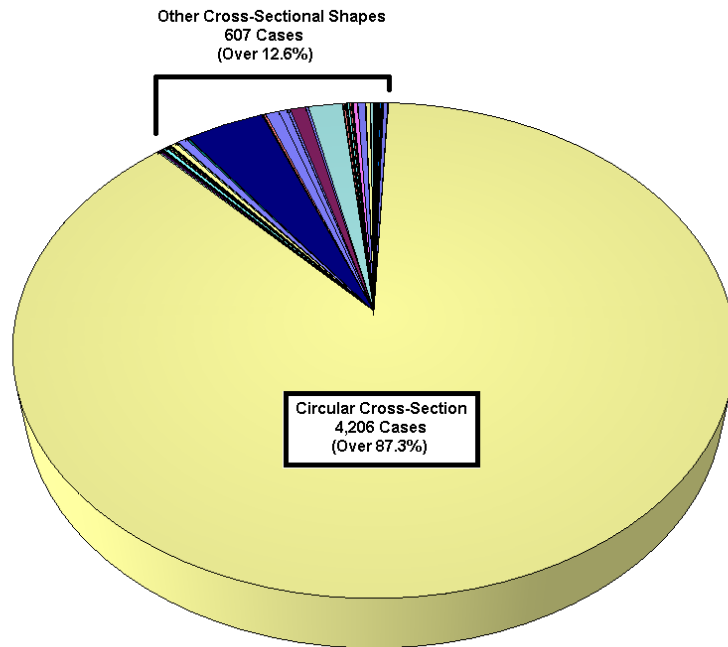
Fig. 40. Period V beads organized by size, material, and site. "U" indicates "uncertain" cases. This graph only takes into account those beads that can be securely dated to Period V.

Disc beads from Period V are best represented by the specimens from ‘Aali (97 cases), Saar (364 cases), and Shakhoura (225 cases). Interestingly, whilst they are best represented by glass beads in terms of the site of Saar, namely by drawn-snapped microbeads, frit and faience beads are their conspicuous (and sole, in the case of the former) representatives from ‘Aali and Shakhoura respectively. The manufacture of these synthetic materials has already been tied in to glass industries via the pyrotechnology required for their production. That such production may have been based at an industrial locale at or near Shakhoura (following the glass lead) with its limits at ‘Aali – that is, one of the geographical zones for such production suggested in Chapter 8.5 – would explain the amounts. It would do so, however, without eclipsing the importance of glass at these sites, mainly represented by short beads.

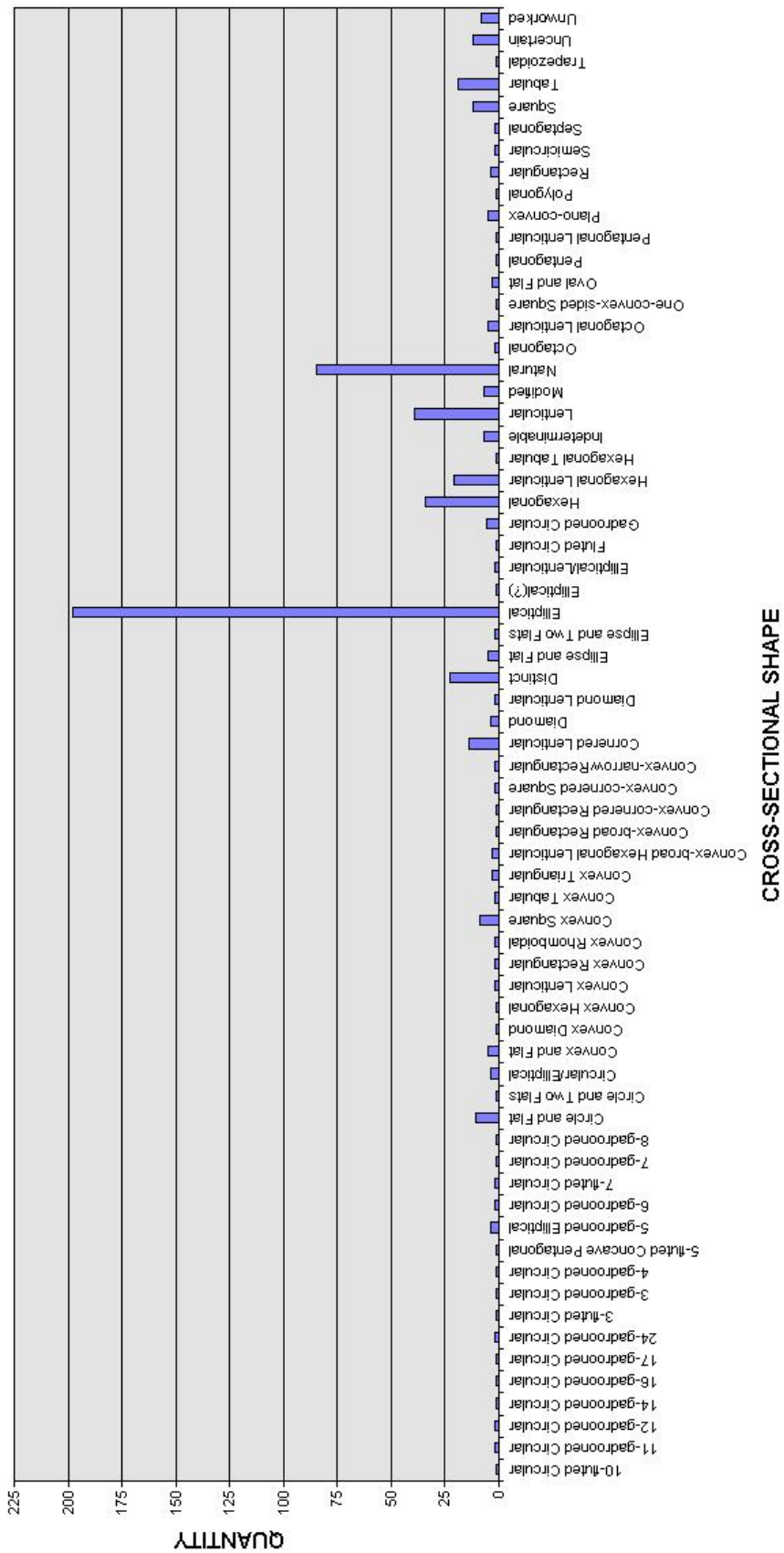
### **Cross-Sectional Shapes**

Whilst a bead’s size is relatively important to its shape, the actual determinants of form are its cross-sectional and profile shapes. These two, when compared (and augmented by size), result in what may be termed a “final form”.

The prevailing cross-sectional shape in the Bahrain sample is the circular variety (see Fig. 41). There are 4,206 examples of beads with circular cross-sections in the sample, with all other kinds combined forming a fraction of this total. Over 87.3% of the Bahrain sample beads have circular cross-sections. Amongst the 588 remaining beads (excluding uncertain and indeterminate cases, which would make 607), the chief variety is the elliptical shape, with 198 examples, followed by beads with “natural” cross-sections (i.e., those of natural substances that have not been modified in shape) (see Fig. 42). 85 examples of the latter have been noted. Other cross-sectional shapes are apparent in only a handful of specimens (if not single ones), with the exception of the circle and flat (eleven cases), convex square (nine cases), cornered lenticular (14 cases), hexagonal (34 cases), hexagonal lenticular (21 cases), lenticular (39 cases), square (twelve cases), and tabular (19 cases) varieties.



**Fig. 41.** Pie chart showing the predominance enjoyed by the Circular cross-section in the Bahrain sample in comparison to all other varieties.



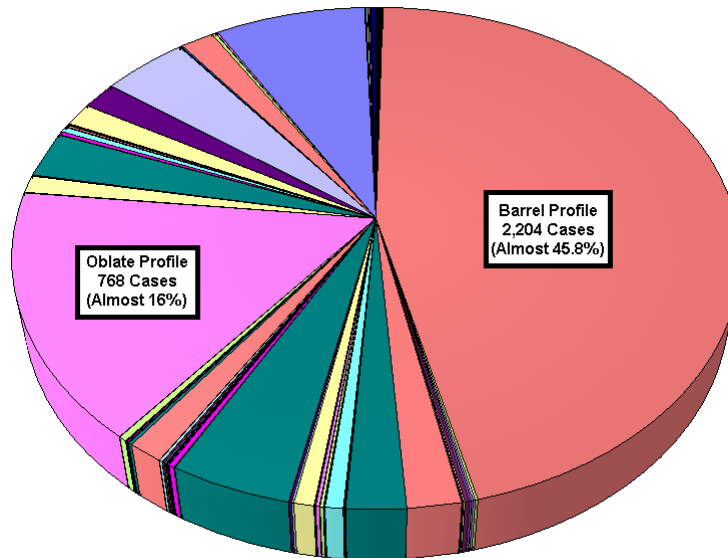
**CROSS-SECTIONAL SHAPE**

**Fig. 42.** All cross-sectional shapes in the Bahrain sample apart from the regular Circular variety (but including variations on it and uncertain cases which may represent Circular cross-sections), with their respective quantities.

To these may be added “distinct” and “modified” cross-sections, with 23 and seven cases respectively; the former indicates a unique shape, often the result of a pendant’s special form, whereas the latter means a cross-section due to a natural substance only being altered in some basic manner (such as the apex of a shell being sawed off). On the whole, 65 different cross-sectional shapes have been noted in the Bahrain sample.

## **Profile Shapes**

There are 99 different profile shapes, on the other hand, in the sample. The foremost amongst them is the barrel shape (see Fig. 43). It is not nearly as great in quantity as the Circular shape is amongst cross-sections, but it certainly does hold a comparable sway amongst profile shapes. There are 2,204 examples of barrel beads in the Bahrain sample; that is, almost 45.8% of the sample total. In second place comes the oblate profile shape, with 768 examples (almost 16%). All other varieties are dwarfed by these two, though the nearest contender is the truncated convex bicone, with 374 examples (over 7.7%) (see Fig. 44). Other significant profile shapes, appearing in smaller quantities, are the following: the bicone (100 cases), collared barrel (33 cases), convex bicone (37 cases), cylinder (226 cases), ellipsoid (66 cases), oblate with one end (54 cases), pear shape (141 cases), natural shell (72 cases), sphere (84 cases), spheroid (barrel) (211 cases), and truncated bicone (83 cases). All other kinds are represented by only single cases or fewer ones than the above.



**Fig. 43.** Pie chart showing the predominance enjoyed by the Barrel profile shape in the Bahrain sample in comparison to all other varieties. It will be noticed that the Oblate is the second most common profile shape.

### Three-Dimensional Forms

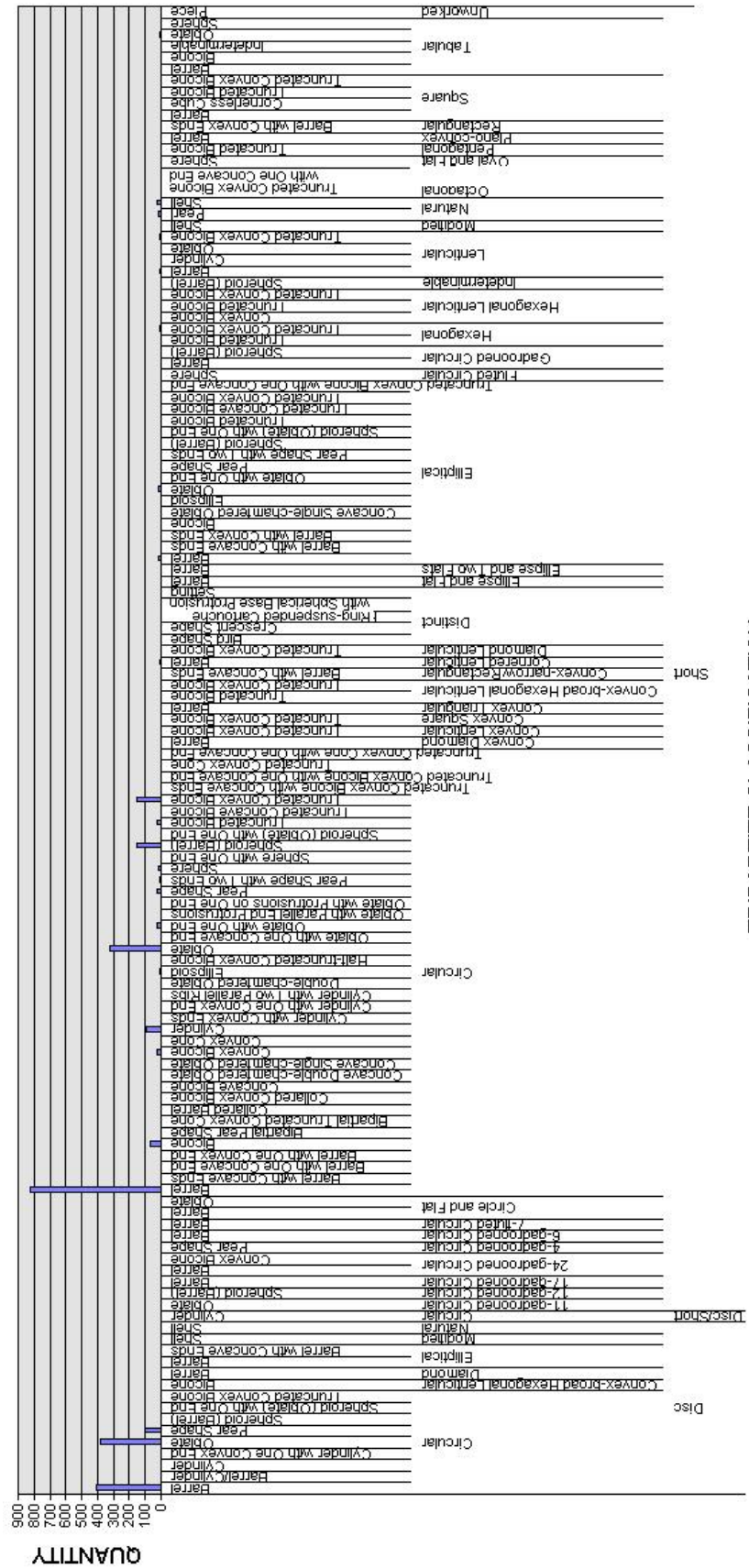
The combination of cross-sectional and profile shapes produces a new series of forms. These are three-dimensional descriptions amongst which the circular barrel is the most dominant. 1,970 such beads are found in the Bahrain sample. The six other prevailing kinds are, by order of decrease: the circular oblate (740 cases), circular truncated convex bicone (306 cases), circular cylinder (215 cases), circular spheroid (barrel) (199 cases), circular pear shape (136 cases), and elliptical barrel (132 cases). It will be observed that all possess circular cross-sections save for the last.



## **The Tripartite Method of Bead Classification**

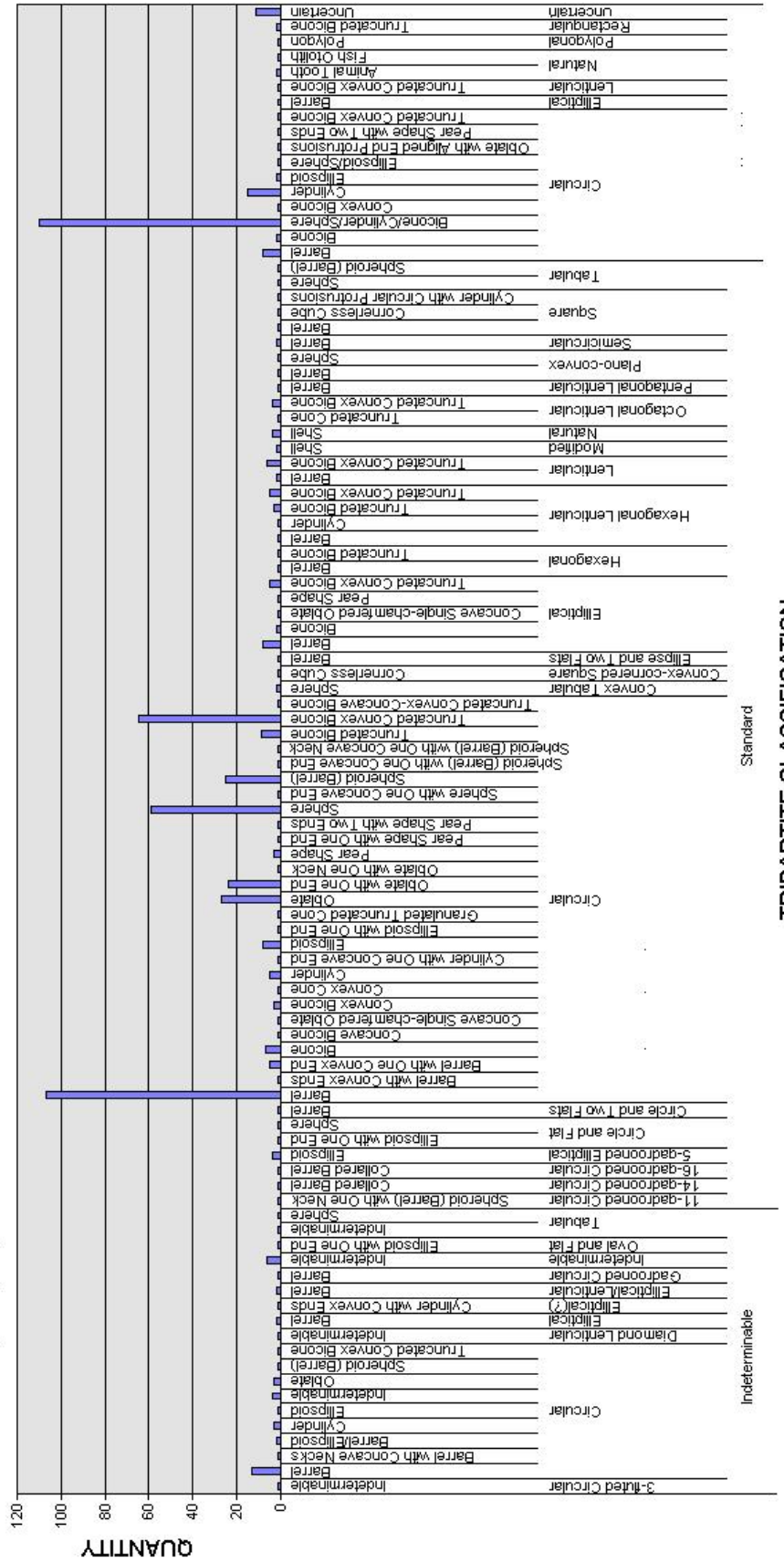
Despite allowing us a three-dimensional rendition of the beads so described, these forms have yet to be finalized. That they be so, we must augment them with the consideration of size already treated above. The resultant combination of size, cross-sectional shape, and profile shape may rightly be called a “final form”, or else a Tripartite Type, owing to its being constructed of three parts. In a sense, a unique typology based on bead form may thus be codified, resulting in a Tripartite Method of bead classification.

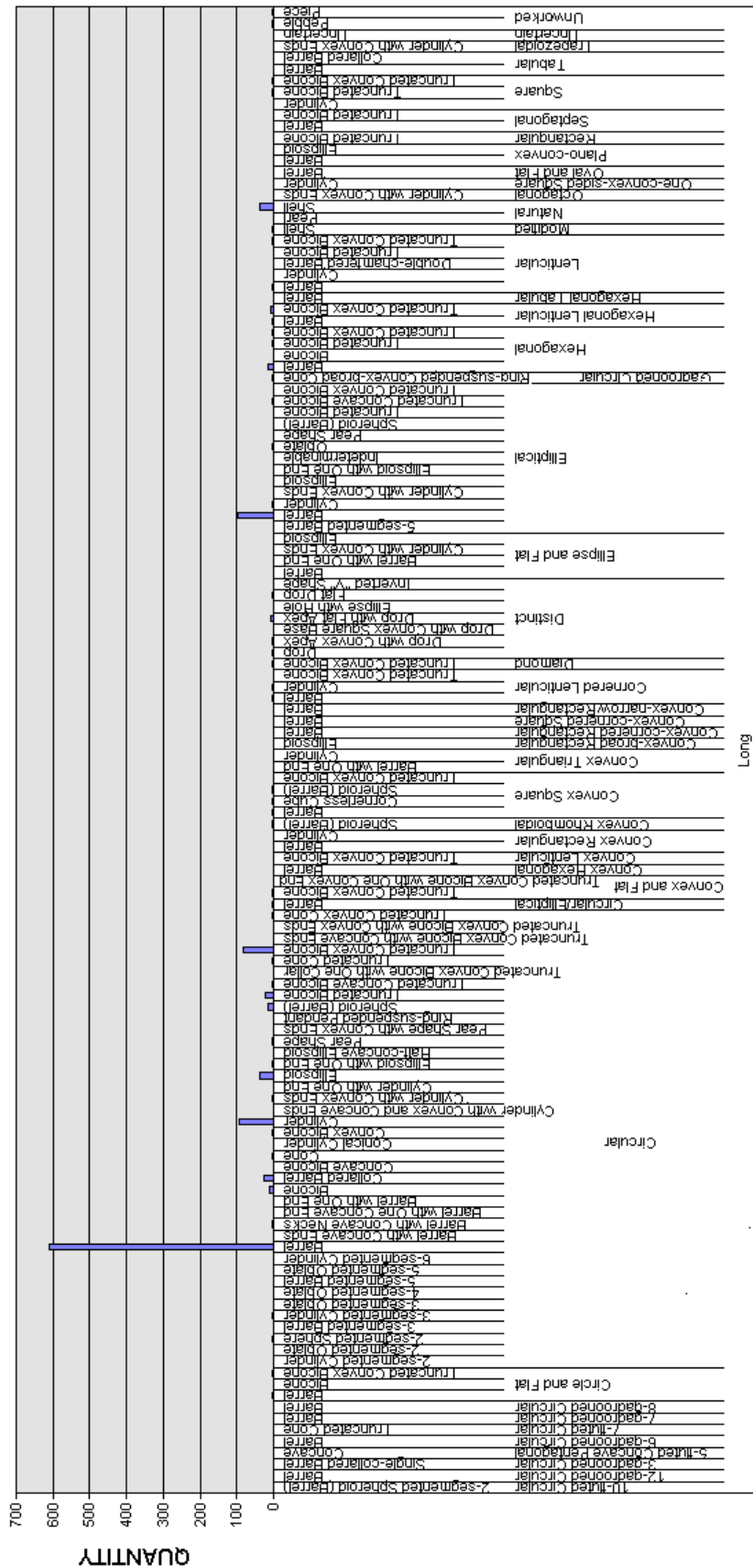
The resultant types so yielded are enormous in scope, producing 356 combinations throughout the Bahrain sample. Removing those with any element of uncertainty or containing a “missing” part, the total becomes 316. Amongst these, the Short, Circular, Barrel is the most common bead form, appearing in 824 cases throughout the sample; it represents over 17.1% of the bead total. The second most numerous variety is the Long, Circular, Barrel at 609 cases (over 12.6%). This is followed by the Disc, Circular, Barrel and Disc, Circular, Oblate at 409 and 385 cases respectively (that is, almost 8.5% and 8%). The next variety to show some visibility in the sample is the Short, Circular, Oblate at 325 cases (over 6.7%). Thereafter comes the Short, Circular, Spheroid (Barrel) at 156 cases and the Short, Circular, Truncated Convex Bicone at 154 cases. All other varieties are found in far fewer numbers, with the majority being encountered in only single instances.



TRIPARTITE CLASSIFICATION

Fig. 45a. Presentation of bead classifications based on the Tripartite Method as they feature in the Bahrain sample. The importance of this graph, like the related following ones, lies in its listing of the Tripartite Types. In a secondary sense, the major quantities related to certain of these Tripartite Types are shown. Seemingly non-existent amounts indicate minute quantities or single cases. This graph shows Tripartite classifications involving disc, disc/short, and short beads.





**TRIPARTITE CLASSIFICATION**

**Fig. 45c.** Presentation of bead classifications based on the Tripartite Method as they feature in the Bahrain sample. The importance of this graph, like the preceding ones, lies in its listing of the Tripartite Types. In a secondary sense, the major quantities related to certain of these Tripartite Types are shown. Seemingly non-existent amounts indicate minute quantities or single cases. This graph shows Tripartite classifications involving long beads.

## 9.5 – Complex Typologies

Whilst the Tripartite Method of classification offers a comprehensive overview of a bead's shape, it does not define the actual Bahrain Type to which a specimen belongs. In order to obtain a bead's Type, when referring to its Tripartite classification we must bear a bead's material in mind as well as its function (if not a regular bead, thus acknowledging its role as a microbead, pendant, spacer, etc.) and a consideration of whether or not it is etched.

Bringing material into the matter for a start, we thus find that the Bahrain sample suggests 693 individual typological sequences combining material and Tripartite classification (see Figs. 46a-46l). Excluding those with uncertain and indeterminate components, either in terms of material or Tripartite form, the resulting total becomes 584 sequences. This is the number of material-and-Tripartite classification combinations drawn from the Bahrain sample and so the archaeological record of the Islands.

Whilst 219 of these Bahrain Types are represented by more than single specimens, the remaining 365 are unique in the Bahrain sample. This is not to say that such unique specimens have no intrinsic value to our study of the Bahrain beads. Rather, whilst numbers and frequency of encounter are not in their favour, they nonetheless do provide in particular cases some information in terms of origins, manufacture, and ancient Bahrain's commercial contacts. Their uniqueness, however, advises against much weight being put upon them, as they may well represent "one off" examples rather than a definite trend or forceful argument in any of the above domains (i.e., origins, manufacture, etc.).

However, it is with the more abundant material-and-Tripartite combinations that principal cases can be made. Amongst these, the foremost is the Glass Short, Circular, Barrel, represented by 496 specimens throughout the sample. It is truly the most numerous combination afforded by this collection of beads, forming 10.3% of the entire sample. The second most numerous is the Faience Disc, Circular, Barrel, with 402 specimens representing over 8.3% of the sample (see Fig. 46a). Over 300 specimens of the Glass Disc, Circular, Oblate and the Carnelian Long, Circular, Barrel are found in the Bahrain sample; respectively 364 and 308 cases (being over 7.5% and almost 6.4%) (see Fig. 46a). The Glass Short, Circular, Oblate is represented by 259 specimens (over 5.3%) in the sample (see Fig. 46b). The Bahrain Types numbering at over 100 cases include the following: the Glass Short, Circular, Spheroid (Barrel) (130 cases); the Carnelian Short, Circular, Truncated Convex Bicone (115 cases); the Faience Short, Circular, Barrel (113 cases); the Carnelian Short,

Circular, Barrel (105 cases); and the Frit Disc, Circular, Pear Shape (101 cases) (see Figs. 46a-46b). All other varieties number less than 100 in terms of frequency, with the vast majority represented by only single cases (as indicated above).

It is also observable that the above combinations, with two exceptions, are represented by either glass or carnelian. This is only natural, given that they are the two most prominent bead materials in the Bahrain sample. In fact, most of the combinations that appear more than once in the sample are glass or carnelian ones (with 50 – or 56, if counting gold-glass combinations – and 53 cases respectively). Faience, being the third most numerous bead material in the Bahrain sample, is also third in terms of the number of combinations it has provided us. 41 distinct ones in the sample are of faience.

The overview of combinations given above is all very well, but such combinations do not provide us with the final Bahrain Types until they are supplemented by a consideration of function (e.g. microbead, pendant, and the like) and the presence or absence of etching. These are distinguishing characteristics independently informative but specific enough to define bead “groupings” particular to Bahrain. Considering them, we obtain the actual Bahrain Types, the veritable constituents of the Bahrain Bead Typology. The following determines a Bahrain Type’s descriptive “sequence”:

*Function (if not a regular bead) + Etching Description (if etched) + Material + Size, Cross-sectional Shape, Profile Shape (the last three being the Tripartite classification).*

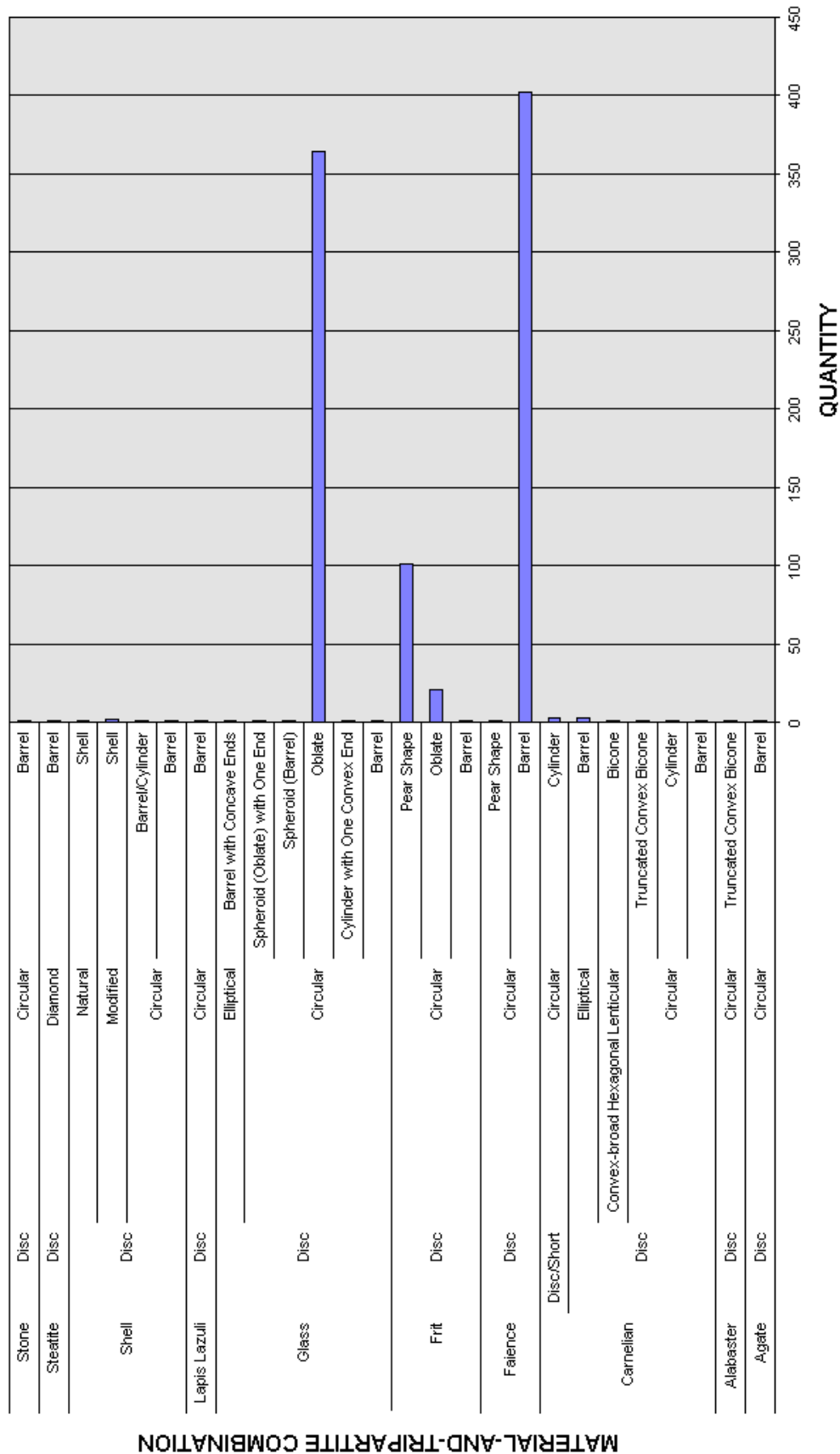
An illustration would be:

*Microbead Etched Carnelian Short, Circular, Barrel.*

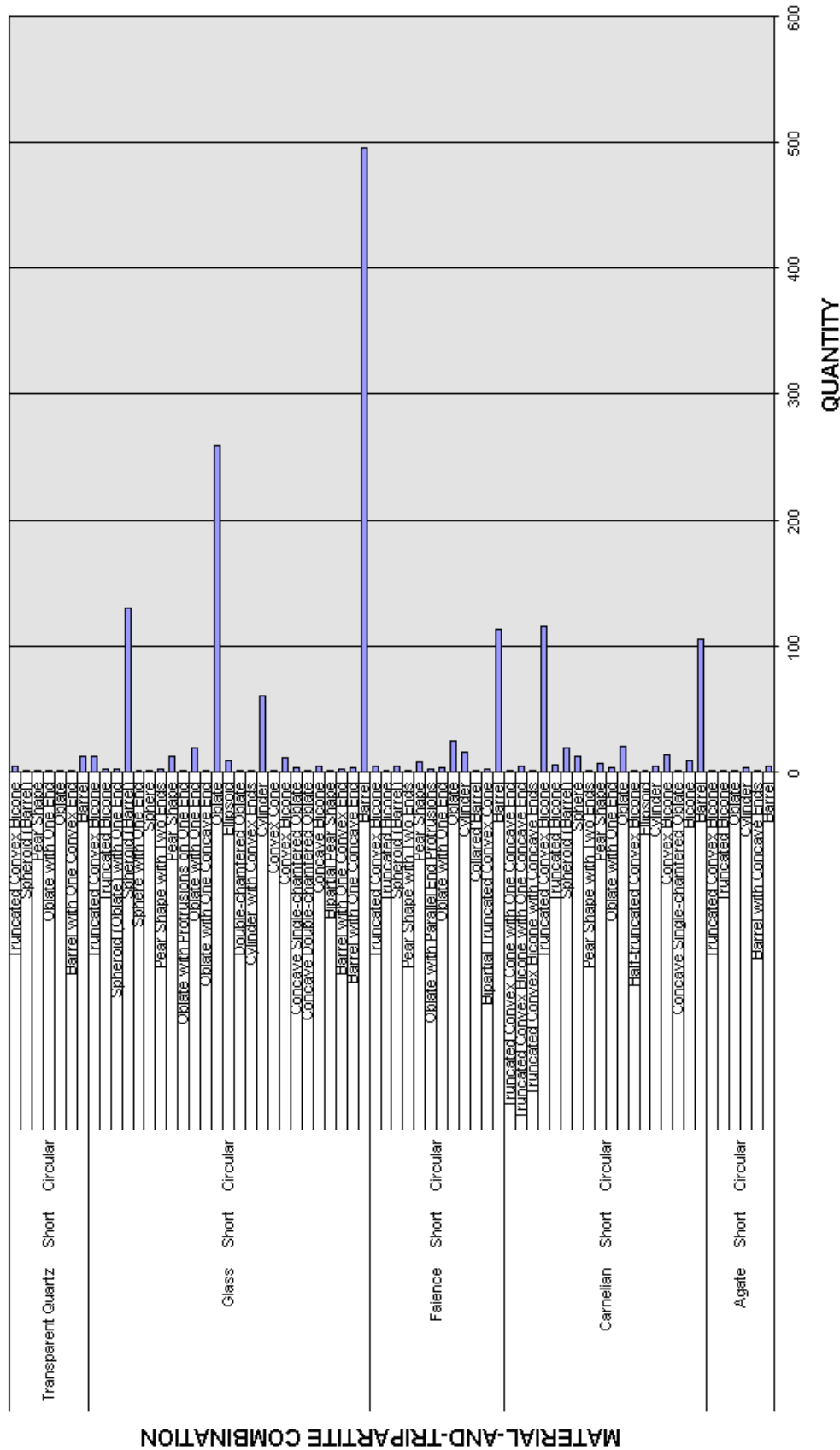
If a specimen is a regular bead, then no inclusion of its function is normally made in the typological sequence described, though this may be added for the sake of clarity (as will be seen in some of the graphs in Chapter 9.6).

Once the different Bahrain Bead Types found in the Bahrain sample have been determined according to the above criteria for a descriptive sequence, the most informative approach to examining these Types comes from placing them into context, both chronologically and from the standpoint of provenience. Returning to the archaeological narrative of the preceding two chapters, we thus obtain a certain level of coherence in dealing

with a vast subject, thanks to the availability of a gradually unfolding chronological framework from which to embark upon the analysis of Bahrain Bead Types.

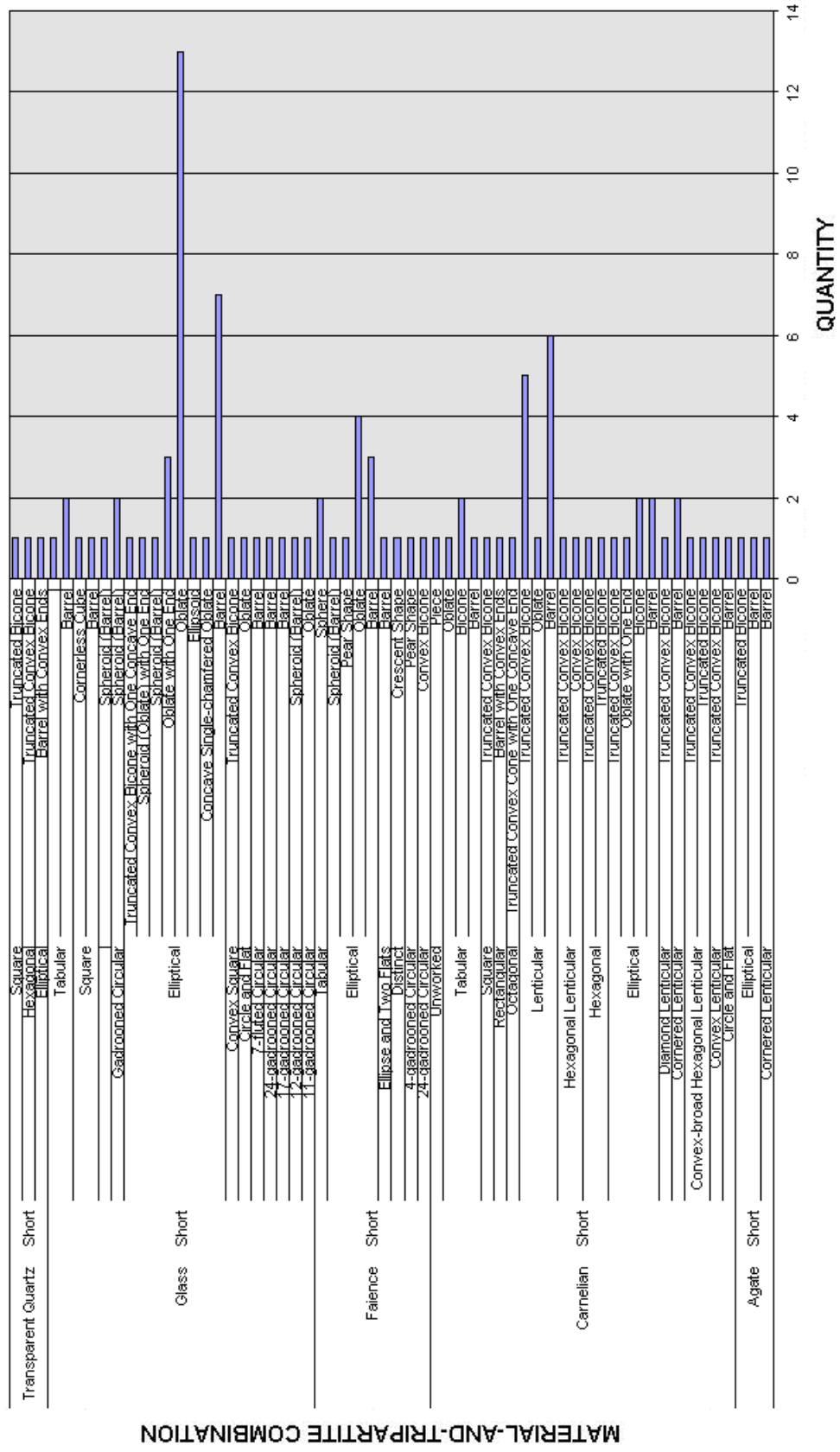


**Fig. 46a.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations involving disc and disc/short bead sizes.



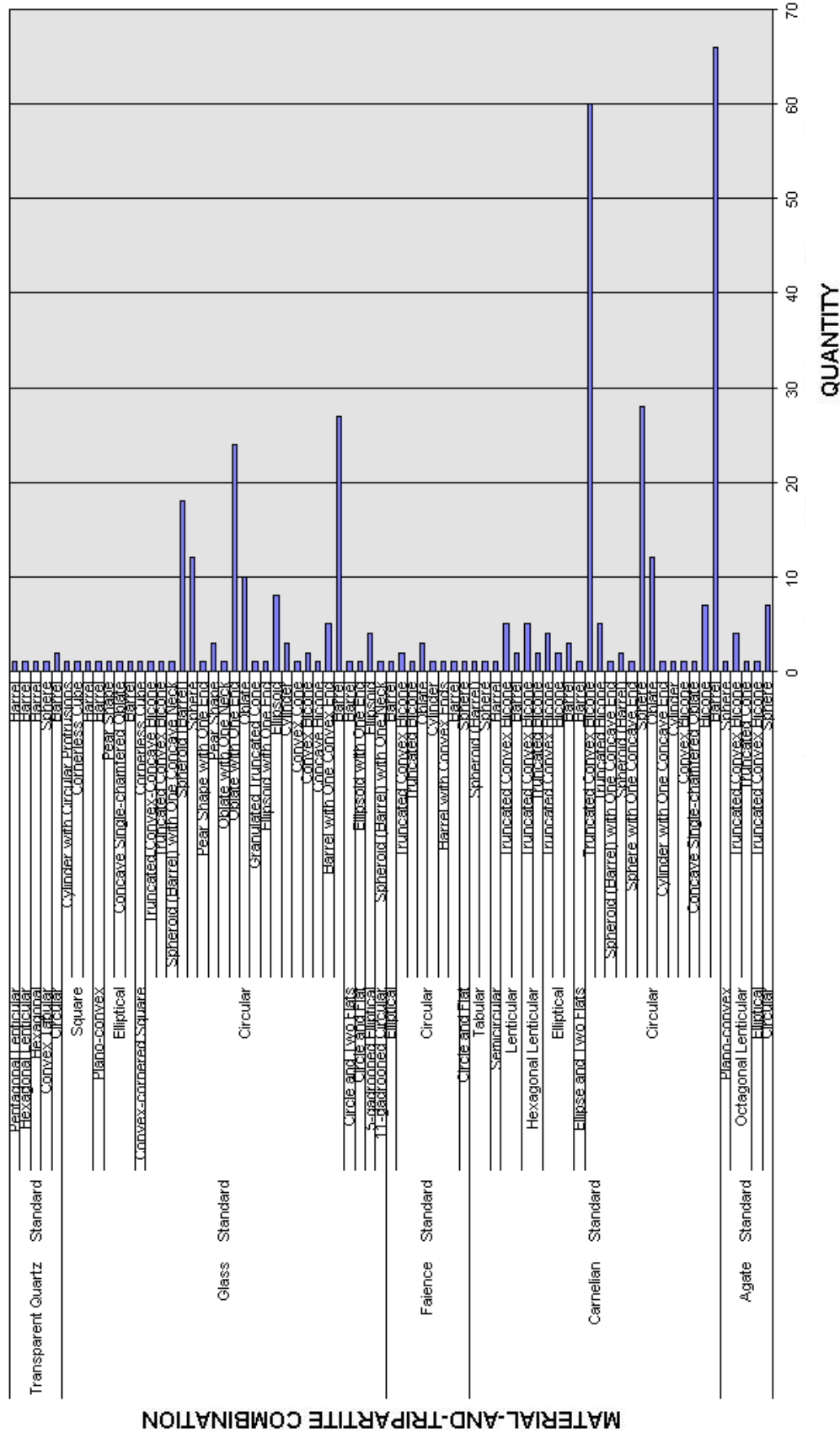
**Fig. 46b.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of short size and a circular cross-section involving agate, carnelian, faience, glass, and transparent quartz where these materials are expressly identified without any uncertainty.





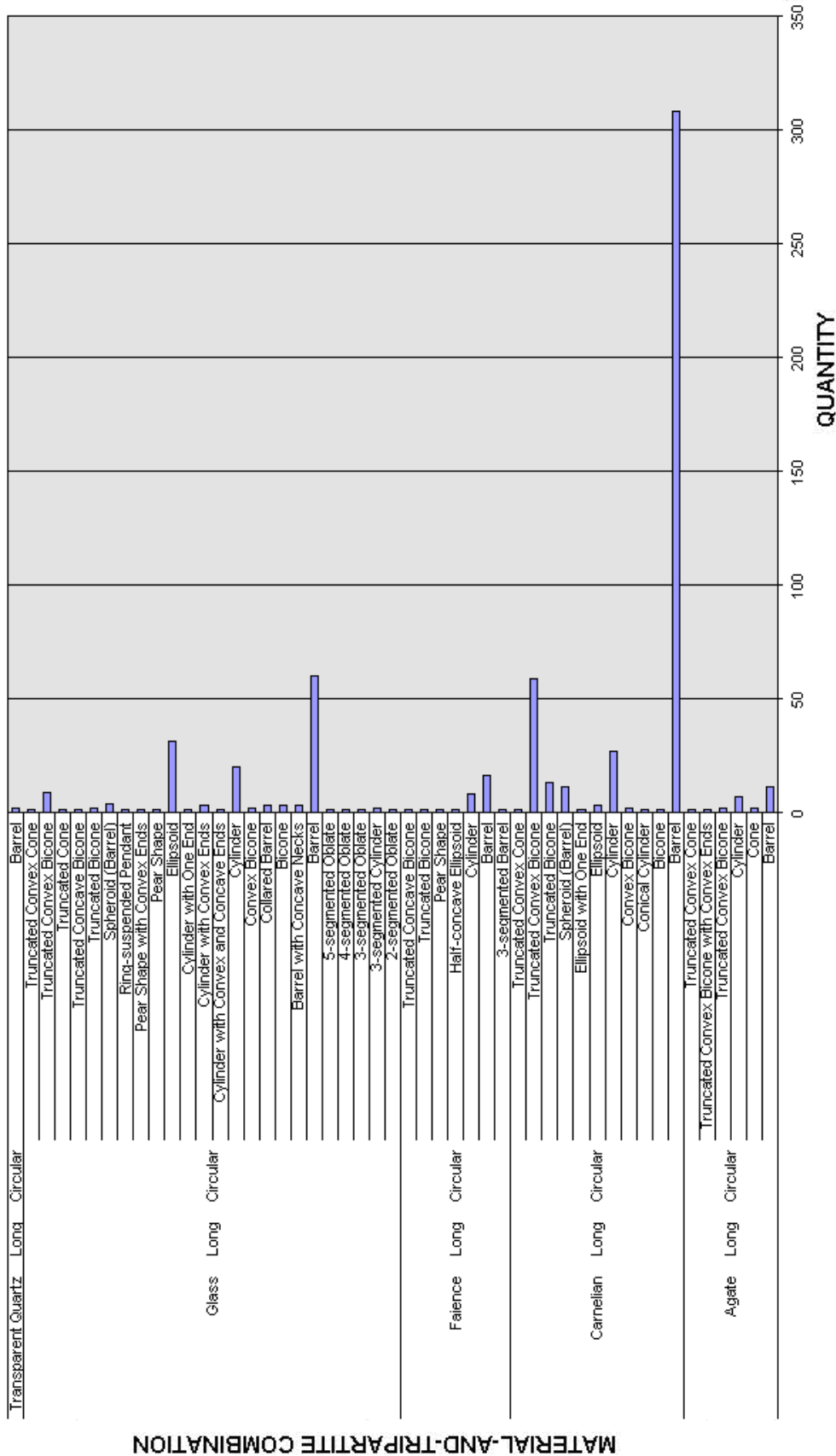
**Fig. 46d.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of short size involving agate, camellian, faience, glass, and transparent quartz which have a cross-section other than the circular variety. The cases involved are those where the concerned materials have been expressly identified without any uncertainty.





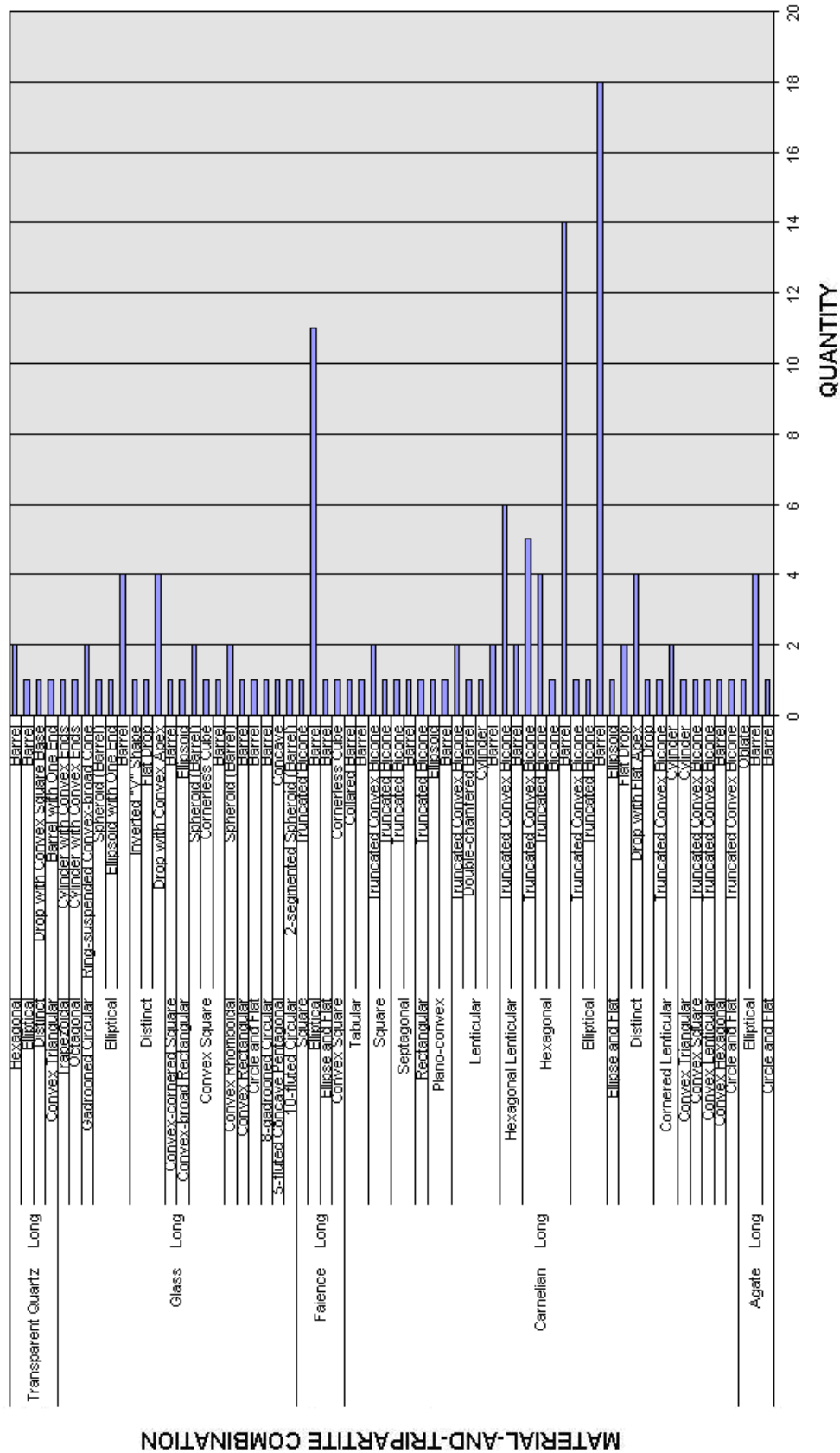
**Fig. 46f.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of standard size involving agate, carnelian, faience, glass, and transparent quartz where these materials are expressly identified without any uncertainty.



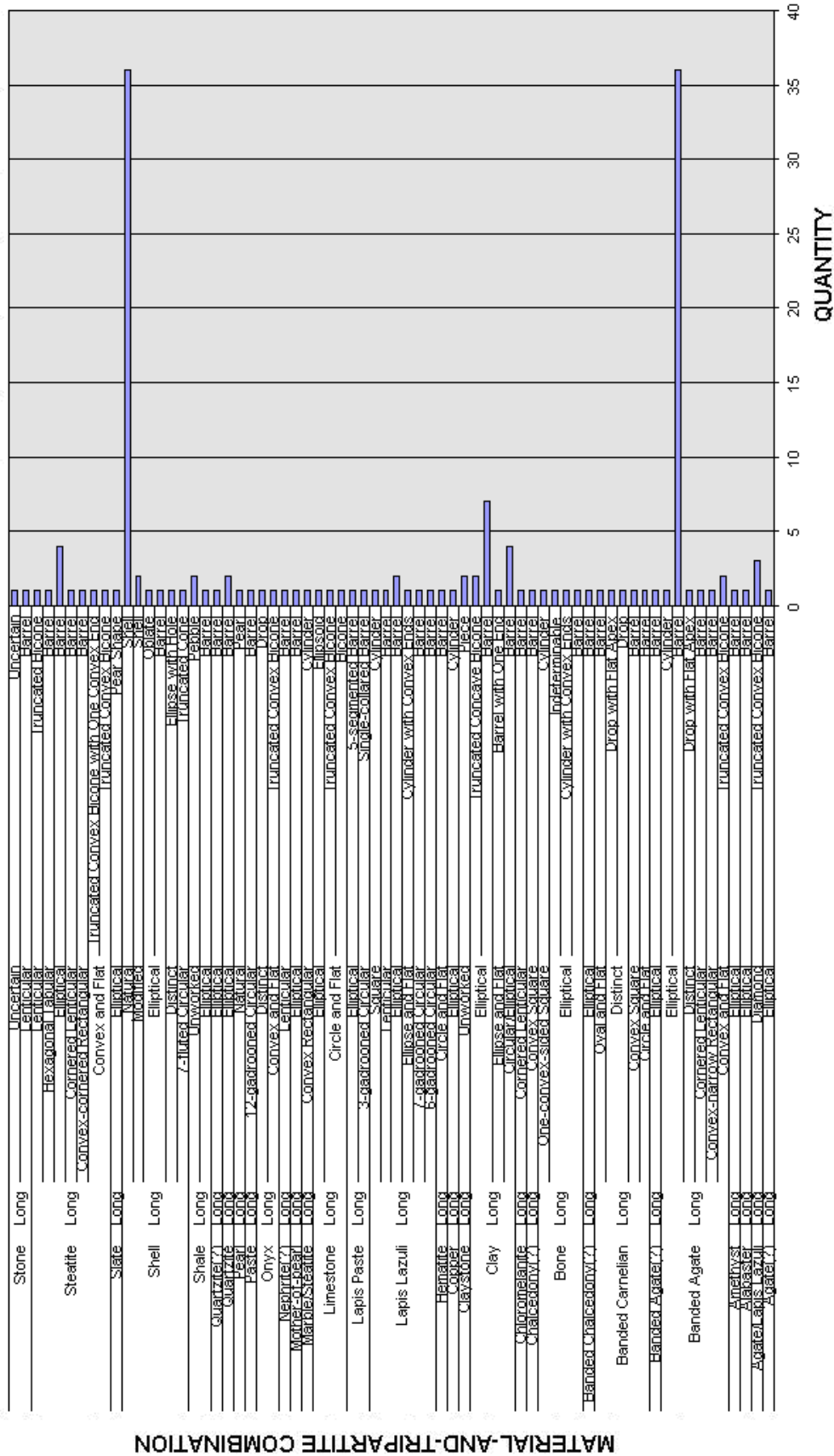


**Fig. 46h.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of long size and a circular cross-section involving agate, carnelian, faience, glass, and transparent quartz where these materials are expressly identified without any uncertainty.





**Fig. 46j.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of long size involving agate, carnelian, falence, glass, and transparent quartz which have a cross-section other than the circular variety. The cases involved are those where the concerned materials have been expressly identified without any uncertainty.



**Fig. 46k.** A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations of long size and a non-circular cross-section not included in Fig. 46j as well as those involving possible cases of the materials covered in the last graph.

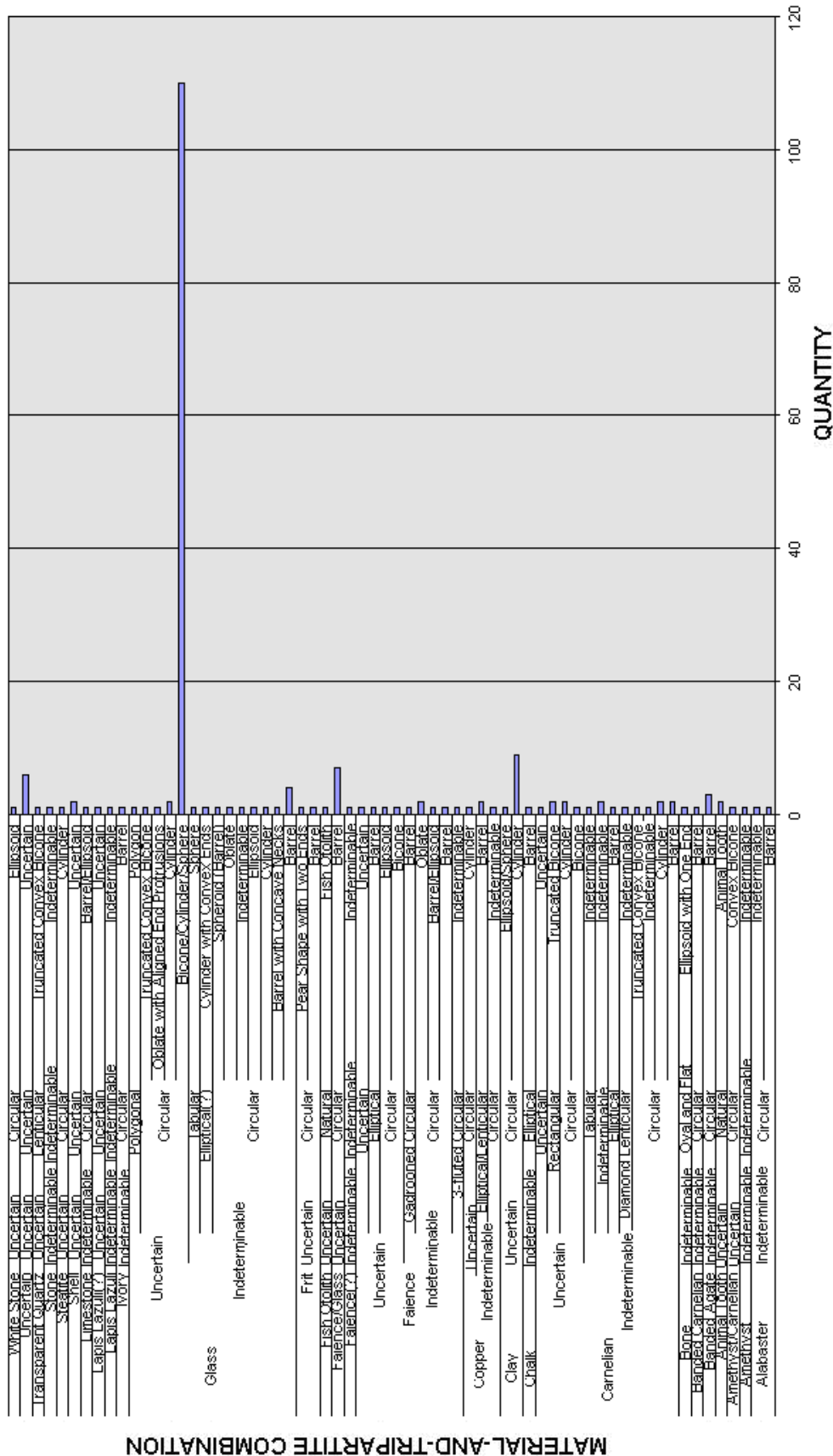


Fig. 461. A presentation of quantities attributable to material-and-Tripartite combinations in the Bahrain sample. This graph covers all combinations involving uncertain or indeterminate sizes.

## 9.6 – Archaeological Narrative

### The Oldest Beads

#### A. A Typological Return to the Oldest Burial Beads

In taking up our archaeological narrative once again, this time from the perspective of the actual Types comprising the Bahrain Bead Typology, we must once again revisit the oldest burial specimens thus far found on the Islands, those from a Jemdet Nasr burial beneath Mound 26 of Hamad Town's BSW1 area. Classified as part of the Bahrain Typology, though not strictly-speaking a part of the Bahrain sample, the spacer beads involved would be described as Steatite Standard, Tabular, Bicones, with allowance being made for the fact that they possess two perforations (to be distinguished from "double perforations", which highlight a perforation type), thus functionally acting to maintain a selected distance between other bead types in a necklace or bracelet.

It has already been observed in the previous two chapters that similar beads have been found in Hafit tombs in Oman as well as at the Shara Temple of the Tell Agrab site in Iraq (Laursen, pers. comm., 2013). Though the material likely came from Persia, following the same trade routes (or comparable ones) as lapis lazuli, there is also the distinct possibility that the Steatite Standard, Tabular, Bicone, as a Type, had arrived in Mesopotamia and Oman, not to mention Bahrain, as finished products. Four arguments favour this: 1) steatite/chlorite was worked into finished products at Persian sites such as Tepe Yahya; 2) all the sites at which the Steatite Standard, Tabular, Bicone were excavated were situated in regions benefiting from the westward flow of Persian steatite/chlorite; 3) Gulf-based centres of steatite production, possessing a sizable industry, such as the one at Tarut, were not yet active at the time to which the spacers belong; and 4) small and more meager possible sites of manufacture would, in most cases, have not had the necessary reach to transport such items as far afield as they have been found, especially against the current of Persian trade in both the material and finished products made from it (see Crawford, 1998: 44-47; Crawford, 2004: 180-181; Herrmann, 1968: 27). This does not mean another site elsewhere may not have been behind the Steatite Standard, Tabular, Bicone production; only that all indications seem to point to their origin having likely been in Persia.

Accompanying the Steatite Standard, Tabular, Bicone in the grave beneath Mound 26 are several beads of other materials. These include the earliest examples of the following bead forms from Bahrain: the Disc, Circular, Barrel; Short, Circular, Barrel; and Long, Circular, Barrel. They also include the earliest examples of wholesale etching found on Bahrain, with several bead Types (such as a Carnelian Short, Circular, Barrel) having been etched in this manner. This is an important observation, not only as regards a *terminus a quo* for such Bahrain Types but also for the appearance of this type of etching on the Islands; at least, based on archaeological evidence thus far, which future discoveries may cause to be revised. It also appears that the production centre that had specialized in such etching (or another comparable to it) was active as far back as the Jemdet Nasr period, or else that this etching style was imported from elsewhere but had seeped into local taste at this time. If the former of the two is a valid supposition, then it may be grounds for supposing the origins of this style of etching to have been based not on Bahrain, but somewhere nearby, perhaps on the Arabian mainland. After all, there is no evidence for even rudimentary urbanization on the Islands at this time, let alone a beadmaking industry. Moreover, it was only late in the 3<sup>rd</sup> millennium BCE that the initial urban blossoming took place on Bahrain alongside its adoption of the burial culture of the mainland opposite (Højlund, 2007: 123, 129).

## **B. Bahrain Types and the Oldest Beads in the Bahrain Sample**

The oldest beads in the Bahrain sample, and these non-burial ones, are the three 4<sup>th</sup>-millennium BCE specimens from al-Markh (B723 to B725) (see Roaf, 2003a: 9). Though a lack of information about the form of the two shell beads makes further definition difficult for these, the third specimen (B723) has been described as an Undetermined, Natural, Fish Otolith in Type (its size being unmeasured), pointing out that the original shape of the material was retained and only drilled. As a distinct Type, it is the only one of its kind in the Bahrain sample. It was certainly locally drilled, even as its material was local in origin. In this we can compare it to the pearl beads belonging to later epochs in our sample (as per the last chapter). The three beads from al-Markh indicate marine exploitation of the waters around Bahrain, but are scanty in the information they provide on Bahrain Types. By themselves, they therefore do not provide us with any data about the role played by beads in Bahrain in the 4<sup>th</sup> millennium BCE.

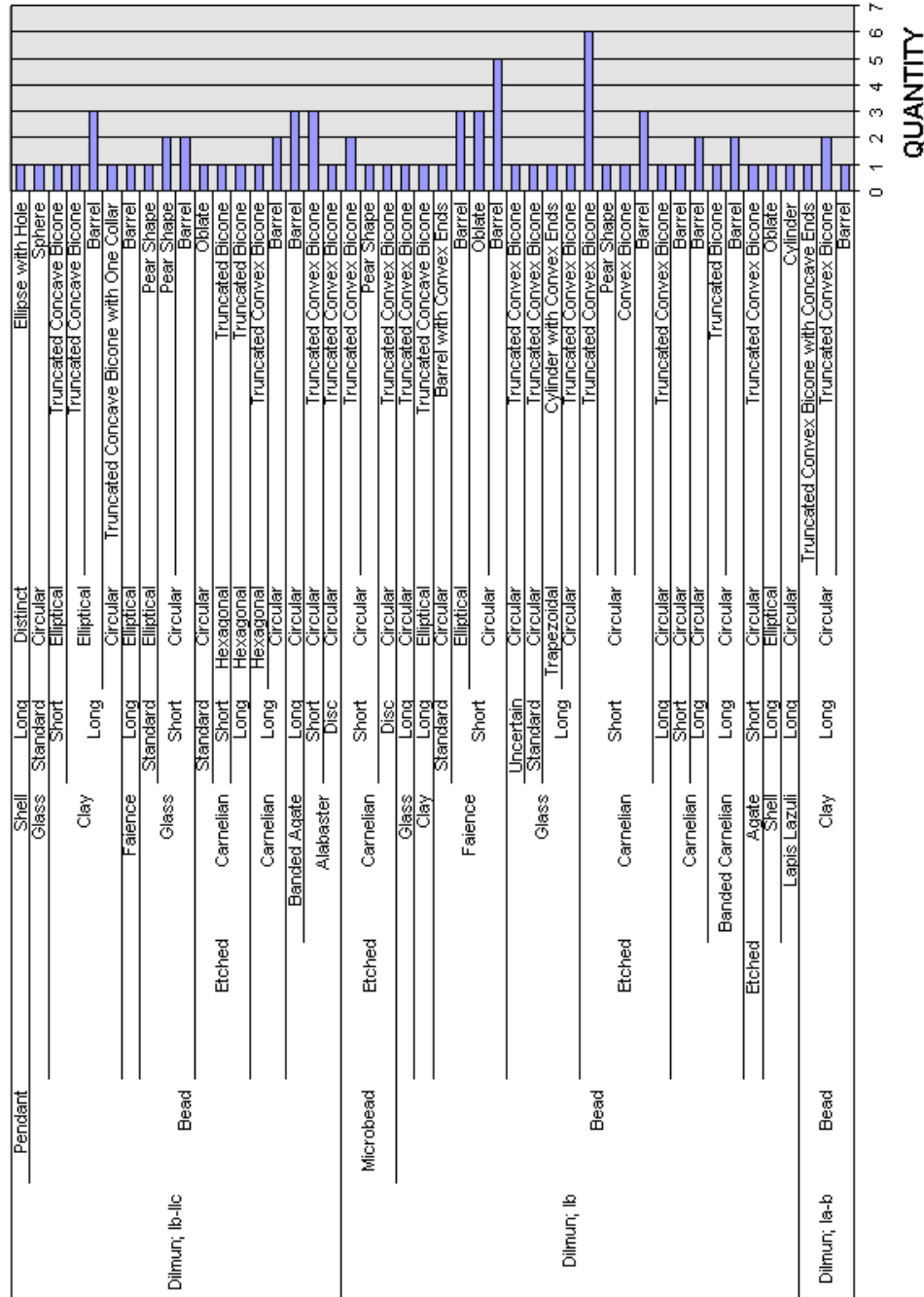
## **Period I and the Ib-IIc Chronological Range**

### **A. Period I and Ib-IIc Clay Bahrain Types**

The earliest well-defined bead Types in the Bahrain sample, excluding the ambiguity-beset 4<sup>th</sup> millennium BCE specimens just described, are those drawn from Period I on the Islands (see Fig. 47). And amongst these, those presaging the rest are the following: the 1) Clay Long, Circular, Barrel; 2) Long, Circular, Truncated Convex Bicone; and 3) Long, Circular, Truncated Convex Bicone with Concave Ends. These Types were excavated at Qala'at al-Bahrain, being the specimens already discussed in earlier chapters as belonging to the Ia-b chronological range. What is remarkable is that they are the only clay Types from Qala'at al-Bahrain in the entire sample apart from a single variety dated to Period IIc: the Clay Standard, Circular, Sphere (see Højlund, 1994c: 392-393; Højlund, 1997b: 36).

It is also important to note that the third of the Period Ia-b Types - the Clay Long, Circular, Truncated Convex Bicone with Concave Ends – makes no other appearance in the Bahrain sample in any chronological era. Since clay is one of the better-represented materials (in the shadow of glass, carnelian, and faience), the absence of this Type seems quite peculiar. It may certainly be dated to Period I, but owing to there being only one example in the Bahrain sample (B383), it would be unwise to extrapolate anything else from this specimen. The only additional piece of information that may be suggested is that it was locally manufactured, like most other Early Dilmun clay beads and certainly all specimens belonging to Period I from Qala'at al-Bahrain. This is because the light red clay employed to manufacture these beads is identical with that used to produce a specific kind of Barbar Ware called “ware type 1”, which is known to be of local Bahraini make (see Højlund, 1994a: 74, 101, 130).

CHRONOLOGICAL SUBDIVISION/RANGE  
AND BAHRAIN BEAD TYPE



**Fig. 47.** Period I Bahrain Bead Types and their respective quantities in the Bahrain sample, along with those Types that belong to the Ib-Ic chronological range. It should be observed that the Types themselves are determined using the sequence of Function + Etching (if applicable) + Material + Tripartite Classification.

The three Period Ia-b clay bead Types mentioned above were accompanied in the latter part of their chronological range by elliptical ones, some of these possibly more suited to a Period II date. The Clay Long, Elliptical, Truncated Convex Bicone made its first appearance in Period Ib, according to the Bahrain sample. This same Bahrain Type has also been attributed to a Ib-IIc chronological range, along with others (see Fig. 47). Our mention of this Ib-IIc specimen makes it necessary to point out that though the chronological range to which it belongs has been purposefully excluded from consideration amongst the strictly Period I beads in Chapters 7 and 8, we will incorporate it in this section because: 1) some of its beads may nonetheless belong to Ib; and 2) it will provide us with a more complete picture of the Bahrain Types these beads contribute, since such Types tell us much more than quantities or materials do by themselves.

The clay Types referred to above are some of the earliest examples in the Bahrain sample. The following observation may also be made against the backdrop of Period I or the Ib-IIc chronological range: that the elliptical cross-section is represented in the greatest diversity of Types by clay beads. The only other materials to produce similar elliptical cross-sections contemporary with these clay specimens are synthetic substances such as faience and glass. The only Period I exception, belonging specifically to Ib, is a single shell specimen defined as a Long, Elliptical, Oblate in form. But a lone exception does not do much to discredit the synthetic emphasis given to such a cross-section. It may also be pointed out that all beads with elliptical cross-sections in the Bahrain sample that belong to Ib or the Ib-IIc chronological range were excavated at Hamad Town; none came from elsewhere.

## **B. Period I and Ib-IIc Mineral Bahrain Types**

Period I, however, is not solely defined by clay beads. The 3<sup>rd</sup> millennium BCE has been regarded as an era of expansion in the bead industry towards the exploitation of greater varieties of hardstones, as opposed to the focus on softer stones of earlier millennia (Diamanti, 2003: 9). It has already been shown in Chapter 8.5 how Bahrain took part in this growing appreciation of hardstones by participating in their trade. The extent of this growing appreciation is not only revealed by the materials of which many Period Ib beads in the Bahrain sample are made, but also their accompaniment by several new Bahrain Types.

Agate and carnelian (both of the regular and banded varieties), for instance, have produced various Ib Types (see Fig. 47).

Soft stones, however, are not entirely absent during this era of increasing hardstone influence. Types such as the Alabaster Disc, Circular, Truncated Convex Bicone and its short equivalent from the Ib-IIc range illustrate the ongoing importance of such materials. Other examples include the Lapis Lazuli Long, Circular, Cylinder from Period Ib, represented by B1479.

All the above Bahrain Types attributed to stone beads were generally encountered throughout West Asia and Egypt from the 5<sup>th</sup> millennium BCE (see Dubin, 2006: 31). They continued to be present for millennia thereafter, though the earliest examples in the Bahrain sample belong to Period Ib or the Ib-IIc chronological range. Generally, however, the Tripartite forms were not particularly restricted to a single region or even era. This is due to the constant interaction amongst craftsmen and beadmakers, especially those belonging to the West Asian bead industry. Moreover, the influence of Indus beadmakers and products being imported from Harappan lands should not be neglected, as it seems these products not only surged through the Arabian Gulf, and are likely evidenced by many of the beads in the Bahrain sample, but also made for the transportation of beadmakers and beadmaking technologies to West Asia (see De Waele and Haerinck, 2006: 32; Lanton, 2003: 35).

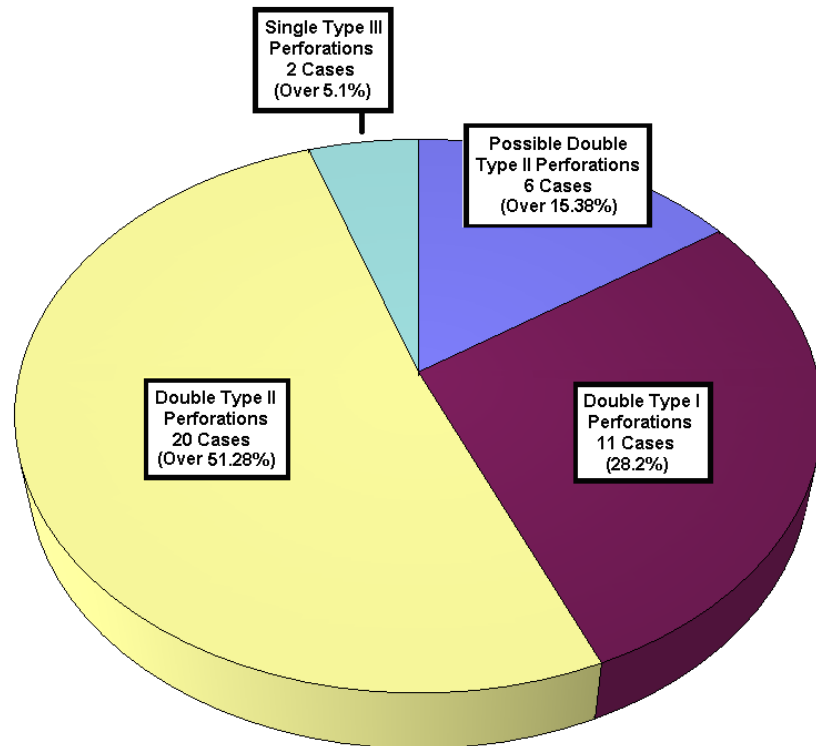
The best examples of Indus or Central Asian manufacture form the majority of the carnelian and agate beads (banded or otherwise) in the Bahrain sample, perhaps excluding the crudely cut cases of the former and beads etched wholesale. Their closest parallels come from the Indus as well as at such sites as those situated by the Amu Darya River in Afghanistan (see Dubin, 2006: 44, Fig. 28). The Royal Tombs at Ur have also produced specimens from an earlier age (Early Dynastic and Akkadian), the raw material and/or finished beads having come from the Harappan region (Dubin, 2006: 44; Kenoyer, 2003: 19). Even suggestions of local manufacture do not entirely invalidate an Indus connection, as it has been purported that Indus migrant craftsmen were behind the beads discovered at Ur (Kenoyer, 1997: 272; Lankton, 2003: 35-36).

The general assumption has been that hardstones (i.e., banded carnelian and the like) were transported as finished products from focal points of the related industry, with India possessing a great many (Lankton, 2003: 27). Apart from some of the Ur specimens, the Bahrain ones seem to be further evidence for this. Various arguments can be put forward as support.

Firstly, no crudely cut carnelian beads are amongst the specimens from Period Ib or the Ib-IIc chronological range. Rather, all reveal a remarkable level of workmanship comparable to other Indus specimens.

Secondly, the beads of this period have been finely drilled. None of them possess traces of corundum or any other abrasive in their perforations. The use of such abrasives was the preferred method of drilling in West Asia from the closing centuries of the 3<sup>rd</sup> millennium BCE (Kenoyer, 2003: 17). The Ib and Ib-IIc stone beads seem not to have undergone such treatment.

Furthermore, all these stone beads have Type I or Type II double drillings, there being only two exceptions (B1408 and B1484) of a single Bahrain Bead Type (the Etched Carnelian Short, Circular, Truncated Convex Bicone) which possess Type III single-cone perforations (see Fig. 48). The Type I perforations were produced via pecking, whilst the Type II variety indicates the use of either “tapered cylindrical” drills or even longer “constricted” ones specific to the Indus (made from the material *ernestite*, named after Ernest Mackay) (Kenoyer, 2003: 17, Fig. 3a). Support for this observation regarding Type II perforations comes from the relative sizes of the perforations’ mouths: the largest is 0.4 cm in diameter but most are far smaller. Out of the 36 bead total (counting both Ib and Ib-IIc stone specimens), 23 beads have perforation-mouths smaller than 0.2 cm in diameter and 17 have perforation-mouths that are between 0.2 and 0.3 cm in diameter. Type III perforations would have been made by “short tapered” drills, used for the most part with disc or short beads but not with longer ones (though exceptions do exist) (Kenoyer, 2003: 17, Fig. 3a).



**Fig. 48.** Amounts and percentages attributed to different perforation types amongst the stone and shell beads (39 in total) from Period I or the Ib-IIc chronological range beginning in it. The percentages are those obtained against the backdrop of the 39 bead total.

### C. Period I and Ib-IIc Faience, Glass, and Shell Bahrain Types

The earliest faience Bahrain Types in the Bahrain sample are from Period Ib (see Fig. 47). To these we can add the Faience Long, Elliptical, Barrel, represented by only a single specimen (B1572) but one that dates from some point within the Ib-IIc chronological range. This specimen, however, is far longer than those representing the previous faience varieties, being 2.19 cm long.

As with faience, the earliest glass Types in the sample are those from Ib (see Fig. 47). To these can be added four Ib-IIc Types (see Fig. 47). Whilst these “range” Types are all from Hamad Town burials, the Types more specifically defined as Ib come from Qala’at al-Bahrain (i.e., the Glass Long, Circular, Truncated Convex Bicone) and Wadi as-Sail (i.e., the remaining two) (see Højlund, 1994c: 391-393; Højlund *et al.*, 2008: 149). None of these are well-represented, but only scantily like the clay Types referred to above. Generally, this can be said of all Types (with the exception of some carnelian ones) belonging to Period I or

related thereto, and not only those of clay and glass. Carnelian exceptions aside, the other Types are represented at most by three examples and at least by lone ones.

The only shell bead that can securely be dated to Period Ib is the shell specimen already mentioned above in connection with clay Bahrain Types; this was obtained from an Elite Early Type burial mound at Wadi as-Sail (see Højlund *et al.*, 2008: 149). From the Ib-IIc chronological range comes the Pendant Shell Long, Distinct, Ellipse with Hole. B1593 is the only example of this, as the Type is rather unique and not encountered elsewhere in the Bahrain sample. One should bear in mind that it represents a variety of pendant rather than a bead. No parallels have yet been encountered by the author of this study amongst beads excavated at sites in the Indus, Persia, or West Asia. Until such is found, it may well be reasonable to suppose it unique to Dilmun, especially since the shell used in its manufacture came from the waters around Bahrain (see Chapter 8.5) and would have been locally shaped into this distinct Type. The shell beads from Period Ib or the Ib-IIc chronological range are all local products, both in terms of material and make, much like the clay specimens mentioned above and the pearl beads of later epochs.

## **Period IIa**

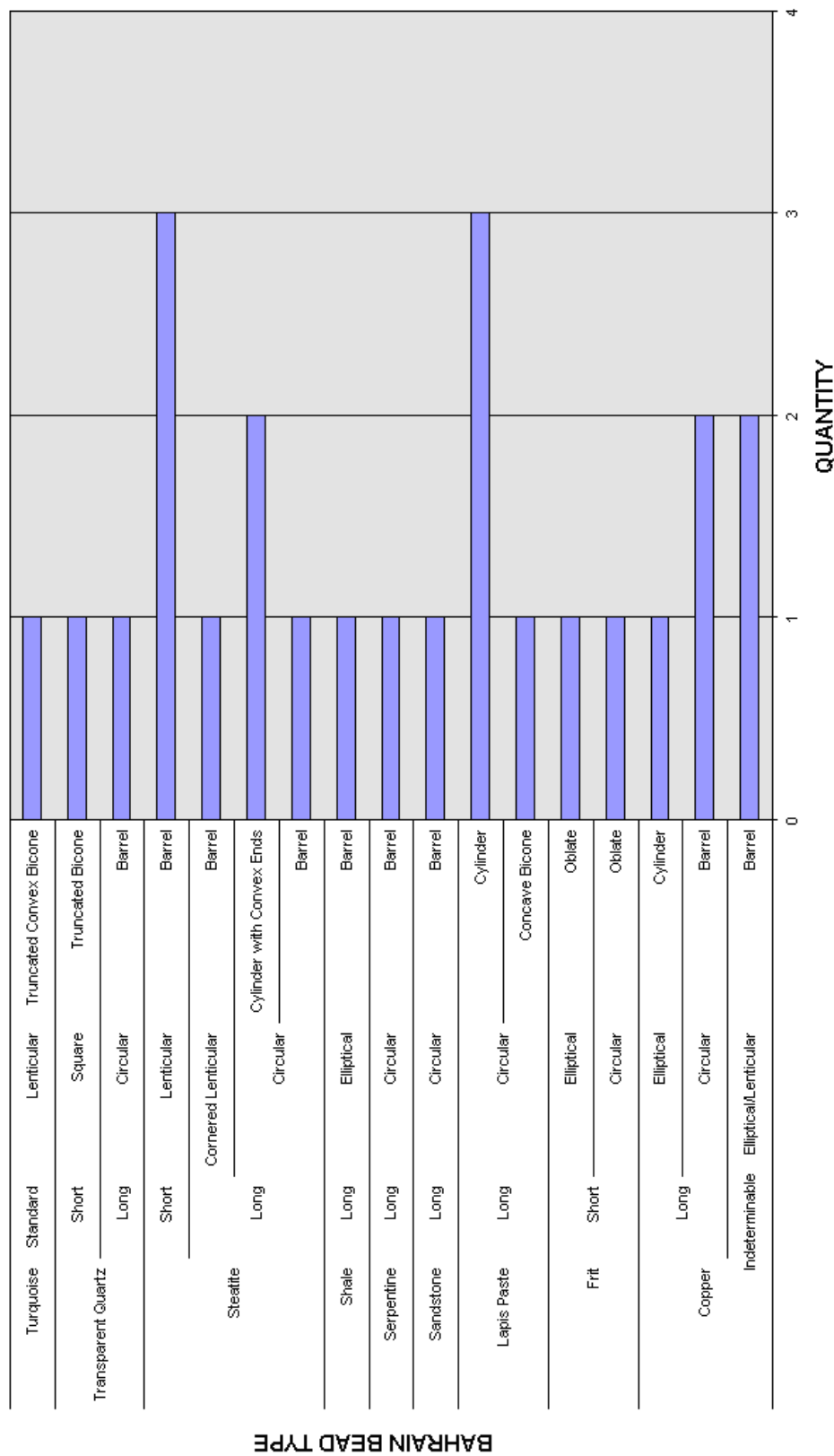
### **A. Period IIa Bahrain Types: A Material Selection Including Some New Varieties**

Period IIa is that chronological subdivision that shows the Early Dilmun culture truly coming into its own. The late 3<sup>rd</sup> and early 2<sup>nd</sup> millennium, essentially Period IIa, was the era in which Dilmun took its earlier Period I commercial role to a whole new level. This was the era of its mention in cuneiform economic texts as well as in such myths as that of ‘Enki and Ninhurzag’, in which the wealth that came from overseas to Dilmun was highlighted (André-Salvini, 2000: 28-30, 33). Expansion at all levels may generally be noted, particularly at the urban site of Qala’at al-Bahrain and the cemeteries (Højlund, 2007: 124). Simultaneously with such cultural expansion occurred a comparable one in the number of Bahrain Types, evidently paralleling the increasing variety of materials used for the beads. After all, each material means at least one Bahrain Type if not more, comprising the first element of the sequences of the Types.

Apart from the materials already present in Period I, the IIa beads in the Bahrain sample introduce Types associated with serpentine, steatite, transparent quartz (rock crystal),

and turquoise as well as less precious alternatives such as chloromelanite, sandstone, and shale (see Fig. 49). Frit Types also make their appearance amongst the IIa beads as do lapis paste ones. The earliest copper beads and Types in the Bahrain sample also belong securely to Period IIa. Whilst the low numbers of the Types associated with the above materials are understandable, given that they are overshadowed by carnelian, faience, and glass varieties, some observations may nonetheless be made.

The Chloromelanite Long, Cornered Lenticular, Barrel (B4651) is a rather unique specimen in that beads are not usually produced from this material. The material certainly must have originated further east, being a variety of jadeite (see Francis, 2002: 150). However, it is difficult to pinpoint where it would have been shaped into a finished bead.



**Fig. 49.** Period Ila Bahrain Bead Types associated with the following materials: chloromelanite, copper, frit, lapis paste, sandstone, serpentine, shale, steatite, transparent quartz, and turquoise. The respective quantities of the Types amongst the Ila beads are given. It should be noted that no reference is made in the graph to function or etching; this is because the Types represent only regular beads without etching. This graph only takes into account those Types represented by beads that can be securely dated to Period Ila.

The copper bead Types were likely produced through the lost-wax method, which has been suspected as the means of manufacturing this sort of ornament (see Lankton, 2003: 37). Again, further evidence is required before a definite statement can be made about where the copper used for these Types had been turned into finished products. The material would have come from Oman (see the previous chapter), and though reference may be made to the transportation of copper, no proof as yet has been found of it being worked into beads in Period IIa. This may not be inconceivable, however, since there is evidence (crucibles, fragments, etc.) that copperworking took place at Qala'at al-Bahrain, with Early Dilmun activity having been quite significant in Period Ib and, to a lesser extent, in IIa (Northover, 1994: 374-378). Equally, some or all of the beads comprising the above copper Types could have reached Bahrain as finished items.

A similar situation may be suggested for the lapis paste Bahrain Types. These could have been transported to Dilmun as finished products from Badakhshan or the Chagai Hills region, or else were brought to Bahrain after having been shaped at a production centre along the trade routes moving lapis lazuli. It is also conceivable that raw lapis lazuli, despite a shortage, was obtained to some extent and so converted into paste in Bahrain. There is no evidence at present, though perhaps a chemical analysis of the components of the paste mixture employed would shed some light on where the beads of these Types were made. The plain paste Types, however, because of the relatively common nature of the material involved, were likely manufactured locally (see Fig. 50).

The cheaper Bahrain Types, such as the Sandstone Long, Circular, Barrel and Shale Long, Elliptical, Barrel, were certainly made locally in the Dilmun region; if not on Bahrain then definitely nearby. Owing to the wide availability of such materials as sandstone and shale, as well as their attendant inexpensiveness, these bead Types would not have been transported over great distances as finished trade objects nor would the materials for them have come from too far off.

The single specimen (B111) representing the Serpentine Long, Circular, Barrel, on the other hand, was assuredly brought to Bahrain as a finished product from the Indus. This object is an example of the characteristically long, almost "tubular" bead variety so indigenous to Indus manufacture, and regarding which more information will be given below in connection with a carnelian specimen (see Chakrabarti and Moghadam, 1977: 168; Lankton, 2003: 35; Reade, 2001: 26-27). The serpentine specimen is 2.65 cm long and was also double-perforated by means of a cylindrical ernestite drill (see Kenoyer, 2003: 17). As we noted in

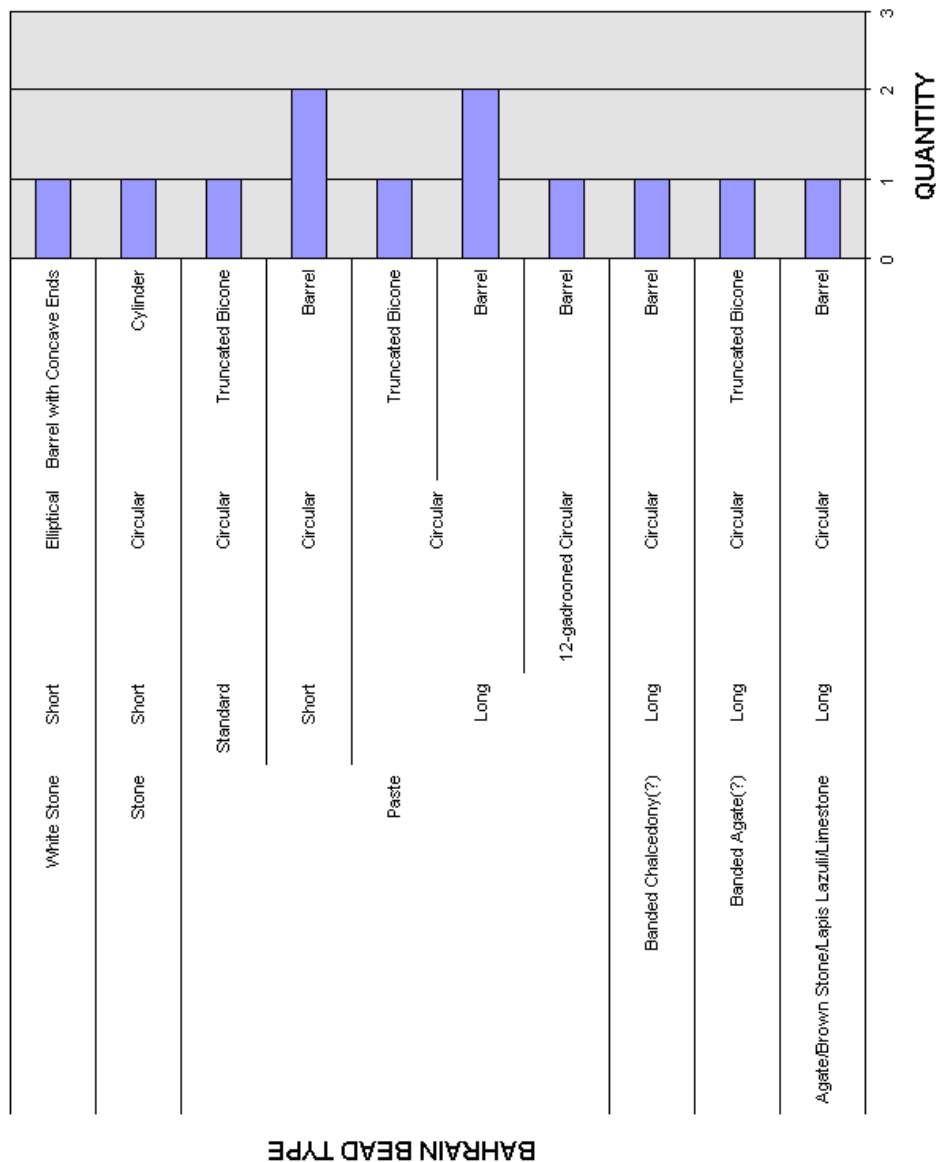
Chapter 8.5, serpentine was obtained from the Indian Subcontinent. We are therefore dealing here with another bead that is in every way an Indus product.

The steatite and transparent quartz Types were perforated using short tapered drills. The use of such drills with steatite is already archaeologically known (Kenoyer, 2003: 17). Though the Types' origins may be defined in terms of material, defining their place of manufacture is troublesome, much like some of the others mentioned above.

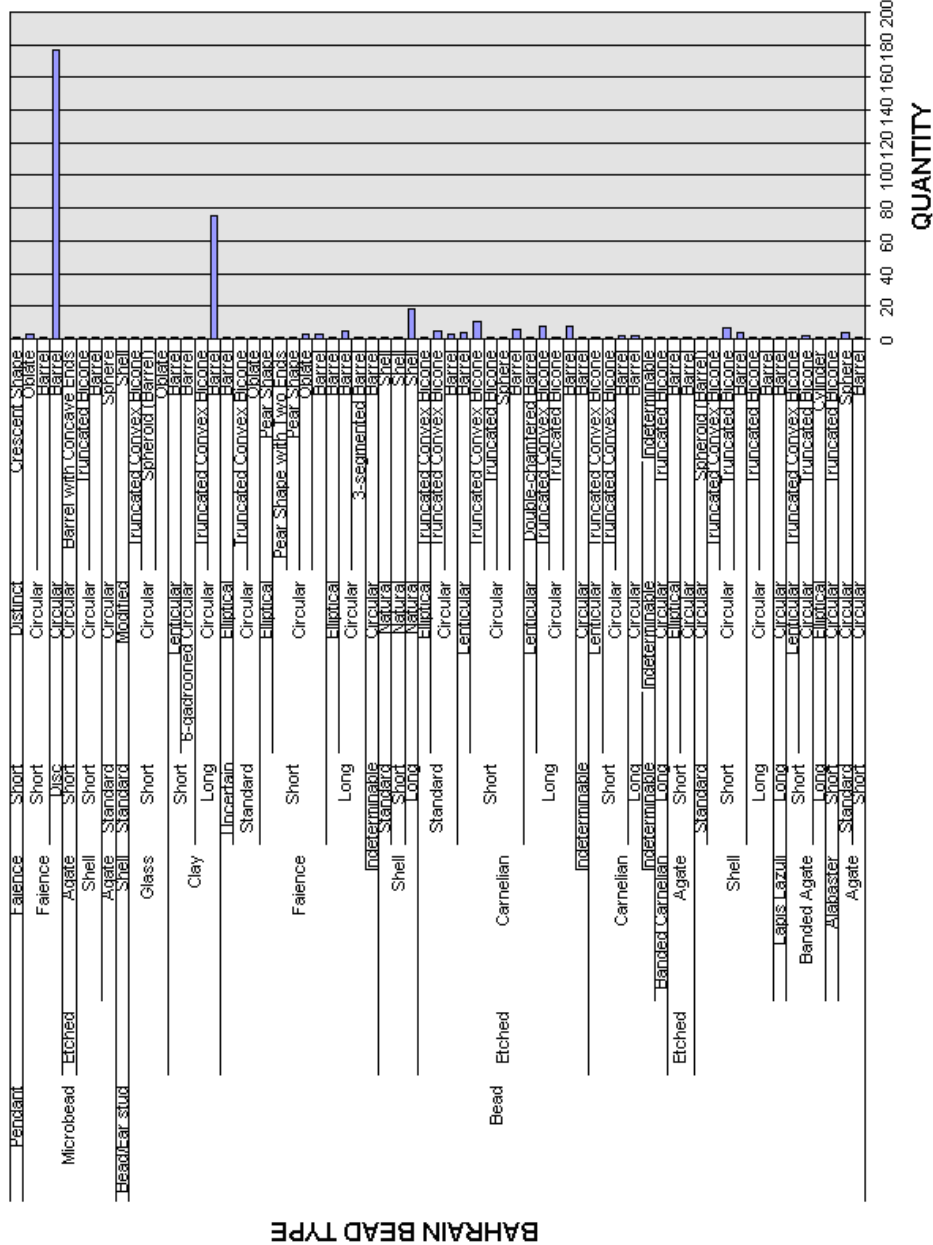
A single IIa turquoise bead (B595) has found its way into the Bahrain sample from the site of the Barbar Temples. The almost absent nature of the material it represents must surely be due to the scarcity of turquoise at the time (see Lankton, 2003: 23, 27, 33). In terms of Bahrain Type, the bead represents a Turquoise Standard, Lenticular, Truncated Convex Bicone.

## **B. Period IIa Agate Bahrain Types**

Turning to Bahrain Types related to materials that had already made an appearance in Period I or earlier, we find these augmented (and at times replaced) by several new additions to our typology (see Fig. 51). The only agate Type of Period Ib (the Etched Agate Short, Circular, Truncated Convex Bicone), for instance, is no longer found amongst the IIa beads. Rather, there are six new Types, all of which make their earliest appearance in Period IIa. It will be noticed that IIa has also provided us with the earliest examples of etched agate beads and bead Types.



**Fig. 50.** Graph showing Period Ila Bahrain Bead Types associated with paste and uncertain cases of various stones. No reference to function or etching has been included, for the Types contained in this graph all represent regular beads without etching. It should be noted that this graph only takes into account those Types represented by beads that can be securely dated to Period Ila.



**Fig. 51.** Period Ila Bahrain Bead Types associated with materials already encountered amongst the Types from Period I (and related chronological ranges) and those assigned to the Ib-Ic chronological range: agate, alabaster, banded agate, banded carnelian, carnelian, clay, falence, glass, lapis lazuli, and shell. The respective quantities of the Types amongst the Ila beads are given. It should be noted that this graph only takes into account those Types represented by beads that can be securely dated to Period Ila.

The regular agate Types, just like their banded agate cousins, are exclusively obtained from specimens that were acquired from the Hamad Town and Saar sites, as these were the only ones that contributed such beads. But whilst most of the agate Types possess Type II or possible Type II perforations (i.e., only one example has been found of the Type I and Type III perforation), the banded agate Types are dominated by singular Type III drillings. Since we are referring to only three examples of the latter, there is not much that can be asserted. However, using Type III drillings with stone beads, and perhaps the lone regular agate specimen with a similar perforation should be included herein, does suggest a considerable risk on the part of the beadmaker since the beads are more liable to break during drilling. The banded agate specimen that is 2 cm long (B120) seems to have been quite a risky affair to drill.

### **C. Period IIa Carnelian Bahrain Types**

With regard to carnelian, only the Long, Circular, Truncated Bicone of the banded variety may be defined as continuing from Ib into IIa. The Banded Carnelian Long, Circular, Barrel does not appear in any purely IIa contexts in the Bahrain sample.

Despite this, however, the Bahrain Types afforded regular carnelian increase dramatically in number, going from ten definite Ib Types to sixteen in Period IIa (see Fig. 51). Of the former Ib Types, five were not present amongst the specifically IIa beads.

#### **PERIOD IB CARNELIAN BAHRAIN TYPES NOT FOUND AMONGST THE SPECIFICALLY IIA BEADS**

**Microbead Etched Carnelian Disc, Circular, Truncated Convex Bicone  
Etched Carnelian Short, Circular, Convex Bicone  
Etched Carnelian Short, Circular, Pear Shape  
Microbead Etched Carnelian Short, Circular, Pear Shape  
Microbead Etched Carnelian Short, Circular, Truncated Convex Bicone**

However, in Period IIa, the Types that remained were augmented by eleven new ones which made their first appearances during this phase of Early Dilmun.

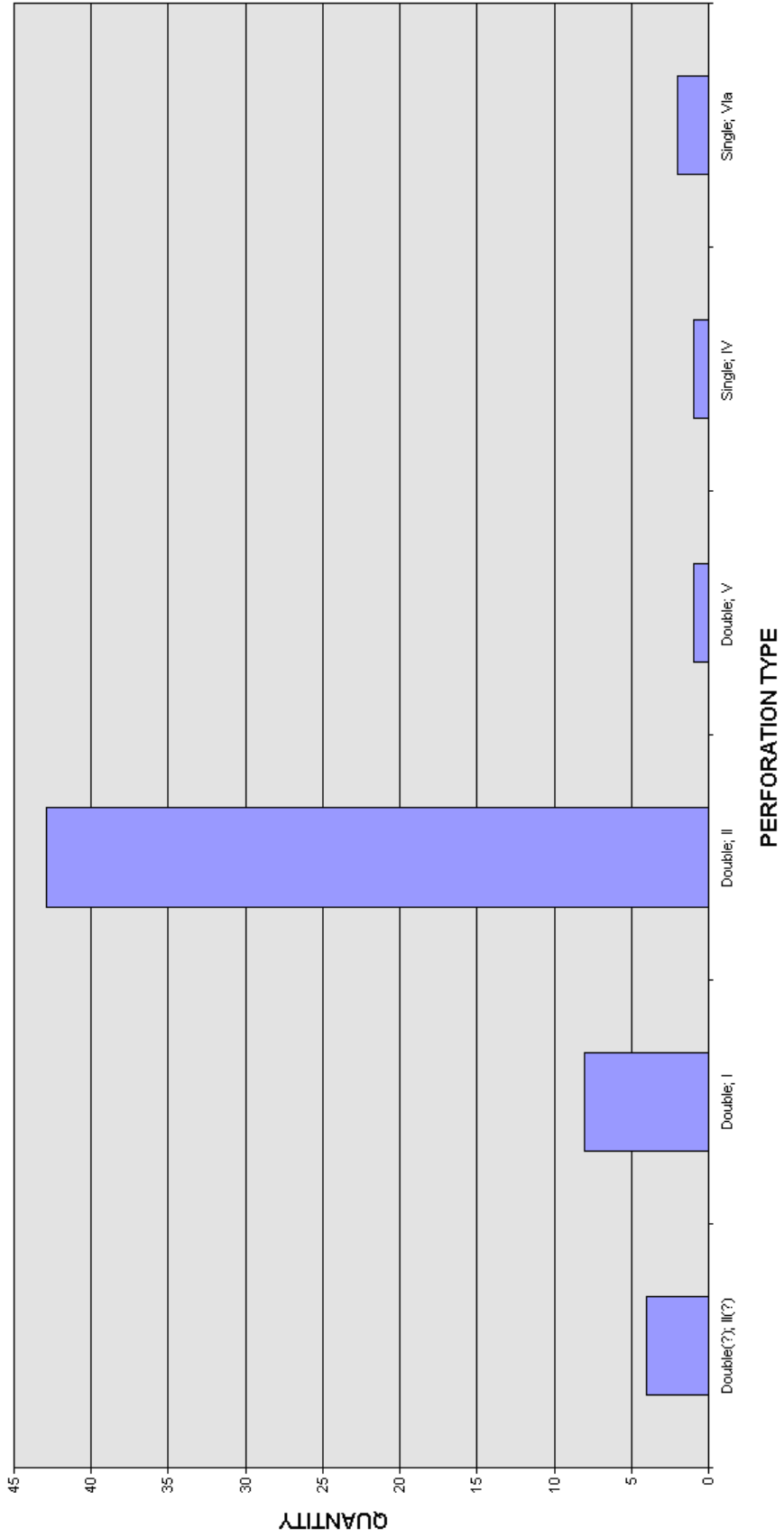
## **CARNELIAN BAHRAIN TYPES FIRST ENCOUNTERED IN THE SAMPLE AMONGST THE SPECIFICALLY IIA BEADS**

**Etched Carnelian Long, Circular, Barrel  
Etched Carnelian Long, Circular, Truncated Bicone  
Etched Carnelian Long, Lenticular, Double-chamfered Barrel  
Etched Carnelian Short, Circular, Sphere  
Etched Carnelian Short, Circular, Truncated Bicone  
Carnelian Short, Circular, Truncated Convex Bicone  
Etched Carnelian Short, Lenticular, Barrel  
Carnelian Short, Lenticular, Truncated Convex Bicone  
Etched Carnelian Standard, Circular, Barrel  
Etched Carnelian Standard, Circular, Truncated Convex Bicone  
Etched Carnelian Standard, Elliptical, Truncated Convex Bicone**

Therefore, though three Ib Types are no longer prominent amongst the Iia beads, the latter more than compensate for them by introducing enough new carnelian Types for a 60% increase in number.

It should also be borne in mind that there are several carnelian Types in the Bahrain sample that belong to a Ib-IIc chronological range, thus including Iia within their fold. These Types include those mentioned in the Period I section above and though the Carnelian Long, Circular, Barrel is the only variety also found amongst the definite Ib and Iia beads, the others may very well belong to either sub-period if not both (and/or later ones).

Three Iia carnelian beads have single drillings, comparable to some of the banded agate specimens (and one agate example) already referred to above (see Fig. 52). With the carnelian beads, however, Type IV (B122) and Type VIa (B1907 and B1908) drillings have also been noted. Though the personal choice of the beadmaker may have been a prime influence for risking a single drilling with these stone beads, perhaps this indicates a different manufacturing centre being responsible. This is a possibility, but further evidence will be required before definite statements can be put forward. Nonetheless, to suggest an unseasoned hand as behind the choice of making single perforations seems unreasonable, given that they are generally quite fine (the largest being 0.26 cm in diameter at its widest end and the smallest end amongst the three being 0.16 cm in diameter). To manage such fine single perforations on regular-sized beads must have demanded considerable skill, though the drill bits used must have been equally fine, perhaps factoring in the decision made to attempt them.



**Fig. 52.** Perforation types and their respective quantities amongst the Period Ila carmelian beads in the Bahrain sample.

Most of the definitely Iia carnelian beads are double-drilled specimens. In four cases (B1603, B1914, B1933, and B1934), this was achieved by means of a Type I perforation produced through pecking. The rest possess Type II perforations for the most part, with three cases (B349, B1596, and B1597) likely exhibiting this Type as well. Long tapered drills were used to produce most of these.

In one particular case, however, the Type II perforation was made via the use of a “cylindrical” drill particular to the Indus region, “developed by the Indus artisans to facilitate the drilling of long slender beads of hard stone such as carnelian, agate and jasper.” (Kenoyer, 2003: 17). Indications of the use of such a drill have been found upon a Iia Carnelian Long, Circular, Barrel bead (B597) from the Barbar Temples (see Højlund, 2003c: 316-317). This is quite a lengthy bead compared to other Early Dilmun specimens, being 3.3 cm long and 0.9 cm wide. In fact, it represents a long and almost tubular variety that is unmistakably of Indus make, being unique to its stone bead industry (Chakrabarti and Moghadam, 1977: 168; Lankton, 2003: 35; Reade, 2001: 26-27). Indus beads of this sort are also known from other West Asian sites, such as Susa and Ur, that benefited from trade with the Harappan civilization (Chakrabarti and Moghadam, 1977: 168; Lankton, 2003: 35; Reade, 2001: 23, 26-27). The specimen recovered from Bahrain must have arrived as part of this trade, in which Dilmun was participating. Thus, in material, form, and perforation, B597 is a perfect specimen of Indus beadmaking.

It should be added that this particular Indus bead was made for a definite period between 2450 and 1900 BCE (Lankton, 2003: 35). Our Bahrain specimen, being from Iia, dates exactly to this period of production.

Though it is at present difficult to be certain where most of the Iia carnelian beads were manufactured (apart from the case just referred to), since the techniques involved were equally present in both West Asia and the Indus, it is nonetheless likely that the latter should be looked to based on the trend in Period I and the fact that Period Iia is known to have been a time when Harappan influence was at its strongest in Dilmun. Iconography on Dilmun seals, the weight standard used in Bahrain, and even such details as town planning at Qala’at all reflect this (see During Caspers, 1979: 125-126; Højlund, 2007: 125). Since the material was already being shipped from the Indus, as Chapter 8.5 has shown and the myth of “Enki and Ninhurzag” informs us (49A-49P), and since a mechanism was already in place for also transporting finished beads (as the long “tubular” Iia specimens of carnelian and serpentine indicate), we can readily expect a supply of finished ornaments to have travelled across the

Indian Ocean. The level of skill in carving most of the carnelian specimens suggests this, as crudely cut species are few. The skill at drilling regular-sized beads using fine tools and producing equally fine perforations (the smallest Type II perforation being 0.13 cm and the largest 0.32 cm), as already explained with regard to single drillings in the carnelian beads, also supports the notion of a place with an extensive beadmaking industry being behind them, such as the Indus. Nonetheless, due to wholesale etching being quite widespread (in 51 out of the 57 strictly IIA beads), we can at least assume that this aspect of the manufacturing process took place on a more local level, within the regional extent of Dilmun.

#### **D. Period IIA Clay Bahrain Types**

Amongst IIA clay beads, the Clay Long, Elliptical, Truncated Convex Bicone of Ib is not present. However, of the Types attributed to the Ia-b chronological range, the only missing variety is the Clay Long, Circular, Truncated Convex Bicone with Concave Ends. None of the Types assigned to the Ib-IIc chronological range are found amongst those specifically noted as IIA. Nonetheless, given the time-span covered, some may well belong to early Period II. The Bahrain Types that first appeared in IIA are the Clay Short, 6-gadrooned Circular, Barrel and Short, Lenticular, Barrel.

It is worth noting here that the Clay Long, Circular, Barrel, exemplified by only one specimen in the Ia-b chronological range, has soared in number to 75 cases specific to IIA. All other Types found amongst specifically IIA beads are only exemplified by single cases. The Clay Long, Circular, Barrel therefore apparently became the prime clay Type of Period II. Colour information is lacking for most of these IIA clay Types and the beads representing them, though there are a few exceptions (B121, B128, and B764), two of which are pink-hued and comparable to lighter versions of Barbar pottery (the “ware type 1” mentioned earlier). For these two specimens, we can at least be certain of local manufacture. It is also notable that all the beads representing clay Types specific to IIA came from three Hamad Town burials (one of which, Mound 1791, provided 75 of the 78 clay beads concerned).

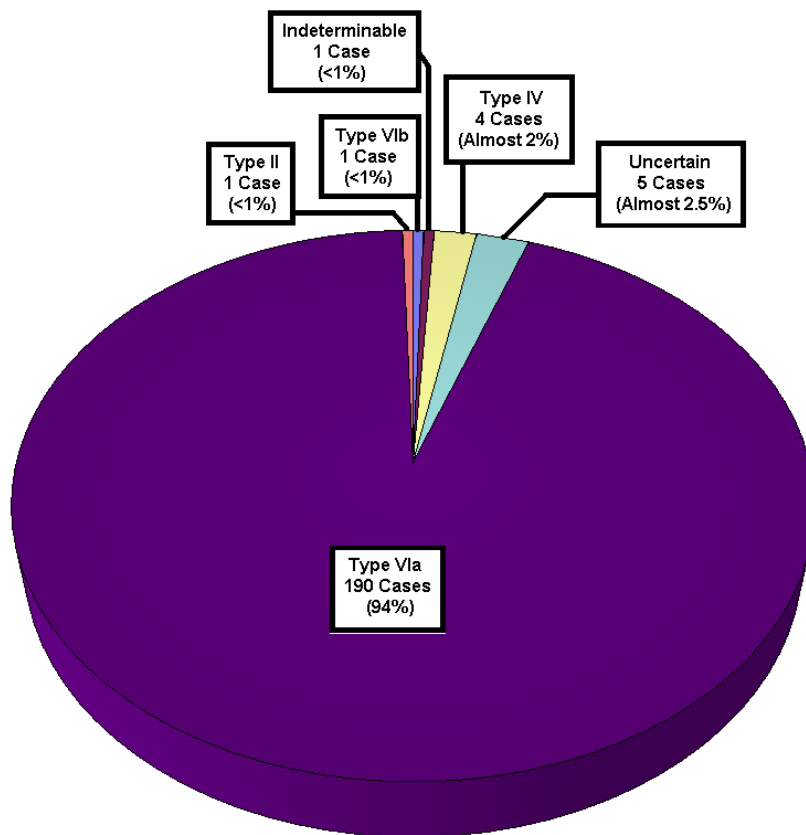
#### **E. Period IIA Faience Bahrain Types**

Faience, another prominent material in the Bahrain sample, experienced an increase in the number of Types similar to carnelian in Period II. Whereas amongst the Ib beads it had

only four Types (with a fifth assigned to a Ib-IIc chronological range), amongst the Iia specimens this amount increases to fourteen definite Types (see Fig. 51). Of these, only two were assuredly present in Ib: the Faience Short, Circular, Barrel and Short, Circular, Oblate. The Iia Faience Long, Elliptical, Barrel was the “fifth” Type mentioned above, and though it may have been introduced in Ib, the chronological range given above makes it equally possible that it is more deserving of a Iia designation. Nonetheless, the parallel with carnelian is obvious in that whilst only a few Types are retained from the earlier epoch, this is compensated for and augmented by a large enough number of new Types to denote a significant increase. With carnelian, the Types enjoyed a 60% increase in variety. With faience, they more than triple.

The Iia faience Types are represented by 202 beads, of which 192 came from a single context at Hamad Town’s BSW area. The remaining specimens were also found in Hamad Town burials, save for one example from Qala’at al-Bahrain (B348) (see Højlund, 1994c: 392-393). The suggestion has already been made that a local faience production centre may have existed at or near Hamad Town in Period II. If so, this centre could have been responsible for many if not most of the faience beads.

Regardless of whether or not this was the case, it is interesting that almost all the faience beads possess Type VIa perforations, rather large ones, with only six out of the 202 Iia faience specimens having other Types (excluding five uncertain cases) (see Fig. 53). One (B4653) was even drilled like a stone bead, being the same specimen referred to in the perforation section of this chapter. Type VIa perforations have been noted on beads from three different contexts: the burial from Hamad Town mentioned above as well as the site’s Mound 1415 and Trench B of Level 21 of the Danish Expedition’s Excavation 520 at Qala’at al-Bahrain (see Højlund, 1994c: 392-393).



**Fig. 53.** Graphic representation of the different perforation types amongst the 202 Ila faience beads. All percentages in the chart were obtained against the backdrop of the 202 total.

That Type VIa perforations form the majority seems to support the notion that sticks were employed in the glazing amalgam to create faience bead perforations, particularly since there seems to be a “standard measure” relative to the size of the beads as finished products (see Francis, 1989: 26). It also suggests the likelihood of mass production.

These observations regarding a “standard measure” and mass production are further substantiated through a consideration of microbeads, which amount to 181 of the 202 faience specimens. These all came from the same BSW Hamad Town grave already referred to. This allows us to consider a definite collection and the relationship between the beads involved therein, at least from the standpoint of the microbeads which, owing to their size, would have been manufactured along separate lines (mould and perforation devices) than larger beads. All of the microbeads, save one (B1896), have perforations that belong to the second of the four groups mentioned above. 177 of the microbeads also share relatively the same size (being discs 0.08 cm in length and 0.45 cm in width), whilst only minute differences are to be noted with the rest. All this supports the “mould” method of faience bead manufacture suggested by

Peter Francis, Jr. and the importance of mass production (especially when it comes to microbeads) (see Francis, 1989: 26).

At this point, mention should be made of a particular carnelian bead Type, represented by only a single IIA case (B1902) from Hamad Town (from the BSW burial mentioned above) which is actually a crescent-shaped pendant rather than a regular bead (see Pl. IX). Such items first started appearing in the Near East in the late 3<sup>rd</sup> millennium BCE and achieved widespread prevalence in the 2<sup>nd</sup>, often associated with the Mesopotamian moon deity Sin (Lankton, 2003: 42). Despite Indus influence in IIA, the pendant draws attention to Mesopotamian cultural and religious iconography in Bahrain, already noticeable in Dilmun seal emblems (see Al-Sindi, 1999: 39).

#### **F. Period IIA Glass Bahrain Types**

Glass, completing the trio of major bead materials in the Bahrain sample, did not share the boom that carnelian and faience did. Although none of the Ib (or Ib-IIc, for that matter) Types are present amongst the securely IIA beads, the three varieties from Ib are matched by three new Types in IIA: the Glass Short, Circular, Oblate; Glass Short, Circular, Spheroid (Barrel); and Glass Short, Circular, Truncated Convex Bicone. The Ib-IIc Types, again not found amidst the securely IIA kinds, may nonetheless contain some that are actually IIA and so should not be dismissed offhand as not belonging (in any of the cases) to early Period II.

The strictly IIA glass beads representing the three Types above are all wound specimens drawn from two graves in the same Hamad Town tumulus (i.e., Mound 51 of the BS2 area). Only one of them (B4655) has a defined perforation type; this is the Type VIA perforation.

## **G. Lapis Lazuli and Shell Amongst the Period IIA Bahrain Types**

Comparably to Period Ib, IIA only provides us with a single lapis lazuli Bahrain Type. This is the Lapis Lazuli Long, Circular, Barrel (distinct from the Long, Circular, Cylinder from Ib). The implication seems to be that Dilmun did possess the necessary trade contacts and wealth to acquire a material in veritable shortage at this time, but that the shortage also limited the variety of Types involved so that we still see only one. Placed against the many carnelian and faience Types, this state of affairs becomes relatively clear.

The only remaining material that was present in both Periods Ib and IIA left to discuss, in terms of Bahrain Types, is shell. Only single Ib and Ib-IIc Types have been respectively noted above. Amongst strictly IIA beads, none of these Types appear. Rather, we have eleven, possibly twelve, new Types that may have existed alongside the one from Ib-IIc (see Fig. 51). The Standard, Modified, Shell Type could actually belong to an ear stud rather than a bead and, if this is the case, denote one less Type. Still, we do see an explosion in shell bead Types compared to Ib or even the Ib-IIc chronological range.

### **BAHRAIN TYPES AMONGST THE PERIOD IIA SHELL BEADS**

Shell Long, Circular, Barrel  
Shell Long, Circular, Truncated Bicone  
Shell Short, Circular, Barrel  
Shell Short, Circular, Truncated Bicone  
Shell Short, Circular, Truncated Convex Bicone  
Shell Standard, Circular, Spheroid (Barrel)  
Long, Natural, Shell  
Short, Natural, Shell  
Standard, Natural, Shell  
Standard, Modified, Shell  
Shell Short, Circular, Barrel  
Shell Short, Circular, Truncated Bicone



**PI. IX.** Collection A1696 from a Hamad Town burial context and dated to Period IIa. The crescent-shaped bead at the bottom of the plate is B1902. It illustrates a pendant form that made its first appearance in the Near East in the late 3rd millennium BCE and became widely prevalent during the 2nd millennium BCE (see Lankton, 2003: 42).

The Iia shell Types mentioned above have principally come from Hamad Town, with one possible exception (if it is not an ear stud) from Saar (B293). The largest single collection of such beads has actually come from one burial: Hamad Town's Grave 39 of Mound 49 in the BS2 area. The grave has produced a collection comprised entirely of shells in their natural form that have only been drilled. The Long, Natural, Shell Type constituting the majority in this collection is the most represented shell variety amongst the Iia beads, there being 18 such beads. But since all these come from a single burial, their value in defining broader shell Type patterns in Period Iia is limited. Other similar Types from the same bead collection are the Short, Natural, Shell and Standard, Natural, Shell ones.

The only other shell Types encountered in more than a lone case are the Shell Short, Circular, Truncated Bicone and Short, Circular, Barrel varieties (noted in eight and four cases respectively). These, like the Iia single specimens and the natural ones from the Hamad Town grave mentioned above, were all locally produced for much the same reasons given for the Period I shell beads.

## **Period Iib**

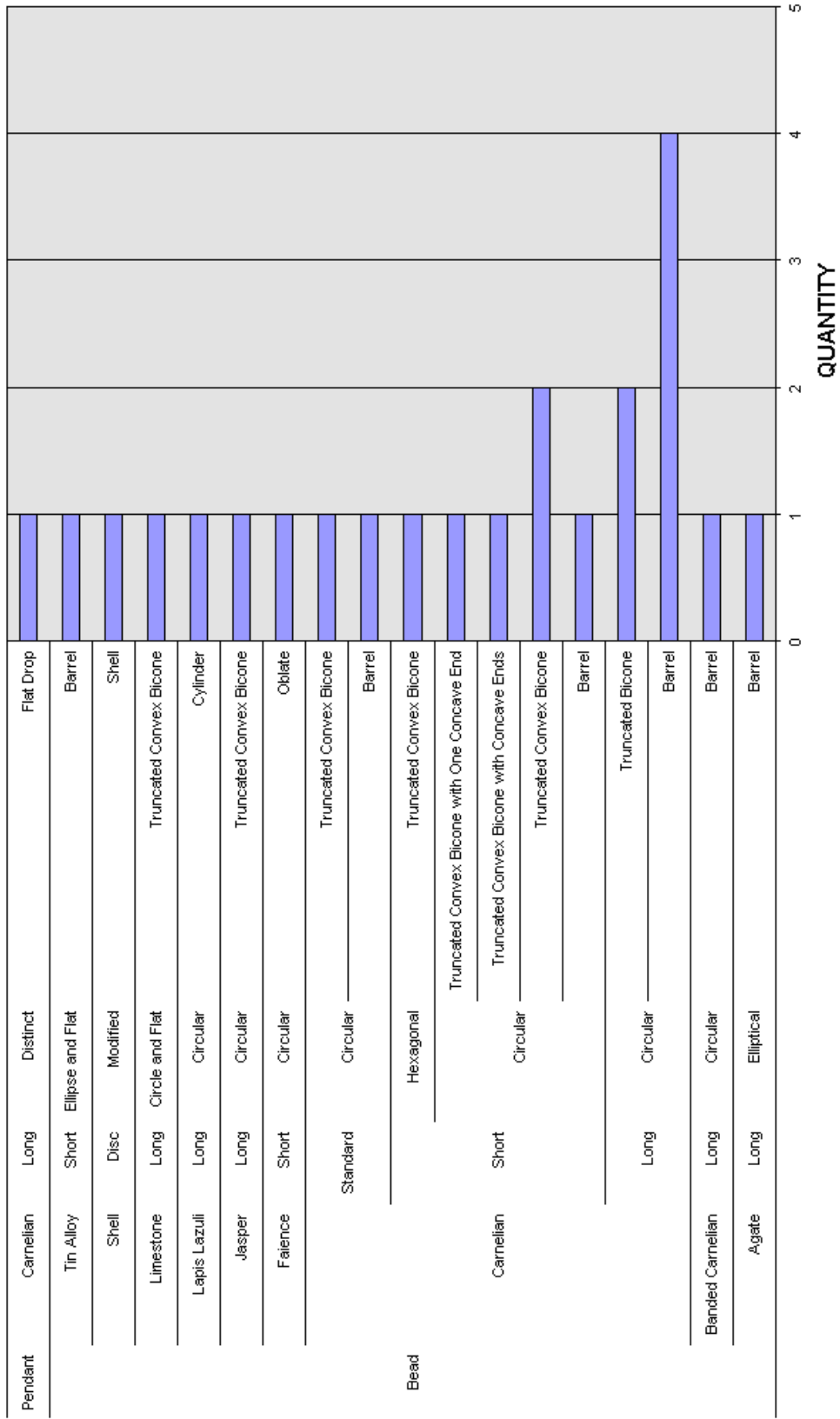
### **A. Period Iib Bahrain Types: The Disappearance of Materials and the Influx of Mesopotamian Influence**

The first thing that is noticed when examining the Bahrain Types specific to Period Iib (excluding any associated chronological range) is the disappearance of a lot of the materials and the Types related to these that were around in Iia (see Fig. 54). At the same time, the Types associated with hardstones that are still present, such as agate, banded carnelian, and regular carnelian, are reduced in number. Banded agate Types disappear altogether. This seems curious, given Early Dilmun's mercantile interests. However, it should be kept in mind that a far greater amount of beads belong to a Iib-c chronological range than securely to Iib, and when these are brought into consideration the picture given by the above specimens changes. There will be more on the Iib-c range below.

Many substances amongst the strictly Iib beads are represented by only single Types. There are exceptions, of course. The more visible materials, such as agate, clay, and faience, are not so limited in Type; carnelian is the least limited of these.

Nonetheless, single Types may indicate less diversity, though the weight given to carnelian, faience, and certain other substances continued to sway trends amongst the beads of Period IIb. One explanation for this may be the turning of Dilmun's eyes towards Mesopotamia rather than the Indus as the main focus of its cultural life, as greater Mesopotamian influences seeped into Bahrain, growing stronger and overshadowing the Indus ones of Period IIa (Højlund, 2007: 125-126). The effects of this occurrence seem to have been felt even amongst the IIb bead Types.

BAHRAIN BEAD TYPE



**Fig. 54.** Bahrain Bead Types that belong specifically to Period Ib and the quantities attributed to each of these. It should be noted that no reference is made to etching with regard to any of the Types, since no etched beads were included amongst the specifically Ib specimens in the Bahrain sample. This graph only takes into account those Types represented by beads that can be securely dated to Period Ib.

## **B. Period IIb Bahrain Types Associated with Jasper, Limestone, and Tin Alloy**

Focusing once again on the Bahrain Types securely dated to IIb, it will be noticed that in the absence of the more unique IIa materials, three new ones took their place to produce the following Types represented in the Bahrain sample: the 1) Jasper Long, Circular, Truncated Convex Bicone; 2) Limestone Long, Circle and Flat, Truncated Convex Bicone; and 3) Tin Alloy Short, Ellipse and Flat, Barrel (see Fig. 54). These are unique Types, much like their IIa counterparts, and are encountered as lone cases only amongst the IIb beads in the Bahrain sample.

The jasper specimen (B654) may have come as a finished bead from Harappan lands; certainly its material came from there. It also seemingly possesses a Type II perforation, meaning that it was double-drilled using a long tapered drill, perhaps of copper in this case (given that the material being worked was itself jasper). It was found in Area 273, Building 207, of the Saar Settlement (Moon, 2005: 182-183).

The limestone Type possesses a rarely encountered cross-sectional shape. Nonetheless, it is certainly of local manufacture; if not made in Bahrain, then assuredly made nearby. This is because of the nature of limestone, after the fashion of other prevalent and cheaply acquired materials such as sandstone and shale (mentioned above). Limestone deposits are plentiful on Bahrain, both on the main island and on those of Muharraq and Jemma (Doe, 1986: 187; Larsen, 1983: 128-131). The presence of the material and the argument made for cheapness supporting local production all point to Bahrain or another nearby locale being the place of manufacture. The bead (B596) was drilled using a long tapered drill. It was recovered from Area IV of Temple IIb at Barbar (Højlund, 2003c: 316-317).

The tin alloy Type was probably manufactured using the lost-wax method, like the copper beads of Periods I and IIa, and its sole representative in the Bahrain sample (B604) possesses a Type VIa single perforation. It is difficult to determine whether the bead arrived in Bahrain as a finished product or not. If it did, it would have been manufactured either in Persia or Mesopotamia, perhaps near the deposits of tin in the former or at sites along the land routes that transported the metal before it was shipped to Dilmun (see Chapter 8.5). Of course, the evidence for copperworking at Qala'at al-Bahrain since Period I and on into the subdivisions of Period II means that Bahrain certainly had the capacity for manipulating tin and producing our bead, and this is as feasible a possibility as suggesting foreign manufacture (see Northover, 1994: 374-378). The case becomes especially feasible given the connection

between Qala'at al-Bahrain and the Barbar Temples, since the bead was found in Area VI of Temple Iib at Barbar (see Højlund, 2003b: 275).

### **C. More Iib Bahrain Types Represented by Single Specimens**

Other Bahrain Types represented by only single specimens amongst the securely Iib beads include those of agate, banded carnelian, faience, lapis lazuli, and shell (see Fig. 54). The first of these is represented solely by the Agate Long, Elliptical, Barrel. None of the agate Types that were present amongst the Iia beads described above accompany this newly introduced variety. The lone bead of this kind was surely made in the Indus, for it is another example of the long “tube” so characteristic of Harappan manufacture, being 2.6 cm long. Like many such specimens, its Type II drilling came about through the use of a cylindrical tapered drill, long enough to be applicable to the bead. The Agate Long, Elliptical, Barrel therefore arrived on Bahrain as a finished item.

With banded carnelian, the Long, Circular, Barrel Type that was present in Period Ib makes another appearance amongst the securely Iib beads, after having been absent amongst the Iia ones mentioned above. The only Iib bead of this variety (B627) has a Type II perforation, indicating the use of a long tapered drill. It came from Area 273, Building 207, of the Saar Settlement (Moon, 2005: 182-183).

The only faience Type present amongst the Iib beads is the Faience Short, Circular, Oblate, again represented by only one specimen (B350). This Type made its first appearance, as per the Bahrain sample, in Period Ib and continued to be present through Iia to Period Iib. However, all other faience Types are absent amongst the beads in the sample belonging securely to the last, and whilst several have been dated to the earlier epochs, only one appears amongst the strictly Iib beads.

As with the previous Dilmun epochs, Iib has only one lapis lazuli Type that can be securely dated to it. This is the Lapis Lazuli Long, Circular, Cylinder, exemplified by B594 which was recovered from the Offering Pit of Temple II at Barbar (see Højlund, 2003c: 316-317). The lack of additional Types, let alone additional lapis lazuli beads, seems to suggest the ongoing shortage afflicting this material in West Asia since before Period I. B594 has a Type II perforation, made by a long tapered drill.

#### **D. Period IIB Carnelian Bahrain Types**

The only material to have several Bahrain Types amongst the securely IIB beads is carnelian. Ten distinct carnelian Types have been identified (see Fig. 54). Of these, three have been identified amongst the Period Ib beads as well as the IIA beads. There are also seven Types amongst the IIB beads that have no parallels amongst the specifically Ib or IIA ones. The Carnelian Long, Circular, Barrel is the only Type common to all three chronological sub-periods that has also been found amongst the beads associated with the Ib-IIc chronological range.

##### **IIB CARNELIAN BAHRAIN TYPES FOUND AMONGST THE IB BEADS**

**Carnelian Long, Circular, Barrel  
Carnelian Short, Circular, Barrel  
Carnelian Short, Circular, Truncated Convex Bicone**

##### **IIB CARNELIAN BAHRAIN TYPES FOUND AMONGST THE IIA BEADS**

**Carnelian Long, Circular, Barrel  
Carnelian Short, Circular, Barrel  
Carnelian Short, Circular, Truncated Convex Bicone**

##### **IIB CARNELIAN BAHRAIN TYPES THAT DO NOT APPEAR AMONGST THE BEADS SPECIFICALLY BELONGING TO PERIODS IB OR IIA**

**Pendant Carnelian Long, Distinct, Flat Drop  
Carnelian Long, Circular, Truncated Bicone  
Carnelian Short, Circular, Truncated Convex Bicone with Concave  
Ends  
Carnelian Short, Circular, Truncated Convex Bicone with One  
Concave End  
Carnelian Short, Hexagonal, Truncated Convex Bicone  
Carnelian Standard, Circular, Barrel  
Carnelian Standard, Circular, Truncated Convex Bicone**

Interestingly, none of the specifically I Ib carnelian beads or their Types have come from cemeteries. All have been recovered from urban sites (Qala'at al-Bahrain and the Saar Settlement) or a religious one (Barbar) (see Højlund, 1994c: 392-393; Højlund, 2003c: 316-317; Moon, 2005: 181-184). Furthermore, none of the beads or associated Types involves any etching. The Types, moreover, are only represented amongst the I Ib beads by one or two specimens each.

All the beads from the Saar Settlement and Barbar either possess or are suspecting of possessing Type II perforations made via a long tapered drill. Most of the beads from Qala'at al-Bahrain are also so perforated, but this site is also the only one that has produced exceptions: three beads (B355, B357, and B358) with Type III double perforations made via pecking and one (B354) with a Type IV single perforation. This last perforation was made using a long tapered drill, like the Type II ones found on the other carnelian beads, and may have been risked due to the short length (0.9 cm) of the bead. Notably, all the beads with these other perforation Types were uncovered in Trench A of the Danish Expedition's Excavation 520 at Qala'at al-Bahrain (Højlund, 1994c: 392-393). All, with the exception of B355, were recovered from Level 15 of that trench; B355 was recovered from Level 13 (along with another bead with a Type II perforation).

None of the carnelian Types, by virtue of Type alone, can be identified as Indus. But given the fact that the beads representing them are all finely shaped (i.e., none are crude specimens), it is not unreasonable to suppose that they may have arrived as finished products from the Indus. The lack of etching may in fact support this assertion, as strange as this may seem given that we are referring to the Indus. The reason is that whilst no etched carnelian beads are included amongst the specifically I Ib specimens, no wholesale etched ones are either (suggesting that they were not handled by the local or nearby centre involved in such etching). It has also been shown above that wholesale etching of finely cut carnelian specimens suggests that some of the beads so treated arrived as finished products from elsewhere, very likely the Indus. These observations, and the fact that the mechanism for bringing Indus hardstones and beads – including carnelian and carnelian ones – was in place since Period I, make an Indus origin for the I Ib beads' manufacture quite likely; especially when such an origin can be asserted for some of the other hardstone I Ib specimens.

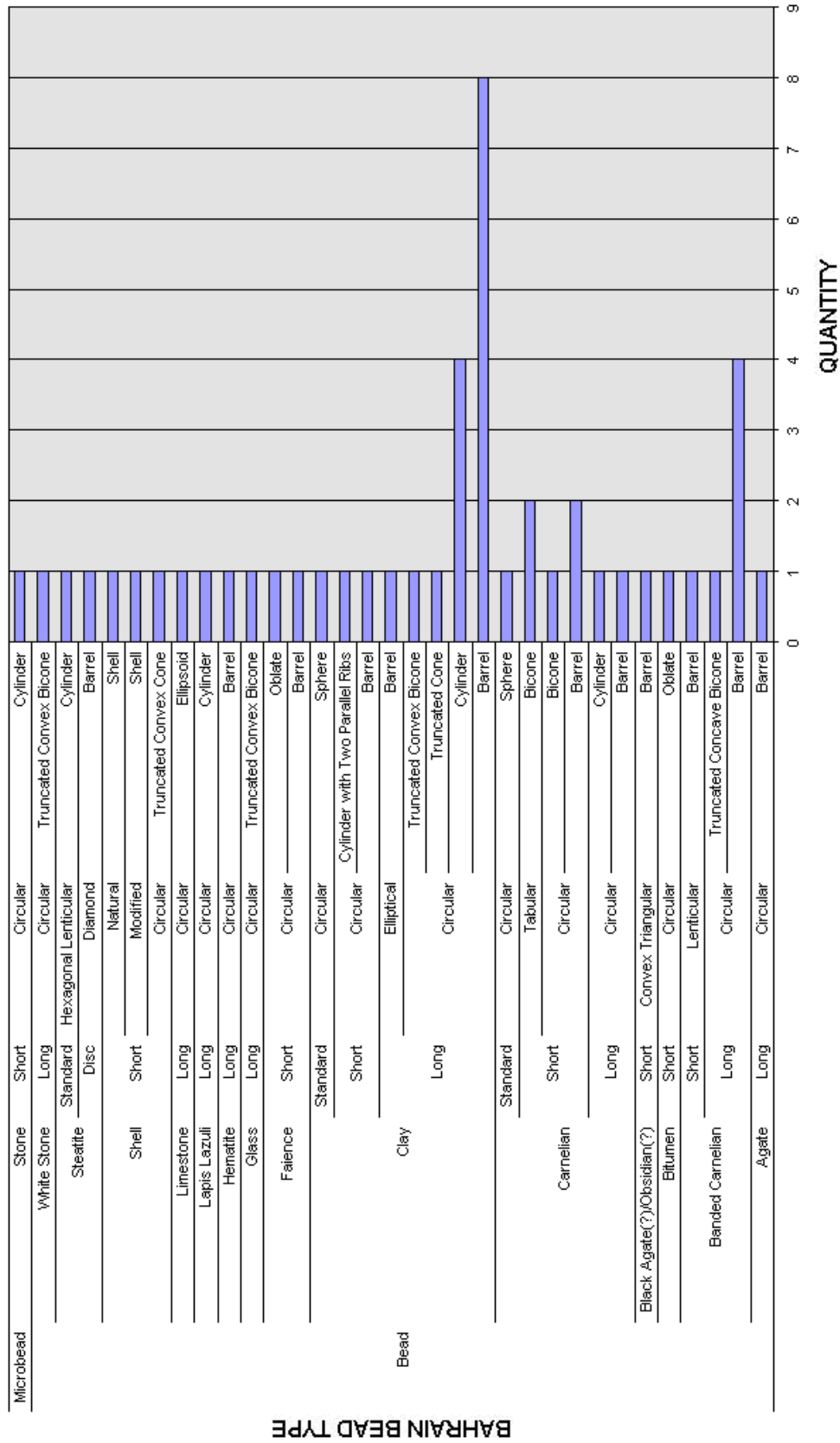
## **Period IIc**

### **A. Period IIc: An Increase in the Number of Bahrain Types**

Amongst the beads specifically attributed to the IIc era (and discounting any belonging to chronological ranges involving IIc), we find that certain materials still only present us with single Types (see Fig. 55). Others, however, that were only represented by such single Types in IIb (such as banded carnelian, faience, and shell) begin to show slightly more diversity. Materials that were absent amongst the strictly IIb beads, though present amongst those belonging to earlier chronological epochs, make a comeback. Clay and steatite exemplify this. Generally, though, there seems to be an increase in the number of Bahrain Types between IIb and IIc when examining the beads strictly dateable to each of these periods, with 18 Types from the former and 33 from the latter; that is, almost a 50% increase (see Fig. 55). This follows the suggestion made by Højlund of a pattern of rising cultural development and social complexity as Period II progressed through each of its chronological subdivisions (2007: 124-126, Fig. 262).

### **B. Materials Represented by Only Single IIc Bahrain Types**

Agate is one of the materials that, as it did amongst the specifically IIb beads, only presents us with a single Type in IIc: the Agate Long, Circular, Barrel. This is a slight variation on the Agate Long, Elliptical, Barrel attributed to the earlier epoch, but is at the same time identified as a separate Type. In fact, it is a Type that makes its earliest appearance, according to the specifically dated beads in the Bahrain sample, in IIc. However, if one considers the IIa-c and IIb-c chronological ranges, then a starting point for inclusion as far back as IIa may be suspected. The bead representing this Type (B649) was found at the Saar Settlement, in Area 232 of Building 204 (Moon, 2005: 182-183). A possible Type II perforation may be identified upon it, thus indicating the use of a long tapered drill. It is, however, not possible to say for certain where it was manufactured. The likelihood stands in favour of the Indus, given its IIb cousin as well as the trading mechanism still in place and supported by other Indus beads (and certainly hardstones) in Bahrain in IIc. Nonetheless, the above suggest probability rather than certainty.



**Fig. 55.** Bahrain Bead Types that belong specifically to Period IIc and the quantities attributed to each of these. It should be noted that no reference is made to etching with regard to any of the Types, since no etched beads were included amongst the specifically IIc specimens in the Bahrain sample. This graph only takes into account those Types represented by beads that can be securely dated to Period IIc.

Glass, a material absent amongst the specifically I Ib Types, is another to provide us with only a single Type in I Ic: the Glass Long, Circular, Truncated Convex Bicone. This is a Type that made its last appearance amongst the beads designated specifically as Ib. It has thus been absent amongst the I Ia and I Ib beads, only making a resurgence amongst those of I Ic; this is even supported by a consideration of those beads attributed to the I Ia-c and I Ib-c chronological ranges. The lone specimen (B363) representing this glass Type was excavated at Qala'at al-Bahrain (Level 10, Trench B, of Excavation 520) (Højlund, 1994c: 392-393). It has a Type VIa perforation.

As amongst the I Ib beads, limestone also provides us with a single I Ic Type: the Limestone Long, Circular, Ellipsoid. Encountered in no other epoch and in no chronological range in the Bahrain sample, it is tempting to regard it as a Type specific to I Ic. However, having only a single example (B652) precludes our doing so, especially since the material out of which it is made was easily acquirable and inexpensive. For these same reasons, as has already been stated above, we may suppose the bead to have been manufactured in or near Bahrain. This particular specimen was obtained from Area 236 of Building 205 at the Saar Settlement (Moon, 2005: 182-183). It could very well have been perforated by a long tapered drill (on the basis of its Type II perforation).

Both bitumen and hematite make their initial entrances into the Bahrain sample in Period I Ic contexts, and with them come two distinct Types, each represented by a single bead: the Bitumen Short, Circular, Oblate and Hematite Long, Circular, Barrel. The first may very well have been manufactured locally or nearby, likely using raw material brought in from Khuzestan (see Chapter 8.5), rather than imported as a finished product from that part of Persia or even Mesopotamia. B615, representing this bitumen Type, was found in Area 200 of the Saar Temple (Moon, 1997: 63). It possesses a Type IV single perforation.

The Hematite Long, Circular, Barrel (B651) was recovered from Area 372 of Building 60 at the Saar Settlement (Moon, 2005: 182-183). Though its material could have come from the Indus or from another source closer to home (e.g. the Arabian Peninsula), its place of manufacture is uncertain given the information we have. Its perforation appears to be of the Type II variety, though there is some uncertainty. If corroborated, this would indicate that a long tapered drill was used to produce it.

One particular I Ic bead (B656) is made of either black agate or obsidian, which would make its Type either a Black Agate Short, Convex Triangular, Barrel or an Obsidian Short, Convex Triangular, Barrel. If the former, it would represent one of two black agate Types in

the Bahrain sample (the other being the Black Agate Short, Circular, Oblate assigned to the IIa-c chronological range). If the latter, it would be the only obsidian Type in the Bahrain sample. Regardless of which it is, the bead itself has a Type II perforation, indicating that it was drilled using a long tapered drill.

### **C. IIC Clay Types as the Most Varied**

The greatest variety of Type amongst the securely IIC beads belongs to clay, one of the two materials that make a comeback amongst the strictly dated Period II beads in the Bahrain sample (see Fig. 55). Eight different IIC clay Types have been noted.

#### **CLAY BAHRAIN TYPES FOUND AMONGST THE PERIOD IIC BEADS**

**Clay Long, Circular, Barrel  
Clay Long, Circular, Cylinder  
Clay Long, Circular, Truncated Cone  
Clay Long, Circular, Truncated Convex Bicone  
Clay Long, Elliptical, Barrel  
Clay Short, Circular, Barrel  
Clay Short, Circular, Cylinder with Two Parallel Ribs  
Clay Standard, Circular, Sphere**

Of these, the Clay Long, Circular, Barrel and Clay Long, Circular, Truncated Convex Bicone have been encountered amongst beads belonging specifically to Period IIa as well as the Ia-b, IIa-c, and IIb-c chronological ranges. We are probably safe in assuming that these two Types were present in both Period I and Period II, either being present throughout the entirety of the latter or resurfacing in IIC. The Clay Long, Elliptical, Barrel Type has also been noted amongst beads from the Ib-IIC and IIb-c chronological ranges, representing a Type that certainly featured during IIC but could have origins as far back as Ib. The Clay Standard, Circular, Sphere has also been noted amongst IIb-c specimens, thus allowing us to place it (augmented by its appearance in a solely IIC context) in these two subdivisions of Period II.

All the IIC clay beads were obtained from contexts within the Saar Settlement, save for one (B364) which was recovered from Level 10, Trench B, of Excavation 520 at Qala'at al-Bahrain (Højlund, 1994c: 392-393; Moon, 2005: 184-187). This last is the only clay bead

with a Type IV single perforation. The rest have much larger single ones, mostly of the Type VIa variety with two exceeding even this in size. B664 and B668 have Type VIb perforations.

As has already been mentioned above, hand-rolling the clay around a string before firing it was probably the standard method of producing such items. We can be sure that many of the IIC clay specimens were so produced, for fingerprint impressions can be detected on several of the finished beads (e.g. B668, B669, B670, B671, B672, B673, B698, and B699).

All the clay beads, with the exception of the one from Qala'at al-Bahrain, feature various shades of red, often vermilion if not reddish pink. The kind of clay employed is exactly that used for producing Barbar Ware and we are again reminded specifically of Dilmun's "ware type 1". It is therefore safe to assume that these clay beads were locally produced in Bahrain via the method described above.

#### **D. Period IIC Carnelian Bahrain Types**

Though Dilmun's contact with the Indus region persisted till the end of IIC at least and, given some of the observations regarding bead materials in Chapter 8.5, likely continued into the post-Mature Harappan era, only six non-banded carnelian Types appear amongst the strictly IIC beads.

#### **CARNELIAN BAHRAIN TYPES FOUND AMONGST THE PERIOD IIC BEADS**

<p><b>Carnelian Long, Circular, Barrel</b> <b>Carnelian Long, Circular, Cylinder</b> <b>Carnelian Short, Circular, Barrel</b> <b>Carnelian Short, Circular, Bicone</b> <b>Carnelian Short, Tabular, Bicone</b> <b>Carnelian Standard, Circular, Sphere</b></p>
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Three of the Types indicated above are represented by specimens recovered from the North-East Temple at Barbar (see Højlund, 2003c: 316-317, Figs. 824-827). Individual beads (B600 and B603 respectively) portray the Carnelian Long, Circular, Barrel and Carnelian Short, Circular, Bicone Types, whilst two specimens (B601 and B602) are of the Carnelian Short, Tabular, Bicone variety.

The Carnelian Long, Circular, Cylinder Type is represented by a bead (B619) recovered from Area 114 of Building 104 at the Saar Settlement, whilst the Carnelian Standard, Circular, Sphere is represented by B644 from Area 131 of Building 7 at that same site (see Moon, 2005: 182-183). The Carnelian Short, Circular, Barrel Type is illustrated by two cases, one (B625) also from the Saar Settlement (Area 273, Building 207) and one (B365) from Level 12 of Trench B at Qala'at al-Bahrain's Excavation 520 (see Højlund, 1994c: 392-393; Moon, 2005: 182-183). The latter case has a Type II perforation caused by a long tapered drill. The others carnelian beads referred to above either have or are suspected of having the same except for B644, which apparently has a Type IV single perforation, riskily added to a bead blank that was 1.5 cm long. None of the strictly IIC carnelian beads are etched, and therefore the same conclusions made in the earlier IIB section regarding the place of manufacture of that sub-period's carnelian beads are relevant here.

Out of all six IIC Bahrain Types, only the Carnelian Long, Circular, Barrel and Carnelian Short, Circular, Barrel ones have parallels from earlier epochs represented in the Bahrain sample: amongst the strictly IB, IB-IIC, and IIA beads in the case of the former, and the IB and IIA beads in the case of the latter.

## **Period IIB-c**

### **A. Period IIB-c Agate Bahrain Types and Continued Contact with the Indus Region**

Whilst the IIB and IIC subdivisions of Period II apparently suffered reduced bead Types in comparison to IIA, as well as a reduction in the amounts of the materials associated with these Types, it has already been pointed out that this picture may be slightly skewed. The main reason is that a large number of Period II beads in the Bahrain sample have been assigned to chronological ranges rather than specific subdivisions of the era and, assuming at least some of these belong to each of the subdivisions involved, a very different image of the availability and importance of these materials and Types is obtained. In this section, we will address the IIB-c chronological range and how the bead Types assigned specifically to it contribute to our understanding of the two subdivisions of Period II the range involves.

The relationship between various hardstones and the Indus region has already been emphasized in several different places throughout this work. But when examining the beads attributed solely to IIB or IIC, reduced numbers seem to suggest that contact with the Indus

had been undermined in the economic environment in which Dilmun was prospering. There was certainly a shift of cultural focus towards Mesopotamia, but no decline in contact or appreciation of trade with the Indus. It is enough to examine such major hardstones as agate and carnelian in the I Ib-c chronological range for this to become clear.

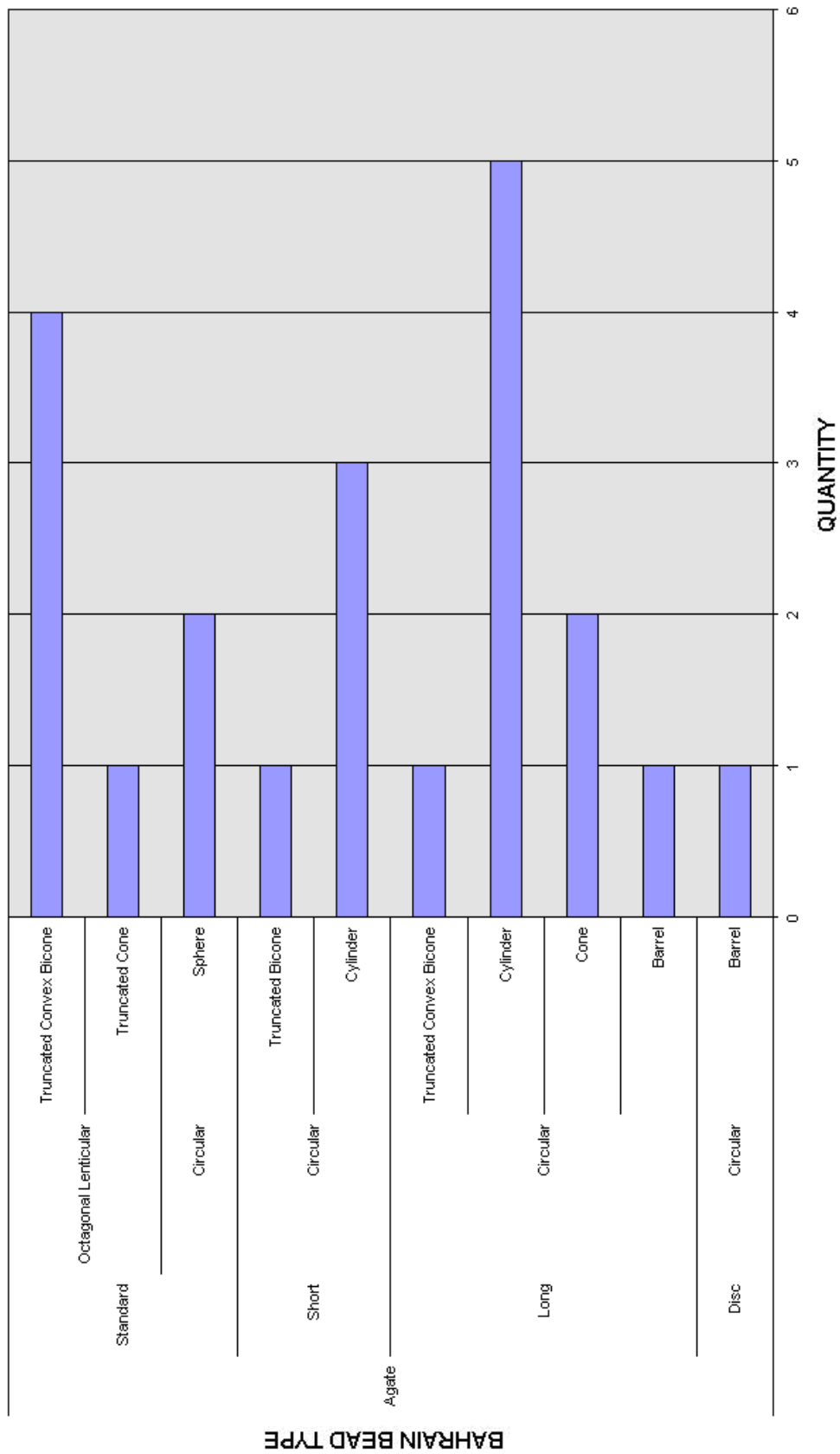
For instance, whereas only single agate Types have been offered to us by the specifically I Ib and I Ic beads already discussed, the I Ib-c range provides us with ten different Types (see Fig. 56). Only the Agate Long, Circular, Barrel Type has been previously met with amongst the strictly I Ic beads, and amongst the I Ia beads we have only encountered the Standard, Circular, Sphere. None of these Types have been found amongst the I Ib or I Ib-Ic beads.

Each of the above ten Types may belong to either I Ib or I Ic or both, with the greatest number of examples belonging to the Agate Long, Circular, Cylinder. Interestingly, all the beads representing these ten Types were recovered from burial mounds at Saar or graves from the Southern Burial Complex at the site, with the exception of one (B650) from the Saar Settlement. This seems to give relevance to the site, an impression which will be tempered once we examine the I Ia-c beads. The beads generally either bear or are suspected of bearing Type II perforations made by long tapered drills. Only B277 from Burial 53 at the Southern Burial Complex possesses a Type VIa perforation, risked on a 1.1 cm long specimen.

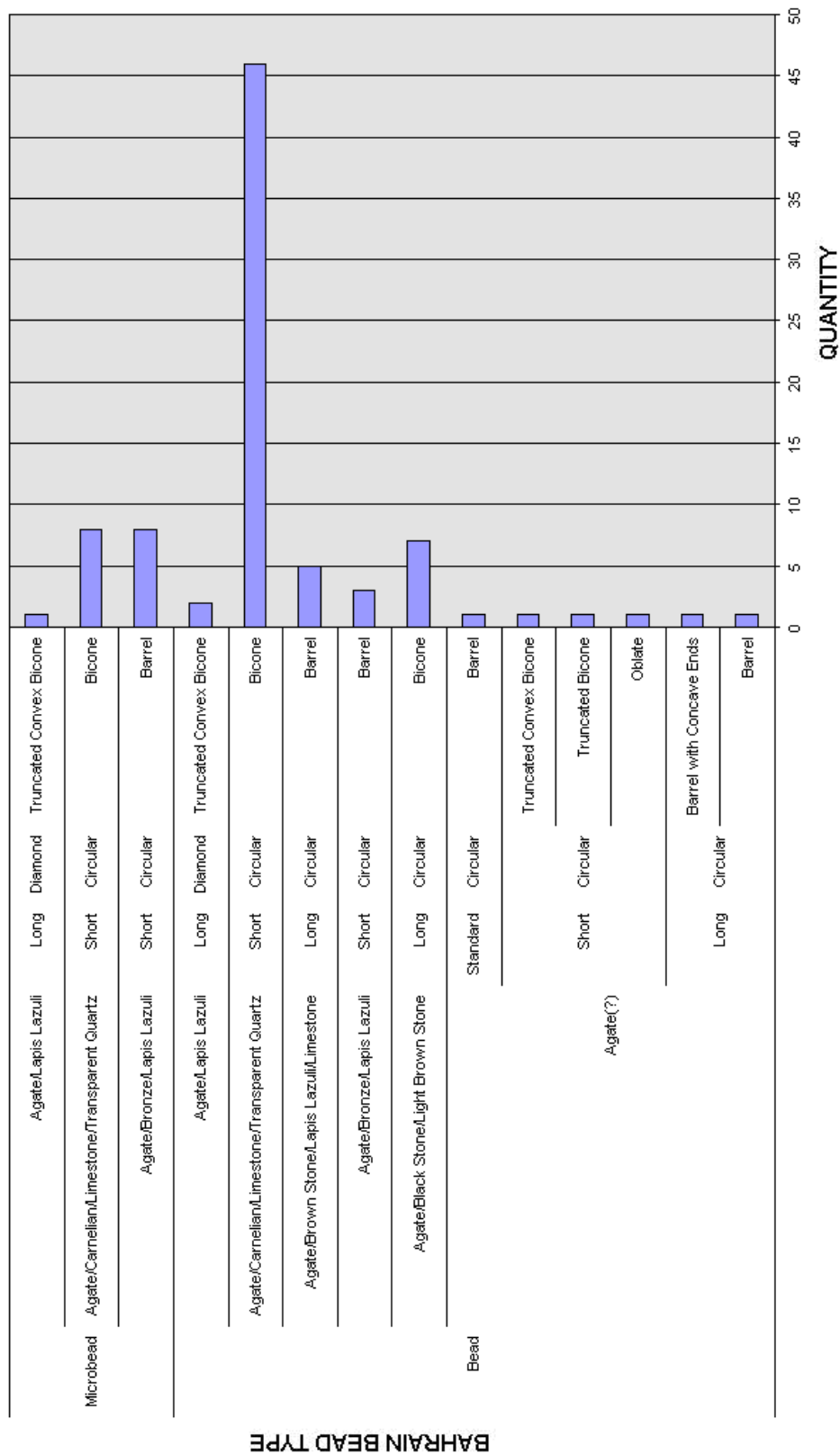
There are also additional beads suspected of being made of agate. If this is indeed the case, they introduce several more I Ib-c Types (see Fig. 57). These beads were recovered from the Southern Burial Complex, all from Grave 42 except for B283 (which came from Grave 121) (Mughal, 1983: 85-86, 181-182, 335-336). Type II, VIa, and VIb drillings perforate them, though their relatively small sizes (the largest two measure 1 cm in diameter) make single drillings more applicable to them than some other carnelian beads.

## **B. Period I Ib-c Carnelian Bahrain Types and Continued Contact with the Indus Region**

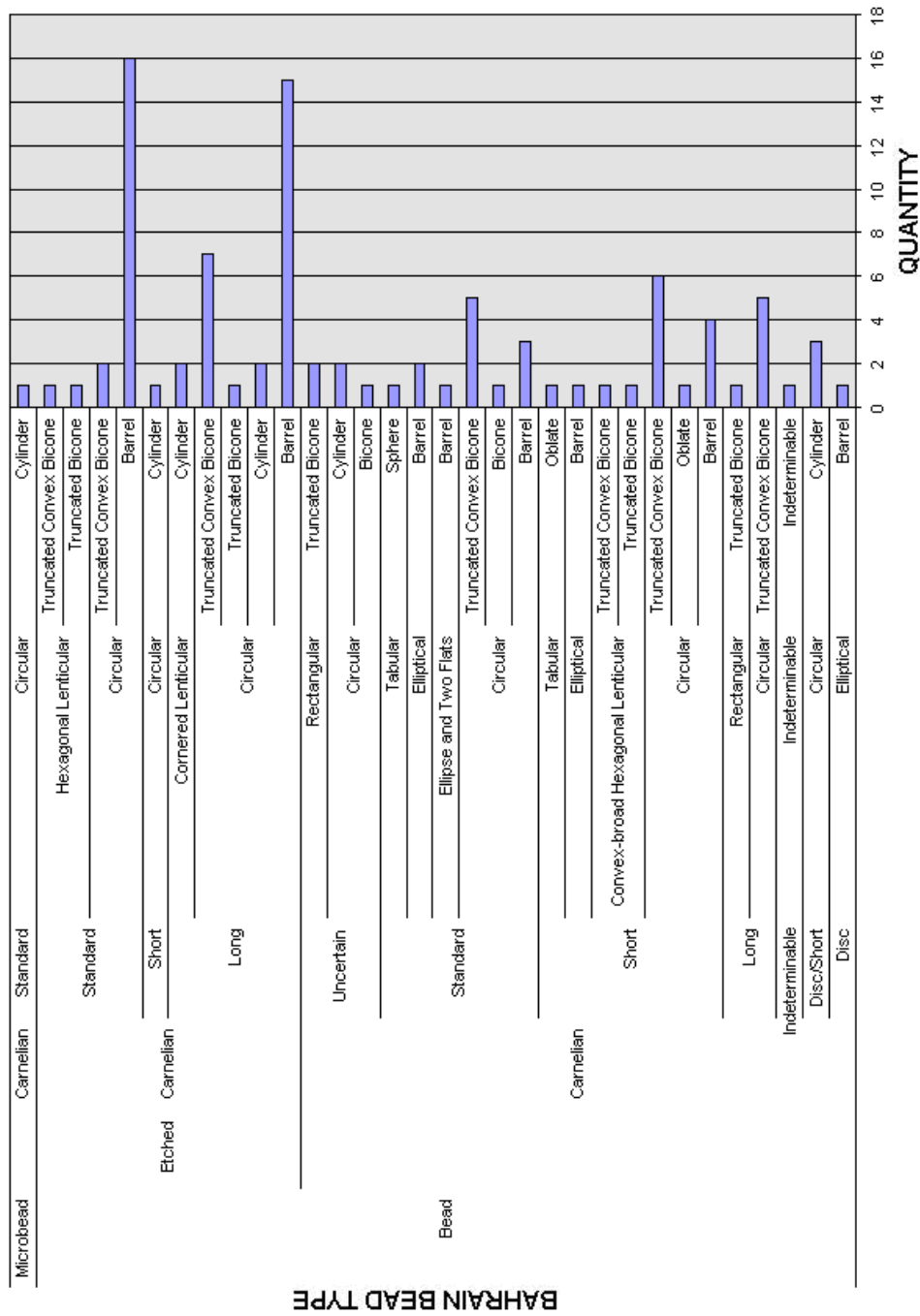
Like that of the agate ones, the presence of carnelian Types adds further credence to Dilmun's appreciation of commerce with the Indus in I Ib and I Ic, something which is easily perceivable from the standpoint of materials but which we have been trying to augment through an examination of Bahrain Types. At least 27 different carnelian Types have been noted amongst the I Ib-c beads (see Fig. 58). Some of these also feature amongst the specifically I Ib, I Ia, and I Ib beads.



**Fig. 56.** Agate Bahrain Bead Types from the llb-c chronological range. The function and presence or absence of etching are not indicated because all are regular bead Types without etching. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the llb-c chronological range.



**Fig. 57.** Agate Bahrain Bead Types that may be represented by possible specimens involving the stone and belonging to the llb-c chronological range. Function is indicated in this chart, owing to the presence of microbead Types, though etching is not a feature of any of the beads represented by the quantities herein (and so no reference is made to it). It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the llb-c chronological range.



**Fig. 58.** Regular carnelian Bahrain Bead Types from the 1b-c chronological range. There minimum number of Types (twenty-seven) is obtained by disregarding uncertain or indeterminable cases as well as the three Carnelian Disc/Short, Circular, Cylinder cases, which may in fact represent a further additional Type if they prove to indeed be disc beads. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the 1b-c chronological range.

The remaining Types belong to the IIB-c chronological range without any precedent amongst the chronological subdivisions already covered (except for the Carnelian Short, Circular, Barrel, which was also found in IIC). Some of them are very specific Types, characteristic only of the IIB-c range since they are not found elsewhere in the Bahrain sample.

**IIB-C CARNELIAN BAHRAIN TYPES FOUND ALSO  
AMONGST THE SPECIFICALLY IB BEADS**

**Carnelian Short, Circular, Barrel  
Etched Carnelian Long, Circular, Truncated Convex Bicone**

**IIB-C CARNELIAN BAHRAIN TYPES FOUND ALSO  
AMONGST THE SPECIFICALLY IIA BEADS**

**Etched Carnelian Long, Circular, Barrel  
Etched Carnelian Long, Circular, Truncated Bicone  
Etched Carnelian Standard, Circular, Barrel  
Etched Carnelian Standard, Circular, Truncated Convex Bicone  
Carnelian Short, Circular, Barrel  
Carnelian Short, Circular, Truncated Convex Bicone  
Etched Carnelian Long, Circular, Truncated Convex Bicone**

**IIB-C CARNELIAN BAHRAIN TYPES FOUND ALSO  
AMONGST THE SPECIFICALLY IIB BEADS**

**Carnelian Short, Circular, Barrel  
Carnelian Short, Circular, Truncated Convex Bicone  
Carnelian Standard, Circular, Barrel  
Carnelian Standard, Circular, Truncated Convex Bicone**

**CARNELIAN BAHRAIN TYPES ONLY FOUND AMONGST  
BEADS FROM THE IIB-C CHRONOLOGICAL RANGE**

**Etched Carnelian Long, Cornered Lenticular, Cylinder  
Carnelian Long, Rectangular, Truncated Bicone  
Carnelian Standard, Ellipse and Two Flats, Barrel  
Carnelian Short, Elliptical, Barrel  
Carnelian Standard, Elliptical, Barrel  
Carnelian Standard, Tabular, Sphere  
Carnelian Short, Tabular, Oblate  
Carnelian Short, Convex-broad Hexagonal Lenticular, Truncated Bicone  
Carnelian Short, Convex-broad Hexagonal Lenticular, Truncated Convex Bicone  
Microbead Carnelian Standard, Circular, Cylinder  
Etched Carnelian Short, Circular, Cylinder**

Most of carnelian beads representing these Types came from Mound 2 at Karranah, the remaining coming from several burials at ‘Aali, Hamad Town, and Saar. All the ‘Aali beads were obtained from tumuli of the Danish Expedition’s Group A, with the exception of B1210 (which came from the subsidiary burial of the site’s Mound 27B) (see Højlund, 2007: 71-91).

Moreover, the majority of the carnelian beads have definite Type II drillings whilst the rest for the most part possess such perforations as well. The only exceptions are B1526, B1607, and B1613, the first two from Mound 10 of Hamad Town’s BN area, and the last from Mound 5 of its BNW area. These possess Type I perforations, double “cones” made through pecking. One bead (B4773) from Tomb E20 of Karranah’s Mound 2 has a Type VII double drilling in which a perforation was created large enough to turn the cylindrical specimen into a “tube”.

Amongst these carnelian beads are several etched examples, excluding those naturally etched due to the acidity of the soil in which they were buried (such as B3775, B3776, B3781, B3782, etc.). The intentionally etched specimens, 48 in total, were all etched wholesale, which resolves the seeming inexplicable enigma of such etching being absent amongst the specifically Iib and Iic beads. We can therefore conclude that such etched persisted throughout Iib and seemingly into Iic, chronological subdivisions which saw the continued work of the local manufacturing centre behind such wholesale etching.

Still, as has been observed above, the period when etching was at its height as an adjunct to carnelian bead manufacture was during Iia, likely because that was the period of greatest Indus influence and the technique itself must have been associated to some extent with the Harappan region (almost certainly being acquired therefrom). We see evidence of

this in there being 51 etched carnelian beads amongst the strictly IIa specimens whilst the group covering both IIb and IIc (the two following sub-periods together) has provided only 48. Nonetheless, the continued presence of such etching as well as hardstones and other Indus-related materials, not to mention actual examples of Indus manufacture, amongst the IIb and IIc beads does make a strong case for commerce with the Harappan Civilization continuing to be valued in Dilmun, even though its eyes have been set northwards since the beginning of IIb.

### **C. Period IIb-c Lapis Lazuli Bahrain Types**

Amongst the softer stones (compared to those described above) from the IIb-c chronological range are three lapis lazuli Types (see Fig. 59). Only the Lapis Lazuli Short, Tabular, Oblate is represented by four specimens (B239, B240, B241, and B242), whilst the remaining two are represented by only single cases (B237 and B4787 respectively). All the lapis lazuli beads, except for B4787, came from Saar. B4787 was recovered from Tomb J17 of Mound 2 at Karranah. The ones from Saar were all from Mound S-267, excavated by the Arab Expedition, and with one exception from its Grave 5 (Ibrahim, 1982: 21, 83-85). This burial may therefore be interpreted as quite a rich one, given the collection of lapis lazuli finds from a time when the material was in shortage across the Near East (see Lankton, 2003: 40). Moreover, since the lapis lazuli Types from the IIb-c range were absent amongst the Ib, Ib-IIc, IIa, IIb, and IIc beads covered above, it would appear that two of the Types are introduced to us by Mound S-267's Grave 5, at least based on the beads in the Bahrain sample, which gives the burial context added importance.

### **D. Period IIb-c Faience Bahrain Types**

Our understanding of the continued roles of some synthetic materials, such as faience and glass, in the IIb-c chronological range can be further aided by an examination of those Types specific to this range. Faience, for instance, has provided us with twelve IIb-c Types (see Fig. 59). The last two of these have undetermined sizes, but are still recognized as distinct Types because their profile shapes do not conform to any of the other known ones from IIb-c. These last two Types, along with the Faience Long, Square, Truncated Bicone (which is a Type unique to the IIb-c range and not found elsewhere in the Bahrain sample),

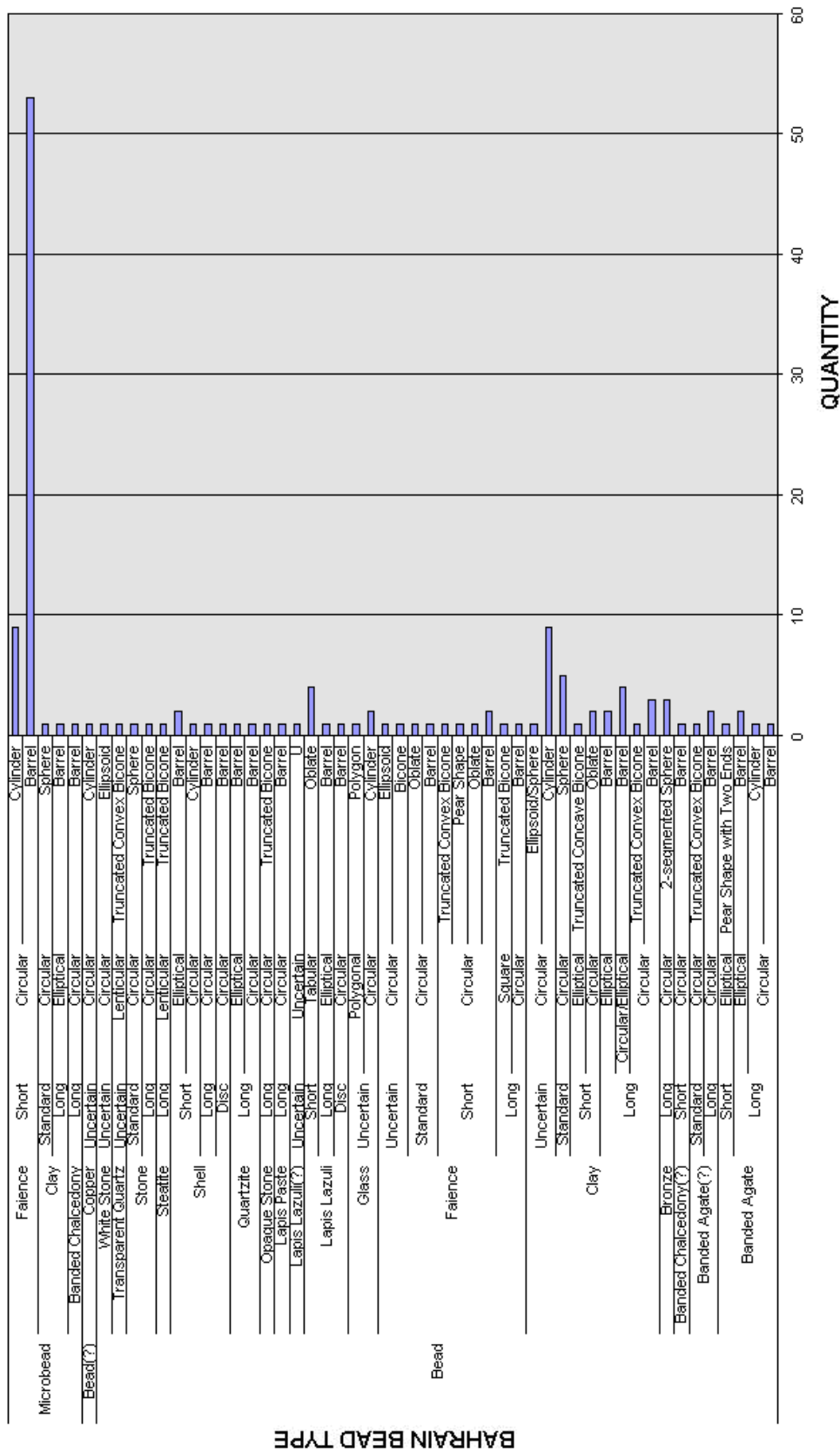
have come from contexts within Saar whilst the rest are all from Hamad Town Late Type mounds. All are represented by single specimens except for: the 1) Microbead Faience Short, Circular, Barrel (53 cases); Faience Short, Circular, Cylinder (nine cases); and 3) Faience Short, Circular, Barrel (two cases). The first of these appears to have been the dominant variety in I Ib-c, which makes sense given the widespread popularity of the barrel profile shape. If we are to suppose a faience-manufacturing centre at or near Hamad Town to have been responsible, then this would have been the main bead Type it would have made, particularly since it is a microbead Type that requires bulk production.

Though two glass Types are found amongst the I Ib-c beads, both are undetermined in size (see Fig. 59). They essentially support the notion of glass goods having been rare and prestige items, as suggested by the small glass amounts and relatively few Types amongst I Ib, I Ib-I Ic, I Ia, I Ib, and I Ic beads (see Lankton, 2003: 45). It was only in the Post I Ic period (between 1700 and 1500 BCE) that glass production became more widespread in the Near East (see Lankton, 2003: 39).

#### **E. Cases of Materials with Bahrain Types Found Only Amongst the I Ib-c Beads**

Specific materials have presented bead Types only amongst I Ib-c specimens (see Fig. 59). Bronze, for instance, has its Long, Circular, 2-segmented Sphere Type exemplified by three beads (B233, B234, and B235) from Graves 3 and 5 of Mound S-267 at Saar (see Ibrahim, 1982: 21, 83-85). All three have Type IV perforations.

Similarly, two quartzite Types (the only ones in the Bahrain sample) have also been noted amongst the I Ib-c beads: the Quartzite Long, Elliptical, Barrel and Quartzite Long, Circular, Barrel, each represented by a single bead (B1524 and B1525). Both beads were obtained from Square G5 of Mound 10, situated in Hamad Town's BN area. Both have Type II perforations, made by a long tapered drill. Though the material for these beads was available in the Indus, both were crudely cut, suggesting the possibility of manufacture elsewhere.



**Fig. 59.** The remaining Bahrain Bead Types (excluding those covered in Figs. 56-58) found amongst the llb-c beads in the Bahrain sample. No reference is made to etching as this process is not applicable to any of the Types shown. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the llb-c chronological range.

## Period IIA-c

On the whole, Periods IIB and IIC are shown, by beads belonging specifically to the chronological range covering them, to have been eras in which Dilmun continued to experience a social and cultural rise that did not detract from its commercial reliance on the Indus, even though its sights may have shifted more towards Mesopotamia after IIA. Rather, its reliance on the Indus brought it not only materials and finished beads, but also generated the wealth necessary for such a transition of cultural focus.

The shift towards greater Mesopotamian cultural influence also affected many of the bead styles that emerged on Bahrain in IIB and IIC. A number of aspects of West Asian culture poured into Dilmun (see DURING Caspers, 1979: 125; Højlund, 2007: 126, 133-135). However, there was also a direct effect upon bead Types that were taken up locally in the more limited manufacturing spheres of the Islands (e.g. the crescent-shaped clay bead).

Turning to beads in the Bahrain sample designated simply as from a broad IIA-c chronological range, we find the picture we have augmented, but to a limited extent, given that the range is broad enough to avoid providing us with specifics. It is difficult to pinpoint any bead Types as specifically IIA, IIB, or IIC, though some comparison to Types found in specific contexts belonging to these chronological subdivisions may suggest an attribution. Nonetheless, a general overview of bead production and Types in Period II may be gleaned from the IIA-c specimens. Much of this augments the Types already discussed but offers many more.

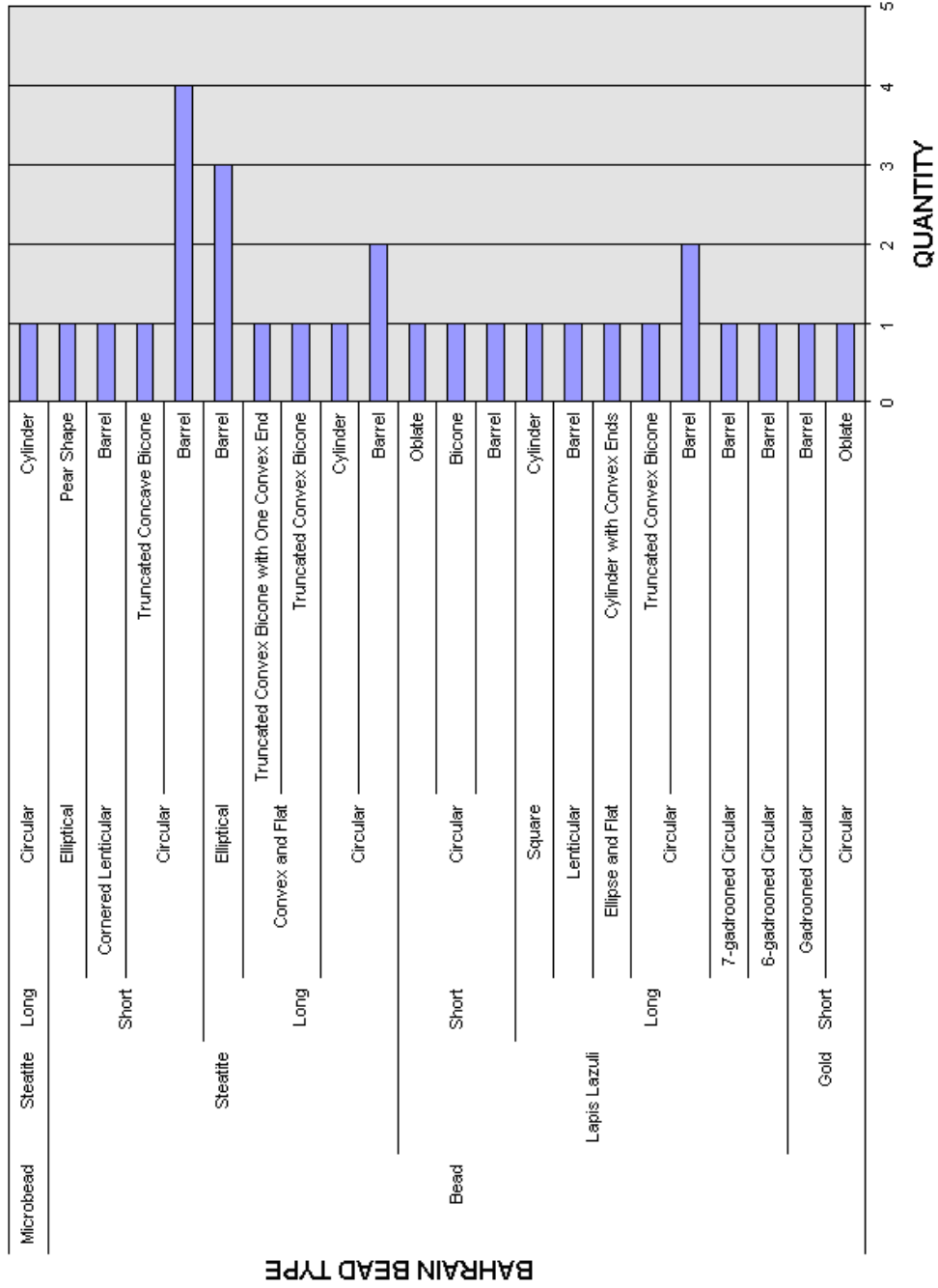
For instance, we have eleven IIA-c lapis lazuli beads illustrating ten different Types, of which only one (or two, if the Lapis Lazuli Uncertain, Circular, Truncated Convex Bicone from Ib represents a long bead) has been encountered amongst the assemblages discussed above (see Fig. 60).

The earliest gold Types in the Bahrain sample are also from the IIA-c range: the Gold Short, Circular, Oblate and Gold Short, Grooved Circular, Barrel, each represented by a single bead (B1473 and B1475) from the Tunisian Expedition's Mound E at 'Aali.

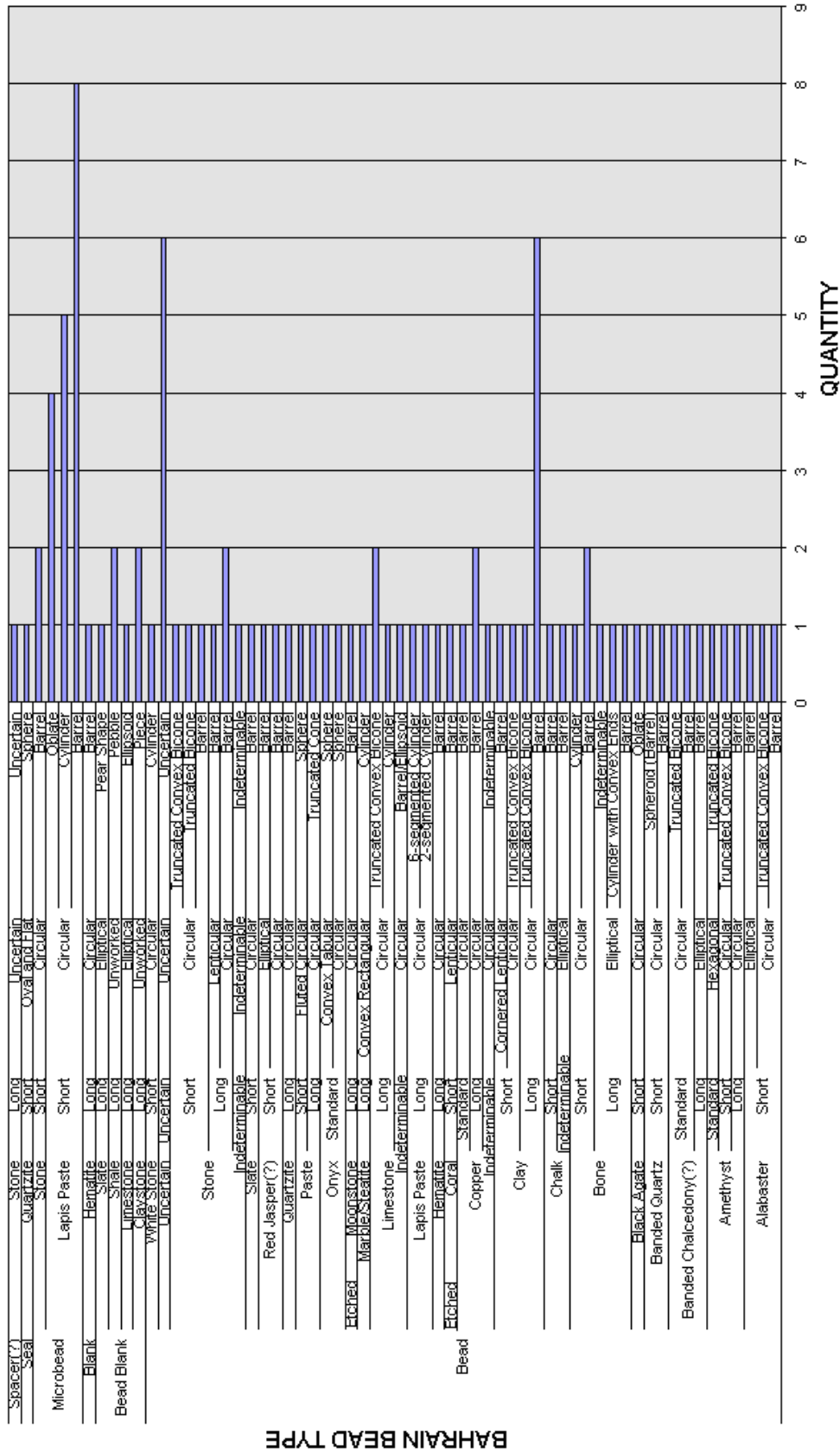
There are also ten steatite Types supporting contact with Persia alongside the lapis lazuli ones, which ultimately were derived (material-wise) from Badakhshan or the Chagai Hills but were transported through Persian routes that merged into maritime ones to Dilmun (see Crawford, 2004: 180-181; Dubin, 2006: 35; Lankton, 2003: 32, 34; Van De Mieroop, 2007: 53-54). Manufacture could have been at the Persian sources or at any of the

“waypoints” along these lapis routes, along which steatite also travelled, if not even in Bahrain (as a steatite bead blank and steatite wasters from Qala’at al-Bahrain seem to indicate) (see Crawford, 2004: 180-181; Dubin, 2006: 35; Højlund, 1994c: 394).

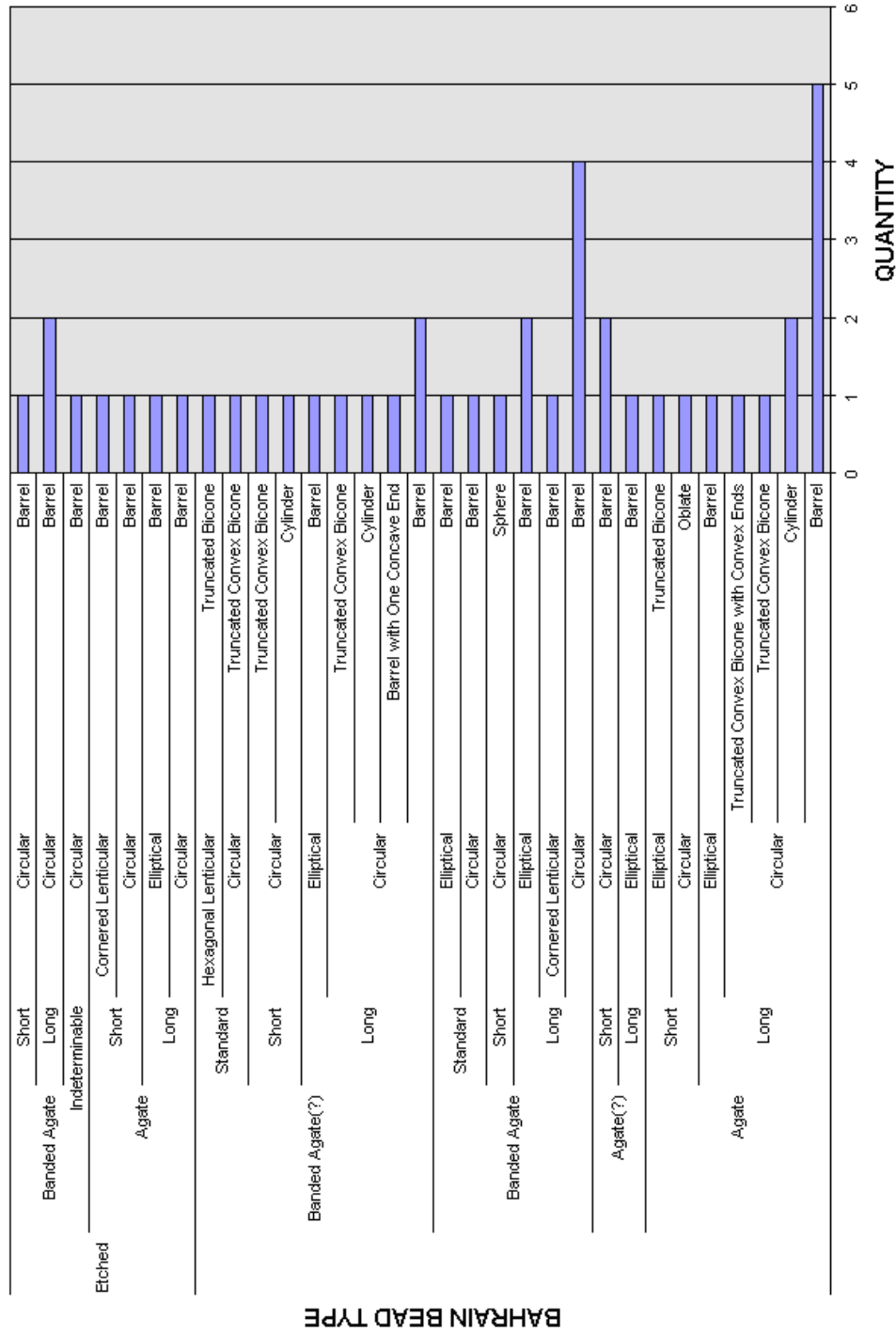
A plethora of material Types suggest possible (or likely, in the case of shell ones) local manufacture and (in the case of hardstones such as carnelian, agate, transparent quartz and others) seem to augment what we know of Indus influence in Period II; especially IIa though counting the later chronological subdivisions (see Figs. 61-65). An example would be another illustration of the long “tubular” carnelian Types (B107 from Grave 6 of Mound 81A at Janabiyah) so uniquely “Indus” in manufacture and perforated using an erenestite drill.



**Fig. 60.** The gold, lapis lazuli, and steatite Bahrain Bead Types assigned to a Ila-c chronological range. There is no reference to etching herein because none of the beads were subjected to it. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the Ila-c chronological range.

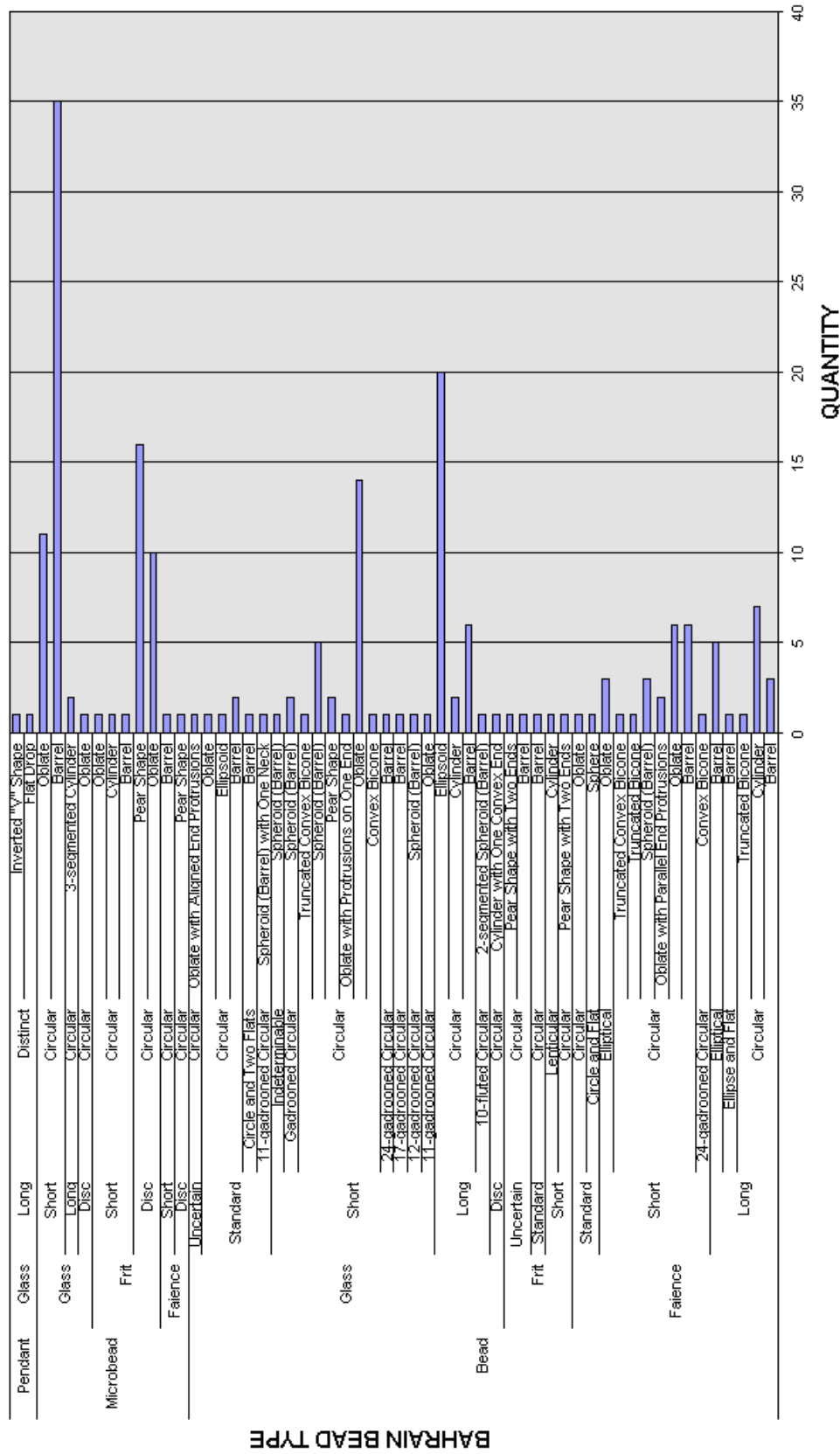


**Fig. 61.** The Ila-c Bahrain Bead Types associated with materials other than gold, lapis lazuli, and steatite and not including the most prevalent. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the Ila-c chronological range.

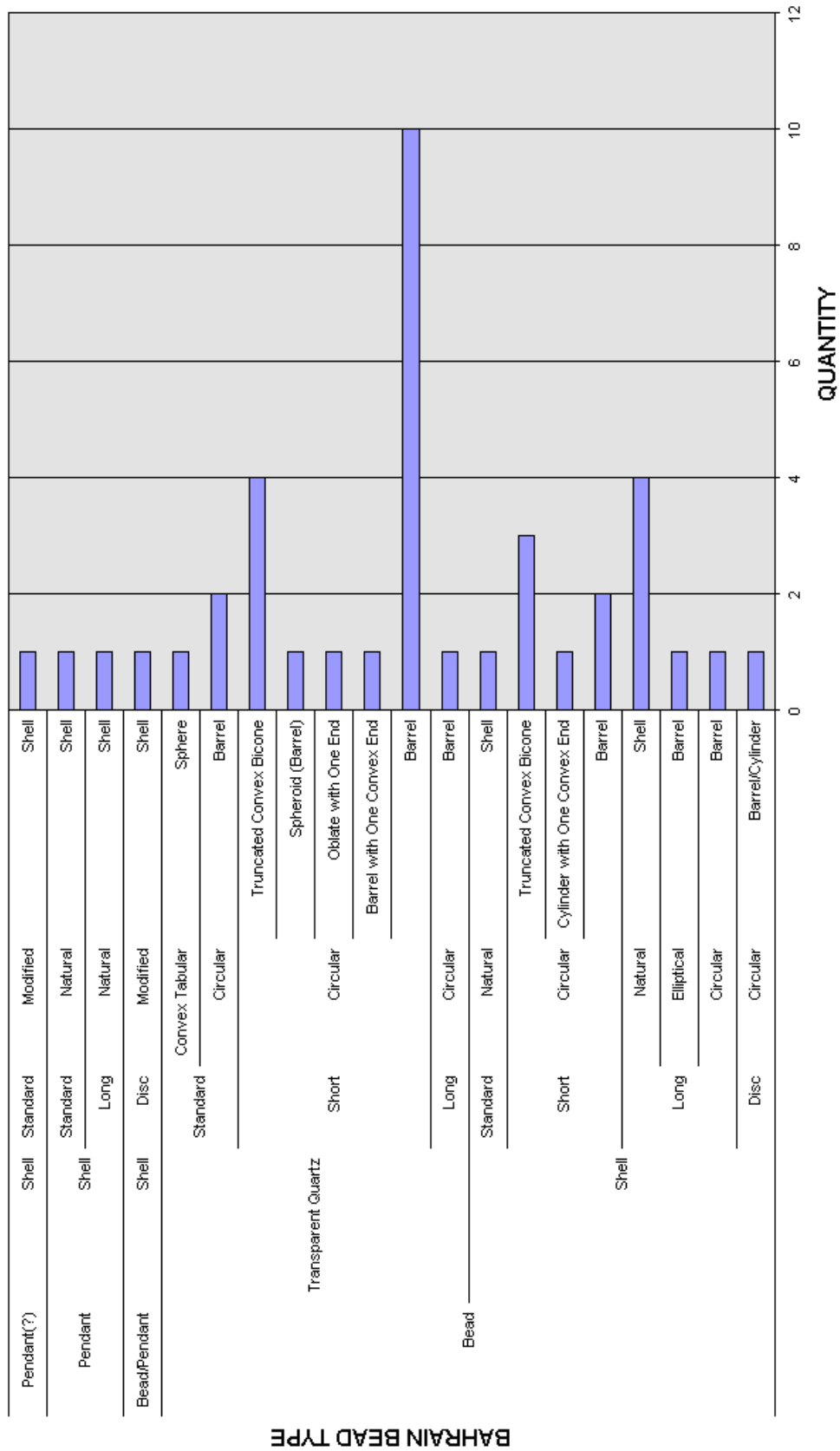


**Fig. 62.** The Ila-c Bahrain Bead Types associated with agate and banded agate (as well as possible cases of these) along with the quantity of each. All Types represent regular bead ones and so no reference has been made to function in the chart. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the Ila-c chronological range.





**Fig. 64.** The Ila-c Bahrain Bead Types associated with faience, frit, and glass along with the quantity of each. No reference to etching is included because this process was not a part of the manufacture of the beads behind these Types. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the Ila-c chronological range.



**Fig. 65.** The Ila-c Bahrain Bead Types associated with shell and transparent quartz along with the quantity of each. No reference to etching is included since the process was not applied to any of the Types shown herein. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to the Ila-c chronological range.

## **Period Post IIc**

In the aftermath of IIc, Bahrain experienced a period of “marginalization” in which the Islands’ economy was in a paltry state and social complexity as well as its attendant prosperity “hit rock-bottom” (Lombard, 2000b: 109). This state of affairs continued for almost two centuries, in the Post IIc chronological era in Bahrain, and was the outcome of a process of decline that had its beginnings at some point late in the preceding Period IIc.

Strangely enough, the beads specifically dated to Post IIc in the Bahrain sample do not convey any stagnation of economy or destabilization of the social structure in place in Early Dilmun. Rather, they provide a continued veneer of wealth and affluence, including visible amounts of carnelian and lapis lazuli beads. There are even gold beads in the Bahrain sample that belong to this era.

Whilst there is the possibility that some of these beads may be reused older specimens from Dilmun’s Period II heyday, it is much more likely that they actually belong to Post IIc. An argument for this, from the standpoint of materials and context, was made in Chapter 8.5. Here, it is useful to examine the Bahrain Types afforded by these beads, to see what additional light can be shed on the situation in Post IIc Dilmun (see Fig. 66).

The prime representative of seeming wealth in Post IIc was carnelian, which continued to have a significant presence amongst the beads of this era as it did amongst those of earlier ones. Excluding definite and possible banded carnelian cases, the (non-banded) carnelian Post IIc beads have provided us with 20 different Types. Of these, 14 Types are not encountered amongst the beads belonging to any of the preceding chronological subdivisions and ranges of Period II or to Period I. This means that 70% of the Types make their earliest appearances in Post IIc, as per the Bahrain sample. This is a strong case for continued carnelian bead acquirement in Post IIc, rather than a reliance solely on heirlooms and re-circulated artifacts. The case becomes stronger when one bears in mind that the 14 new Post IIc Types are represented amongst only 49 beads as opposed to the combined total of 610 definite carnelian cases from the different earlier chronological subdivisions and ranges that can be securely considered a part of Period II. The total becomes 635 if we add specimens from Period Ib and the Ib-IIc chronological range.

POST IIC CARNELIAN BAHRAIN TYPES FOUND  
IN EARLIER CHRONOLOGICAL SUBDIVISIONS/RANGES  
ALONG WITH AN INDICATION OF WHICH  
OF THESE THEY FEATURE IN

Carnelian Long, Circular, Barrel	lb, lb-llc, Ila, Ila-c, llb, llc
Carnelian Long, Circular, Cylinder	Ila-c, llc
Etched Carnelian Long, Circular, Truncated Convex Cone	lb, Ila, Ila-c, llb-c
Carnelian Short, Circular, Barrel	lb, Ila, Ila-c, llb, llb-c, llc
Carnelian Short, Circular, Truncated Convex Bicone	Ila, Ila-c, llb, llb-c
Carnelian Standard, Circular, Sphere	llc
Carnelian Standard, Circular, Truncated Convex Bicone	Ila-c, llb, llb-c

Moreover, a few of the carnelian beads representing the above Types are clearly “tubular” Indus specimens, yet were found in contexts post-dating the Mature Harappan era. These beads (e.g. B935, B943, and B959) were all made in the Indian Subcontinent and perforated using ernestite drills. The longest is 3.71 cm in length whilst the shortest is 3.24 cm in length. B941, possessing a “septagonal” cross-section, is unique in that this seven-sided cross-section appears nowhere else in the Bahrain sample (see Al-Sadeqi, 2010: 154) (see Pl. X). Like two of the “tubular” Harappan beads, it came from Captain Higham’s Grave 36 at Budaiya’ and probably represents Indus manufacture as do the other carnelian beads from that context.

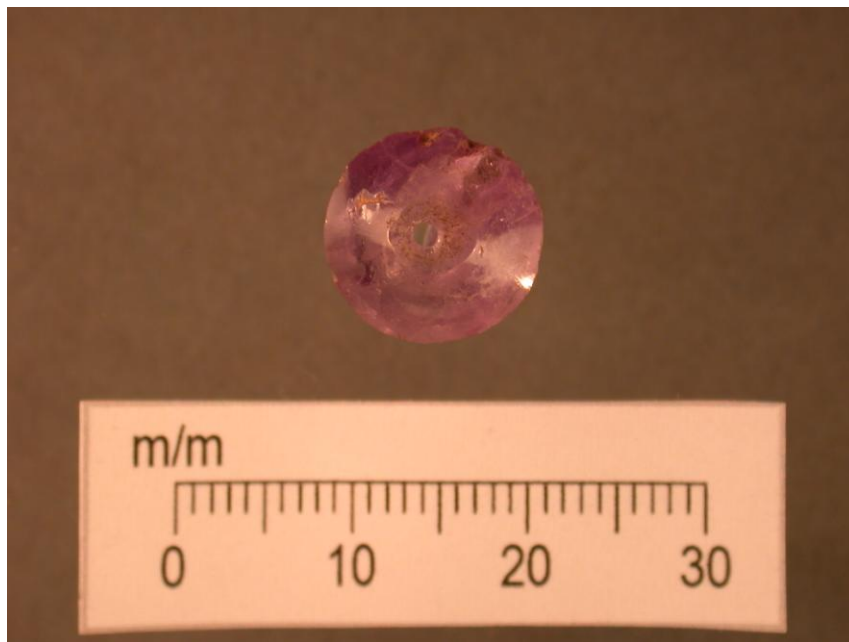
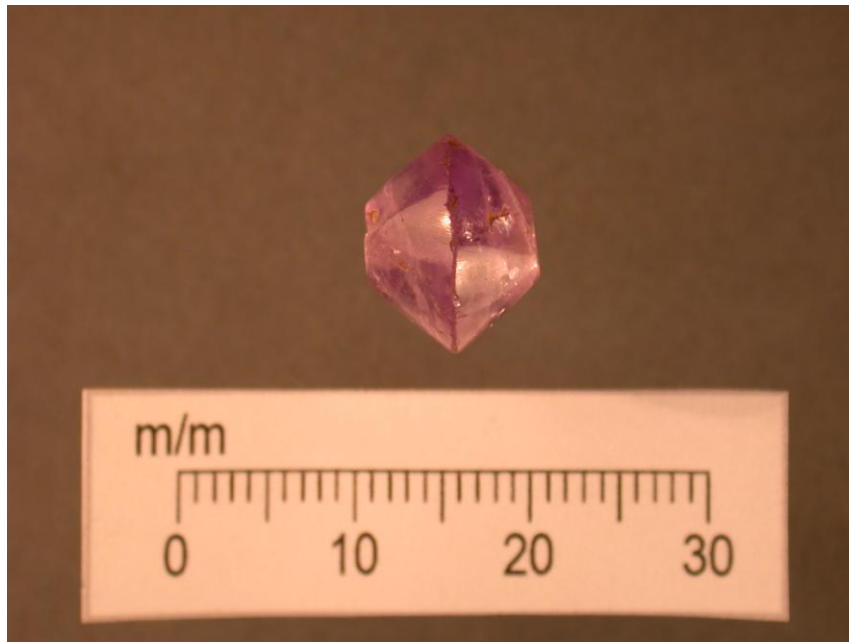


**Pl. X.** B941, being a long barrel of carnelian with a septagonal (i.e., seven-sided) cross-section. This bead was recovered by Captain R. Higham from his Grave 36 and is currently at the British Museum, London.

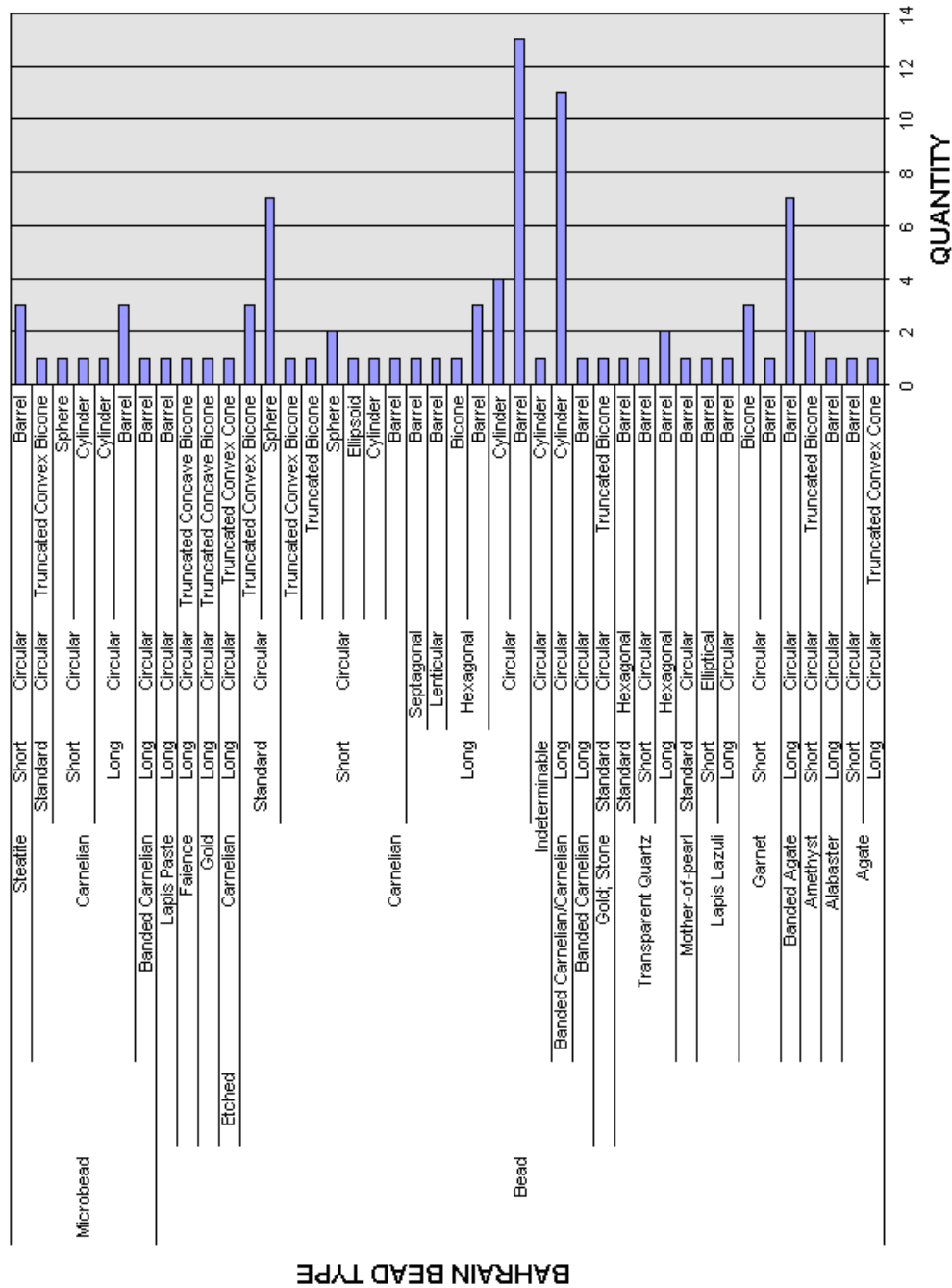
The two Amethyst Short, Circular, Truncated Bicone beads from that same burial (B934 and B942) were probably also made in the Indus, both because of the origins of the stone and because they were found in the same context as the earlier Indus carnelian specimens (see Pl. XI). There are several banded agate and transparent quartz beads and Types that may be so designated, for the same reasons.

Four beads of garnet (B926, B928, B930, and B946) provide us with two new Types not encountered elsewhere in the Bahrain sample: the Garnet Short, Circular, Barrel and Garnet Short, Circular, Bicone. The stone had notable deposits in the Harappan region (Dubin, 2006: 35). Interestingly, none of the garnet beads are double-drilled specimens; all have Type VIa single perforations, save B928 with its Type IV perforation. To produce such straight single perforations through half-a-centimetre long (more or less) beads requires a quite lengthy tapered drill, and one wonders if an ernestite one was not used (though a conventional tapered drill is more probable).

Steatite and lapis lazuli Types, if not based on reused items, seem to indicate ongoing trade, directly or indirectly, with Persia as well as Afghanistan and/or the Chagai Hills (see Crawford, 2004: 180-181; Dubin, 2006: 35; Lankton, 2003: 32, 34; Van De Mieroop, 2007: 53-54). Thus Dilmun continued its economic activities in this period of social and commercial recession, and certain individuals did maintain an affluent standard of living, as evidenced by the burial beads comprising the Post IIc collection in the Bahrain sample. The most obvious proof of wealth, in addition to all the beads and Types already mentioned, is the Gold Long, Circular, Truncated Convex Bicone, represented by B4774 from Tomb J4 of Mound 2 at Karranah.



**Pl. XI.** B942, one of the two amethyst beads from Captain Higham's Grave 36, shown here in profile and from the standpoint of one of its ends.



**Fig. 66.** Post Ilc Bahrain Bead Types along with the quantity of each as represented in the Bahrain sample. This graph only takes into account those Types represented by beads that have been assigned specifically to Period Post Ilc.

Another example incorporating gold is the specimen combining it with an unidentified stone, resulting in the tentative Gold-Stone Standard, Circular, Truncated Bicone Type. This specimen (B315) came from Burial 151B of the Southern Burial Complex at Saar and may be an actual Early Dilmun reuse (as the grave is), though certainty of this yet eludes us (see Mughal, 1983: 95, 409-410).

Generally, the beads and Types provided for Period Post IIc by the Bahrain sample indicate the existence of exceptions to the overarching trend of recession and a social as well as economic “rock-bottom”. They do not, however, invalidate the suggestion of such a recession, which is quite evident from an analysis of the overall situation on Bahrain at that time as well as specific manifestations of this recession (e.g. the folding up of the Saar Settlement, turning away from more specialized burials to collective ones, etc.) (see Crawford and Moon, 1997: 21-22; Højlund, 2007: 126-127, Fig. 262). Perhaps the absence of glass bead Types in Post IIc, at a time when glass manufacture was becoming increasingly widespread throughout the Near East (between 1700 and 1500 BCE), marks the extent of such a recession and shows us that, despite the existence of persons less affected thereby, these individuals were exceptions far from the norm (see Lankton, 2003: 39).

### **Period III and Its Subdivisions**

We have already observed how, around 1475 BCE, the Sealand fell to the Kassites. Dilmun, under the subjection of the “Sealand”, exchanged hands and entered its Middle Dilmun era, a time of gradual recovery from what has been portrayed as the social and economic “rock-bottom” of Period Post IIc (see Lombard, 2000b: 108; Van De Mieroop, 2007: 174-175). With the extensive building projects of the Kassites on Bahrain came some reclamation of its importance as a trading centre (Lombard, 2000b: 108-110). However, it was still eclipsed by the former grandeur it had experienced during Period II, an eclipsing which may very well have produced a similar effect over the data accessible to us from the beads of Middle Dilmun.

Part of this may be due to Kassite cultural hegemony, continuing the policies existent in Post IIc when Dilmun had already become subservient to several political entities further north in Mesopotamia. Dilmun was no longer a unique cultural identity in growth, but one that had experienced a low ebb in Post IIc and was undergoing a measure of recovery in conditions already established by that ebb.

The lack of extensive activity on the part of Bahrain's funerary culture in the Middle Dilmun era, mitigated by some evidence for mortuary practices (including grave reuse) and the continuance of collective burial (acquired in Period IIc), means that far fewer burials excavated by archaeologists can be specifically dated to Period III (see Højlund, 2007: 22-23; Laursen, 2009: 136-138; Lowe, 1986: 81; Mughal, 1983: 10, 21, 33-35, 64, Tables 3-5). Because of this, the dichotomy between burial and non-burial beads and bead Types is not as well defined as it is for most of Period II. It also means having only single cases from which to draw our Period III Types, let alone acquire information from them (see Fig. 67).

The Bahrain Types from Period III include some associated with hardstones, but carnelian Types are entirely absent (see Fig. 67). The hardstone Types are each represented by a single bead: B308, B309, and B310, all recovered from Burial 150A of the Southern Burial Complex at Saar (see Mughal, 1983: 91, 401-402).

BAHRAIN BEAD TYPE	Dilmun; IIIb	Microbead	Faience/Glass	Short	Circular	Barrel
			White Stone	Short	Circular	Barrel
			Stone	Disc	Circular	Barrel
					Natural	Shell
			Shell	Long	7-fluted Circular	Truncated Cone
			Paste	Short	Circular	Sphere
	Dilmun; IIIa	Bead		Standard	Circular	Barrel
			Black Stone	Long	Circular	Barrel
			Banded Chalcedony	Short	Circular	Barrel
				Short	Circular	Barrel
			Banded Agate	Long	Elliptical	Barrel

ALL TYPES REPRESENTED BY ONLY A SINGLE BEAD

**Fig. 67.** Period III Bahrain Bead Types with an indication of the chronological subdivisions involved. The dearth of bead finds from Middle Dilmun is portrayed to some extent by the fact that each of the Types is represented by only a single bead. It should be noted that this graph only takes into account those Types represented by beads that have been assigned specifically to Period III.

A single paste Type (i.e., Short, Circular, Sphere) – B313 – may have been made locally, owing to the relative cheapness of the material, as the Period IIIa shell Types definitely were. Of the latter, the Shell Long, 7-fluted Circular, Truncated Cone is a unique Type in the Bahrain sample, found only amongst the Middle Dilmun beads.

The single synthetic material Type of Period III is either a Faience Short, Circular, Barrel or Glass Short, Circular, Barrel. If of glass, the bead representing it (B385) would be (as mentioned in the previous chapter) from a time preceding the decline in this material's production suffered by the Near East in the closing centuries of the 2<sup>nd</sup> millennium BCE or else a stray product of those centuries (see Lankton, 2003: 47). If the latter, then we must assume it to have been manufactured at one of the few remaining centres that still produced glass during the late 2<sup>nd</sup> millennium BCE; the few sites in Egypt can be considered, but it is more probable that the bead would have been produced at Hasanlu or Marlik in Persia if not some similar site more accessible to Dilmun through well-established ancient trade routes (see Bienkowski and Millard, 2000: 140-141, 190; Henderson, 1995: 71; Lankton, 2003: 47; Negahban, 1998: 43-55). If there was any centre of glass production on Bahrain during Period II (see Chapter 8.5), it was unlikely to have been active during the Middle Dilmun era.

If the above bead represents a faience rather than glass Type, then it would have probably been manufactured at one of the centres suggested above (which would have had access to the necessary pyrotechnology) if not elsewhere along the same trade routes associated with these centres. As with glass, there seems to be a dearth in the evidence for possible faience manufacture in Bahrain during Period III.

Considering the above, the Period III beads seem to indicate that some production was resumed in Bahrain, particularly with materials cheaply or locally available. Certain hardstone beads and their Types seem to reflect reuses of older Early Dilmun items, and this observation is encouraged by the grave reuses we know took place at this time. The only foreign article may be the faience/glass bead and Type mentioned above, but this in itself is not much to go on.

Whilst bead examples from Middle Dilmun are few in the Bahrain sample, the impression offered seems to be of a Bahrain struggling to pass through a relatively difficult period, perhaps being the “eclipsing” of its Period III economy by its earlier prosperity. Certainly it is a situation that does not conform to the understanding of Period III as an era in which there was some return from its previous low ebb. There may be evidence of this in other quarters, but certainly the beads do not show it.

## **Period IV and Its Subdivisions**

### **A. Period IV Carnelian Bahrain Types**

Carnelian Types in Late Dilmun once more established themselves as dominating other contemporary ones in terms of variety and number. This did not echo the situation in Period III, but hearkened back to Periods I and II. As carnelian was always appreciated by Dilmun culture and indicative of the ups-and-downs experienced by it, this resurgence may be seen as having marked a similar trend towards a Late Dilmun social identity that, on the one hand, saw itself as part of the Mesopotamian world and an appendage thereof (being a vassal state of its northern neighbours) and, on the other, retained some of those qualities that had made it uniquely “Dilmun” in Period II. Apart from any economic implications, which must have been present, the continued reuse of Early Dilmun burial mounds reflected this trend (see Lombard, 2000c: 118). The same may have been suggested by the resurgence of carnelian numbers and specifically carnelian Bahrain Types.

Amongst the Period IV beads in the Bahrain sample, 27 different carnelian Types (not counting cases of uncertain material designation) have been identified (see Fig. 68). This many have not been noted amongst the beads specific to any chronological subdivision of Period II or those from Periods I or III (see Fig. 69). The number of Types is only equaled by the carnelian beads belonging to the IIb-c chronological range. Of course, if we take Period II as a whole, then those of Late Dilmun are far outnumbered by the variety of that earlier age. This makes sense, given that Period II represented the apogee of Dilmun’s economic prosperity and social complexity, realms which Late Dilmun was attempting to reconstruct for itself following the dip of Post IIc and the initial rebuilding of Period III. After all, as we have mentioned, carnelian bead quantities and Types can be taken as yardsticks by which to measure the extent of prosperity in Early Dilmun and the progress towards recovery in Period IV.

Of the 27 Period IV carnelian Types, a great many are familiar and are also found amongst the beads belonging to earlier chronological eras on Bahrain. Only ten Types are newly introduced amongst the Late Dilmun beads, meaning 37% of the Period IV Type total. If we compare these to the subdivisions of Period II - IIa (eleven new Types out of 16 – or 68.75%), IIb (seven out of ten – 70%), IIc (four new Types out of six – 66.67%), or Post IIc

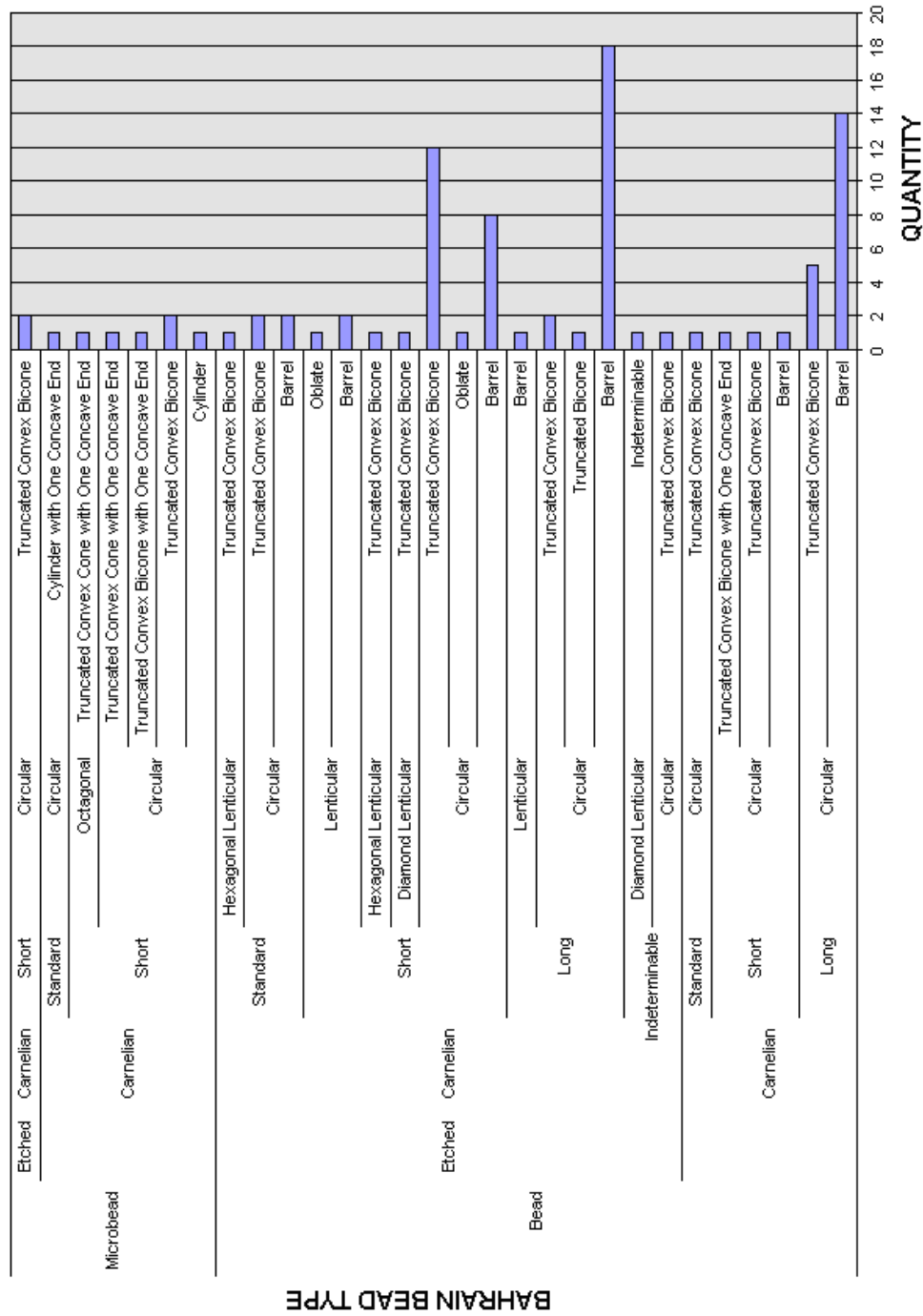
(again 70%, attributable to wealthy burials) - it is obvious that it is surpassed by most of them. But again, this makes sense, given not only the heyday of Dilmun in Period II but also the fact that Period IV was a time of continuing socio-economic recovery for Bahrain, when it was on its way to but had not yet reached any outstanding level of mercantile prominence. Nonetheless, the fact that a significant number of carnelian Types can be attributed to Period IV, and that many of these are new as far as the Bahrain sample is concerned, conforms to the upward trend in the socio-economic sphere suggested for Late Dilmun.

## **B. Period IV Glass Bahrain Types**

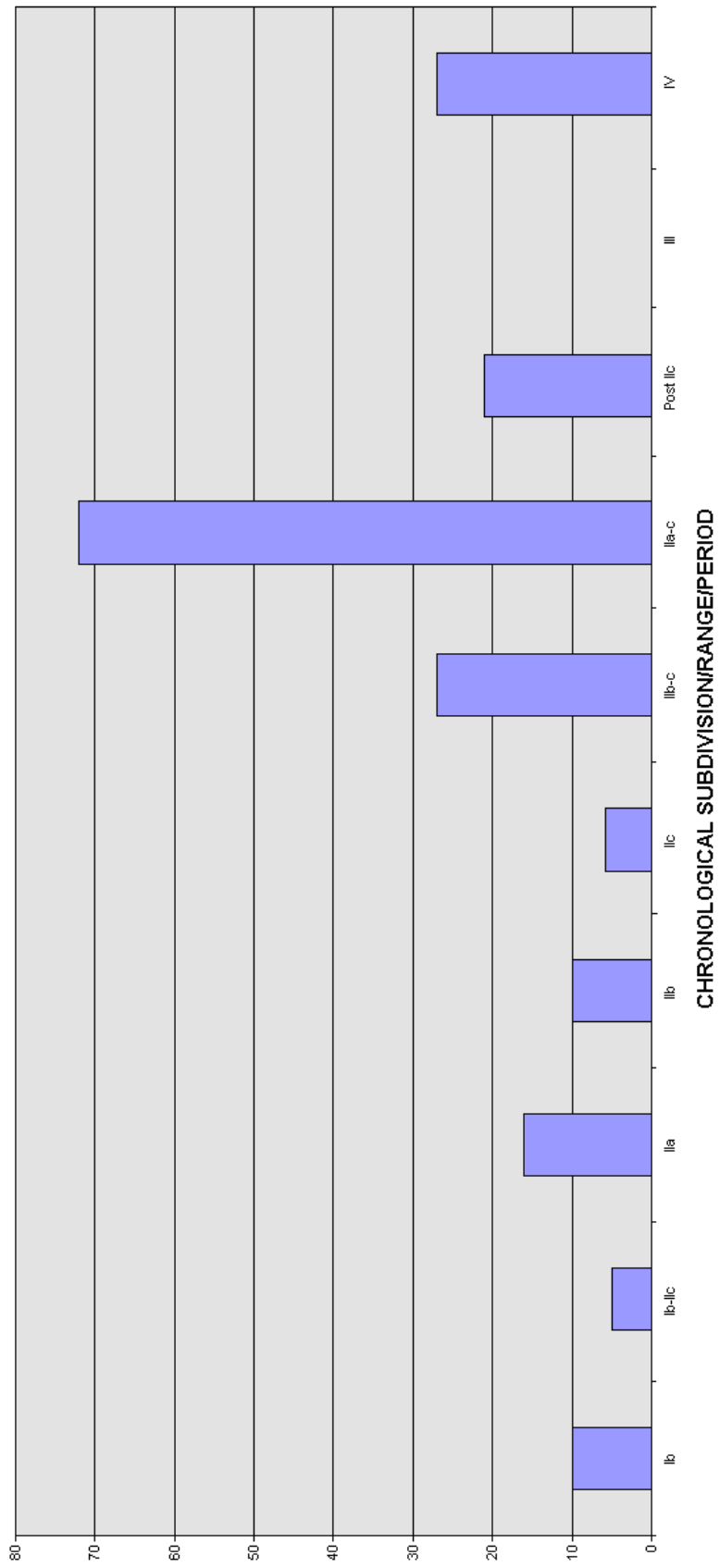
Another factor which seems to illustrate this upward trend is the proper representation given to glass beads in Period IV, something unachieved amongst the Post IIc beads in the Bahrain sample (which belong to that time in which glass items were beginning to become more widely available) or, understandably, those from Period III. In the Late Dilmun era, glass bead amounts far surpassed even those of carnelian (as evidenced by 185 beads in our sample compared to 87 definite ones).

This extreme resurgence was certainly an effect of the situation further north in Mesopotamia, as Assyrian kings reinvested in luxury goods and encouraged the blossoming of various crafts, including glassmaking and glassworking (Lankton, 2003: 47). Dilmun, for some time a vassal-state of the Assyrians, would have participated in this cultural appreciation of luxury and the availability of such goods brought by it. The glass beads of Period IV are thus each a product of that time and a measure of the influence of Mesopotamia yet felt on a Dilmun that was continuing to re-establish itself.

It is perhaps not coincidental, therefore, that most of the Period IV glass beads we have (136 out of 185) came from Qala'at al-Bahrain, which was recognized as an administrative seat in Late Dilmun just as it was in the preceding Period III (see Lombard, 2000c: 116). The strong presence of glass beads at Qala'at may have been due to the Mesopotamian influence exerted at the site, even in the periods of Neo-Babylonian and Achaemenian dominance over Dilmun and the lands further north (Lombard, 2000c: 117-119). This accords with many of the Period IV glass beads having been found in bath-tub and pot burials at Qala'at, for both indicate funerary customs imported from Mesopotamia (see Højlund, 1997i: 145-159).



**Fig. 68.** Period IV carnelian Bahrain Bead Types with the quantity of each. It should be noted that these are the Types associated with non-banded carnelian and, moreover, do not include any cases where the material designation of carnelian is suspect. This graph only takes into account those Types represented by beads that have been securely dated to Period IV.



**Fig. 69.** Comparison of the number of carmelian Types (that is, non-banded carmelian), excluding uncertain additional cases, across the various chronological subdivisions, ranges, and periods in the Bahrain sample (preceding and including Period IV) already dealt with in this chapter.

Even the glass beads from the Snake Sacrifices suggest the same, if their inclusion was indeed based on Mesopotamian traditions concerning the Netherworld deity Ningishzida. For in their case, both the importance of glass and the custom of offering beads in connection with Ningishzida point to Mesopotamian origins; in terms of the latter, the practice may have had its roots in Sumerian times, as the tale of “Ningishzida’s Journey to the Netherworld” shows (see ETCSL, 2006b: t.1.7.3.38-44).

At least 25 different glass Types have been noted amongst the Period IV beads, of which only eleven have been noted amongst beads belonging to earlier chronological periods and ranges (see Fig. 70).

**PERIOD IV GLASS BAHRAIN TYPES FOUND  
IN EARLIER CHRONOLOGICAL SUBDIVISIONS/RANGES  
ALONG WITH AN INDICATION OF WHICH  
OF THESE THEY FEATURE IN**

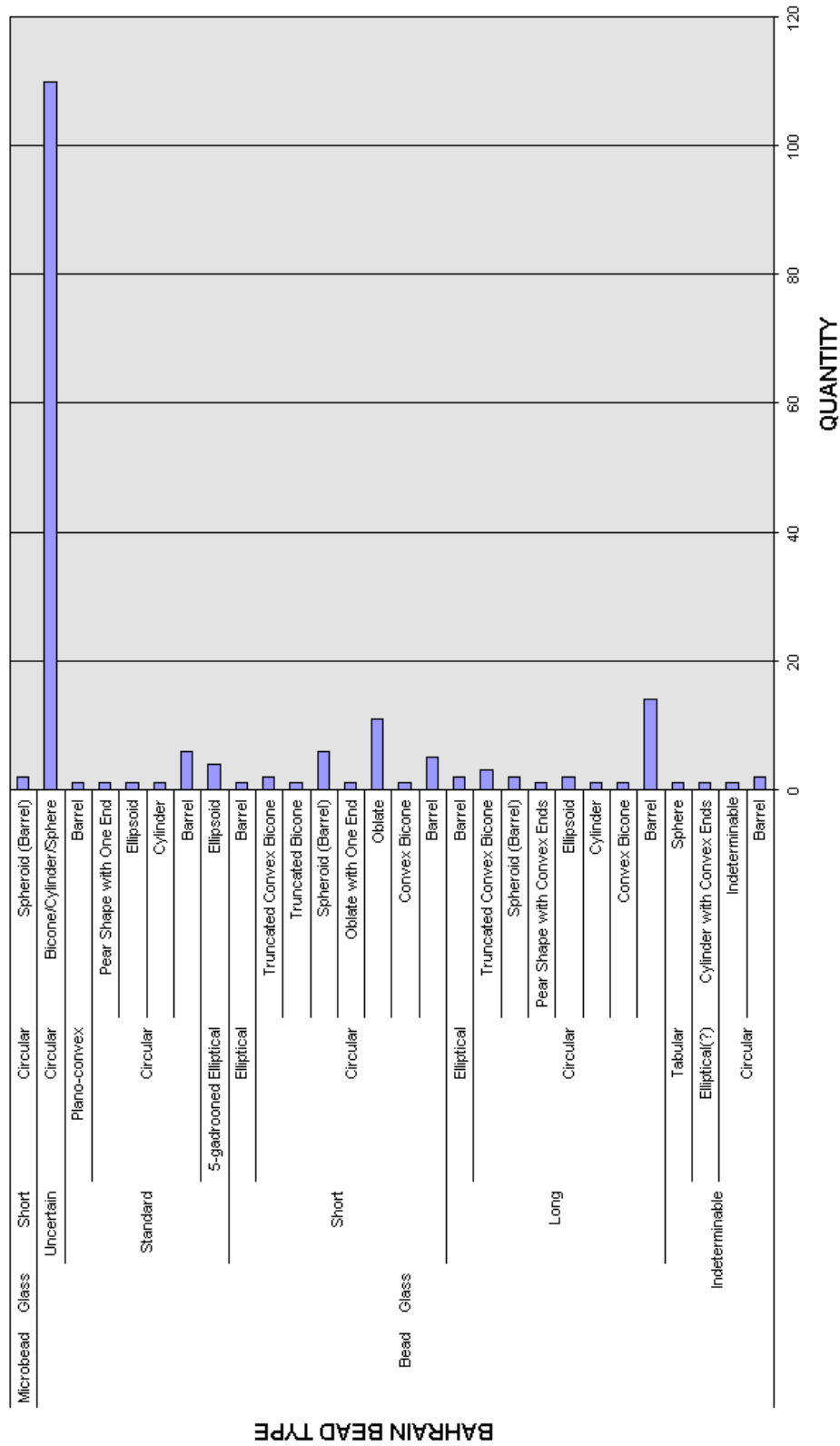
<b>Glass Long, Circular, Barrel</b>	<b>IIa-c</b>
<b>Glass Long, Circular, Cylinder</b>	<b>IIb(?), IIa-c</b>
<b>Glass Long, Circular, Ellipsoid</b>	<b>IIb(?), IIa-c</b>
<b>Glass Long, Circular, Truncated Convex Bicone</b>	<b>Ib, IIc</b>
<b>Glass Short, Circular, Barrel</b>	<b>Ib-IIc, IIIb(?)</b>
<b>Glass Short, Circular, Convex Bicone</b>	<b>IIa-c</b>
<b>Glass Short, Circular, Oblate</b>	<b>IIa, IIa-c</b>
<b>Glass Short, Circular, Spheroid (Barrel)</b>	<b>IIa, IIa-c</b>
<b>Glass Short, Circular, Truncated Convex Bicone</b>	<b>IIa, IIa-c</b>
<b>Glass Standard, Circular, Barrel</b>	<b>IIa-c</b>
<b>Glass Standard, Circular, Ellipsoid</b>	<b>IIa-c</b>

Thus, at least 54% of the glass Types amongst the Period IV beads were newly introduced in the Late Dilmun era, as far as the Bahrain sample is concerned.

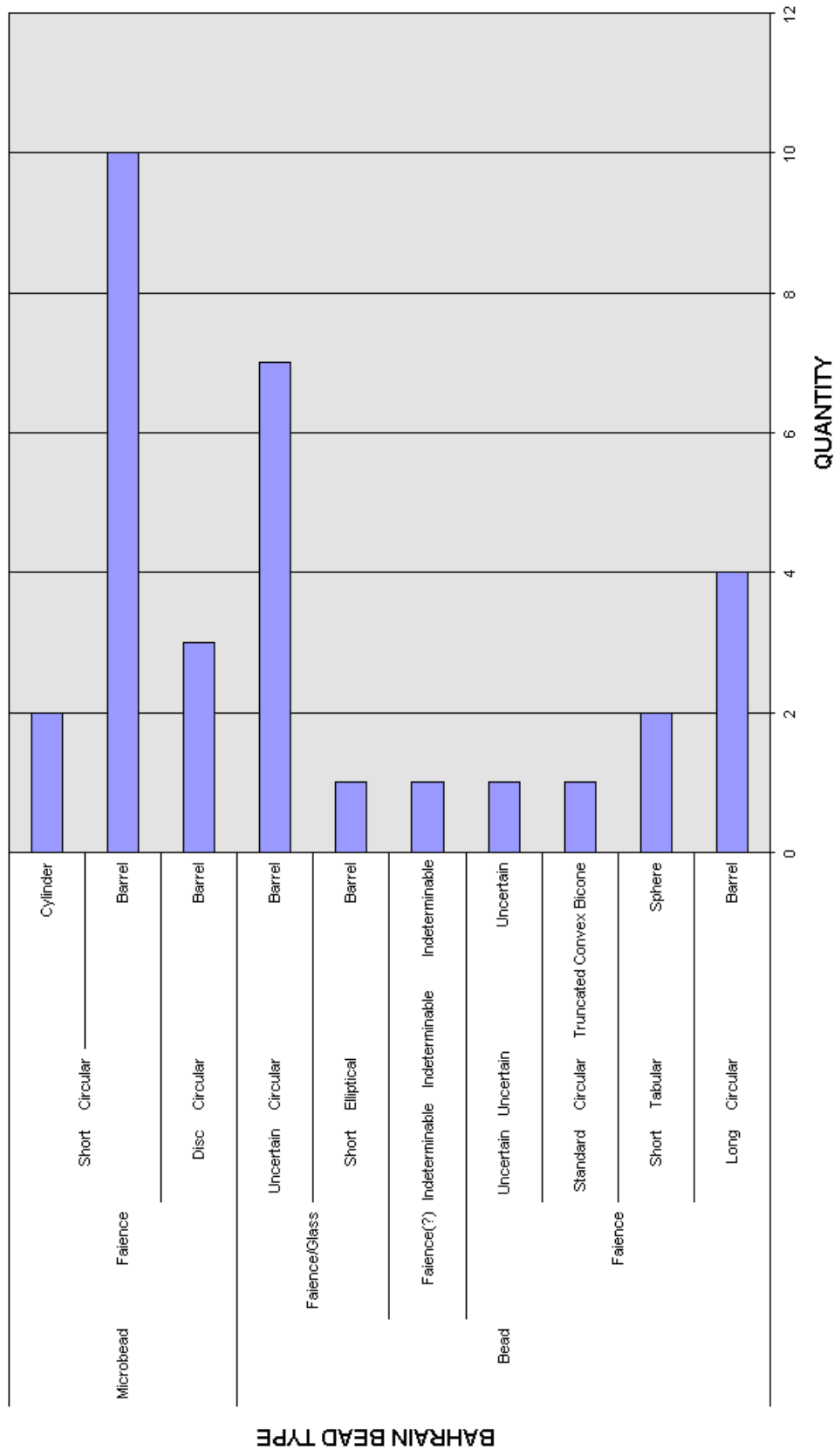
It is also useful to note that, counting all previous chronological periods and ranges together, 37 different glass Types may be discerned. Period IV alone has produced at least 25, 64% of the entire span of older Types. This highlights the importance of glass in Late Dilmun as a medium for beadmaking; an importance which has it overtake carnelian in quantity of beads and come close to rivalling the latter in number of Types.

Eight additional beads, also from IVe, could be either of glass or faience (i.e., B577 to B583). However, when we turn to beads definitely made of faience, we find that what was once the second most widespread material after carnelian in Early Dilmun became relegated

in Late Dilmun to third place. Only six faience Types are found in the Bahrain sample that belong to Period IV (see Fig. 71). Of these, the Faience Short, Circular, Barrel is the most visible, with its ten cases. This is not much, but then faience amounts appear to have been far eclipsed by glass and carnelian amongst the Period IV beads, with only 23 (possibly 24) faience specimens in total.



**Fig. 70.** Period IV glass Bahrain Bead Types along with the quantity of each. At least twenty-five particular Types can be identified, if one disregards all uncertain and indeterminable cases except the Glass Indeterminable, Tabular, Sphere and Glass Indeterminable, Elliptical(?), Cylinder with Convex Ends, which two can be counted as distinct Types owing to the unique nature (amongst the Period IV glass beads) of a cross-sectional shape (in the case of the former) and profile shape (in the case of the latter). This graph only takes into account those Types represented by beads that have been securely dated to Period IV.



**Fig. 71.** Period IV faience and faience/glass Bahrain Bead Types along with the quantity of each. No reference is made to etching as this process does not apply to the beads of the materials mentioned. It should be noted that this graph only takes into account those Types represented by beads that have been securely dated to Period IV.

The importance of glass and carnelian Types in Period IV may indicate more than a gradual resumption of Dilmun's role in international trade networks, its dependence on commercial trends in Mesopotamia, or its re-establishment of a Dilmun cultural identity with all the trappings and influences of the time (including the intervening centuries between Late Dilmun and Period II). The Types associated with these two materials also seem to indicate a strengthening of ties between Bahrain and the Indian Subcontinent, something not witnessed since the Early Dilmun era.

### **C. The Indian Connection and Local/Nearby Wholesale Etching**

Since the major supplier of carnelian to Dilmun was the Indus region, notwithstanding any nearer sources, an abundance of carnelian artifacts is a sure indicator of the strength of the economic ties between the two regions. An abundance of carnelian bead Types is a similar indicator. We have already noted the significance of Period IV possessing 27 individual carnelian bead Types (37% of which were newly introduced at this chronological stage of the Bahrain sample). To this we can add the observation that Period IV has provided us with 15 different etched carnelian Types, which is actually the greatest amount from any chronological period in the Bahrain sample save Period II when examined as a whole (which has given us 54). The situation parallels that of carnelian Types overall (and not just etched ones) between Periods IV and II. We have already noted how the material and its related Types (including etched ones) in Early Dilmun was bound up with Bahrain's Harappan connections. In Period IV, Bahrain's connections with the Indian Subcontinent provided a similar impetus towards the resurgence of regular and etched carnelian Types.

But the etched carnelian Types of Period IV, like their Period II predecessors, are not exemplified by finely decorated specimens. Rather, we find that any beads illustrative of them are wholesale etched, a feature as particular to the Dilmun cultural sphere in this period as it was in Period II. This particularization is the principal objection against attributing an Indian or Harappan origin to it, since the Indus and the Indian Subcontinent, let alone any of the other lands Dilmun was in contact with, have yet to furnish us with examples of etching of this sort. This suggests the reappearance of a local/nearby centre behind such etching. Owing to the economic situation of the centuries since Period II, and the absence of similarly etched specimens in the meantime (which may simply be due to the dearth of beads excavated that belong to the interregnum), it is unlikely that the same centre then active persisted till the Late

Dilmun era. The implication seems to be rather that of a resurgence of the etching tradition associated with Early Dilmun, as this seems to have been as much a part of the Dilmun cultural identity as the pre-eminence given to carnelian amongst its beads (at least up to Period IV, when the tide started turning in favour of glass).

The usurping of the principal position of carnelian by glass in Late Dilmun may simply reflect the dominance of Mesopotamian cultural influences (which glass to some extent represented, as explained above) when set against the more indigenous Dilmun identity still surviving in a late form on Bahrain. Thus we had Dilmun adhering to Assyrian and Neo-Babylonian trends (later inherited by the Achaemenian Empire that overran Mesopotamia), part of the cultural imports of its northern overlords, whilst yet reliant to a conspicuous extent upon its economic relationship with the Indian Subcontinent.

#### **D. Indo-Pacific Drawn Glass Beads of Period IV**

The above interpretation is further supported when one examines the glass bead Types of Period IV in the Bahrain sample. Amongst these, a large number belong to the variety of monochrome specimens known as Indo-Pacific glass beads. Some of the darker specimens from Hamad Town, Diraz, and Qala'at al-Bahrain may also belong to this category, but the colourful variants from Qala'at are the most apparent examples. The greatest number came from Pot Burial 16, which provided us with 110 such beads (see Højlund, 1997i: 154-155). Each specimen was green, white, or yellow in hue (with a single black exception). Due to being Indo-Pacific beads, we can be certain that they, along with the Types they represent, were all indigenous to that part of the world that is their namesake, and likely the Indian Subcontinent itself. A yellow specimen – B590 – has also been recovered from Pot Burial 21 at Qala'at (see Højlund, 1997i: 157).

The various locales of the Indo-Pacific region specializing in the manufacture and transportation of these beads have already been mentioned in Chapter 8.5. Given the attribution of the Qala'at beads to the IVe subdivision of Late Dilmun, Arikamedu is one possible source to consider (see Francis, 2002: 27-30; Lankton, 2003: 69). Another is Taxila, which produced such beads starting in the 5<sup>th</sup> century BCE (Beck 1999: 27; Lankton, 2003: 61). These would have been two of the major producers during the Achaemenian period, as Mantai would not become prominent in this regard till the Tylos era (see Lankton, 2003: 69).

There are, nonetheless, other possible sources to consider for these beads (see Francis, 2002: 30-38, Fig. 4.1).

Ultimately, however, the status of the 110 (plus B590) specimens from Qala'at al-Bahrain as Indo-Pacific glass beads allows us to confirm the dating already attributed to the Pot Burials by Højlund (1997i: 158-159). It also allows us to confirm that the beads were manufactured using the drawing method, as this was the means employed for glass beads of this kind (see Francis, 2002: 42).

The Indo-Pacific beads, a significant part of the Period IV specimens due to West Asian (i.e., Mesopotamian) preferences, are nonetheless examples of how Dilmun relied on maritime trade with the Indian Subcontinent to meet the demands of those preferences. The presence of other hardstones and their Bahrain Types further emphasizes the commercial contact with India. Types associated with agate, banded agate, amethyst, onyx, transparent quartz, and the like all point to this (see Dubin, 2006: 35; Francis, 2002: 116-119) (see Fig. 72). But like the carnelian Types already mentioned above, these not only evidenced Period IV Dilmun's trade links with its commercial partner further east, but also the intrinsic role played by such links (and not necessarily with India alone) in gradually reaffirming its position as a participant in the trade networks of the time.

#### **E. Period IV Steatite and Lapis Lazuli Bahrain Types and Those Illustrating Local Manufacture**

Types attributed to softer stones such as steatite and lapis lazuli enhance our understanding of this reaffirmation by indicating Dilmun's involvement in commercial exchanges with Persia and Afghanistan, which appears to have been present in Period III and possibly throughout even the rock-bottom of Post IIc (based on the beads of that era).

But despite the commercial reach of the times, local bead manufacture still seems to have taken place in Bahrain. The four examples of the Short, Natural, Pearl Type are the earliest specimens of this material in the Bahrain sample, and indeed of their Type. They were locally drilled, having been fished from the waters around Bahrain. Their local manufacture was due to proximity rather than value. On the other hand, we may posit a similar local manufacturing origin for the Bone Indeterminate, Oval and Flat, Ellipsoid with One End, a very unique shape represented by a single bead (B572) with no parallel in the Bahrain sample based on the obtainable aspects of its typological sequence (since no information on its size is

at hand). It was recovered from Pot Burial 19 at Qala'at, just as the two animal tooth beads were obtained from Pot Burial 11 (Højlund, 1997i: 152-153, 156). All these items were probably created through local drilling, since the relatively common nature of their materials precludes long-distance trade.



**Fig. 72.** Period IV Bahrain Bead Types, being those not covered in Figs. 68, 70, and 71, along with the quantity of each. Included is a possible carnelian or glass Type represented by a single case which, regardless of the material designation, has already been covered in either Fig. 68 or 70. It should be noted that this graph only takes into account those Types represented by beads that have been securely dated to Period IV.

## **Period V: The Tylos Era**

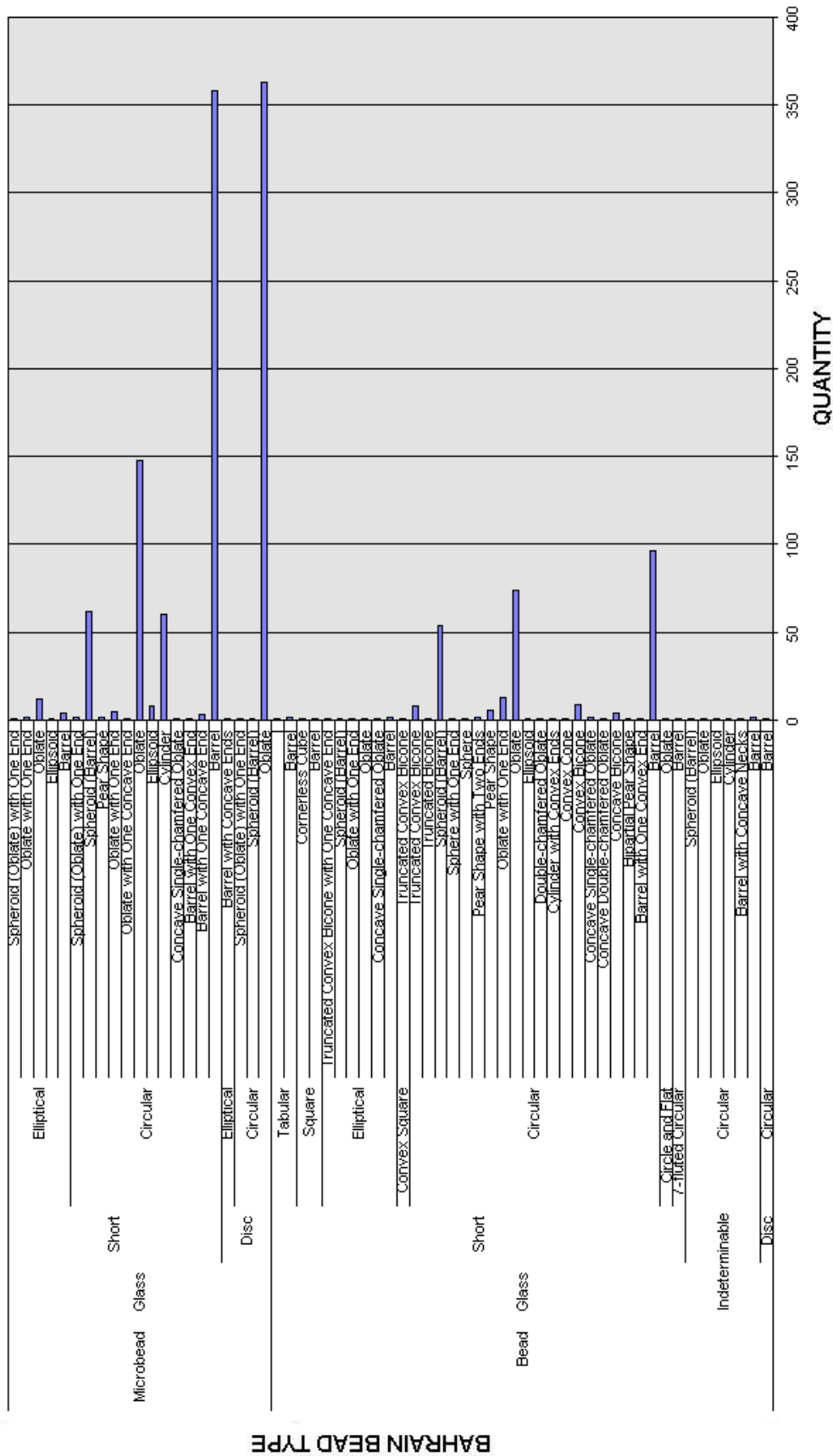
### **A. Period V as an Era of Continuity**

The gradual rebuilding of Bahrain's social and economic identity following Post IIc had been an ongoing process with its beginnings in Period III. By the Late Dilmun era, this process was well underway. However, it reached its culmination not in Period IV, but rather in the Tylos era. Under the various northern kingdoms that exerted power over the Islands, from the Seleucids to the Sasanians, as had been the case with the Kassites, Assyrians, Neo-Babylonians, and Achaemenians before, Bahrain found itself under the cultural influence of other lands (Salles, 2000: 135). It thus took upon itself the reverberations of the economic demands of these nations whilst conforming to new ideas or new adaptations of old ideas (as the case may have been) based on its neighbours. No longer was this a matter of commingling between such influences and a late form of Dilmun identity. The latter had given way, at least to all outward seeming, and in its place Bahrain began to adopt a guise that would mark its Tylos period.

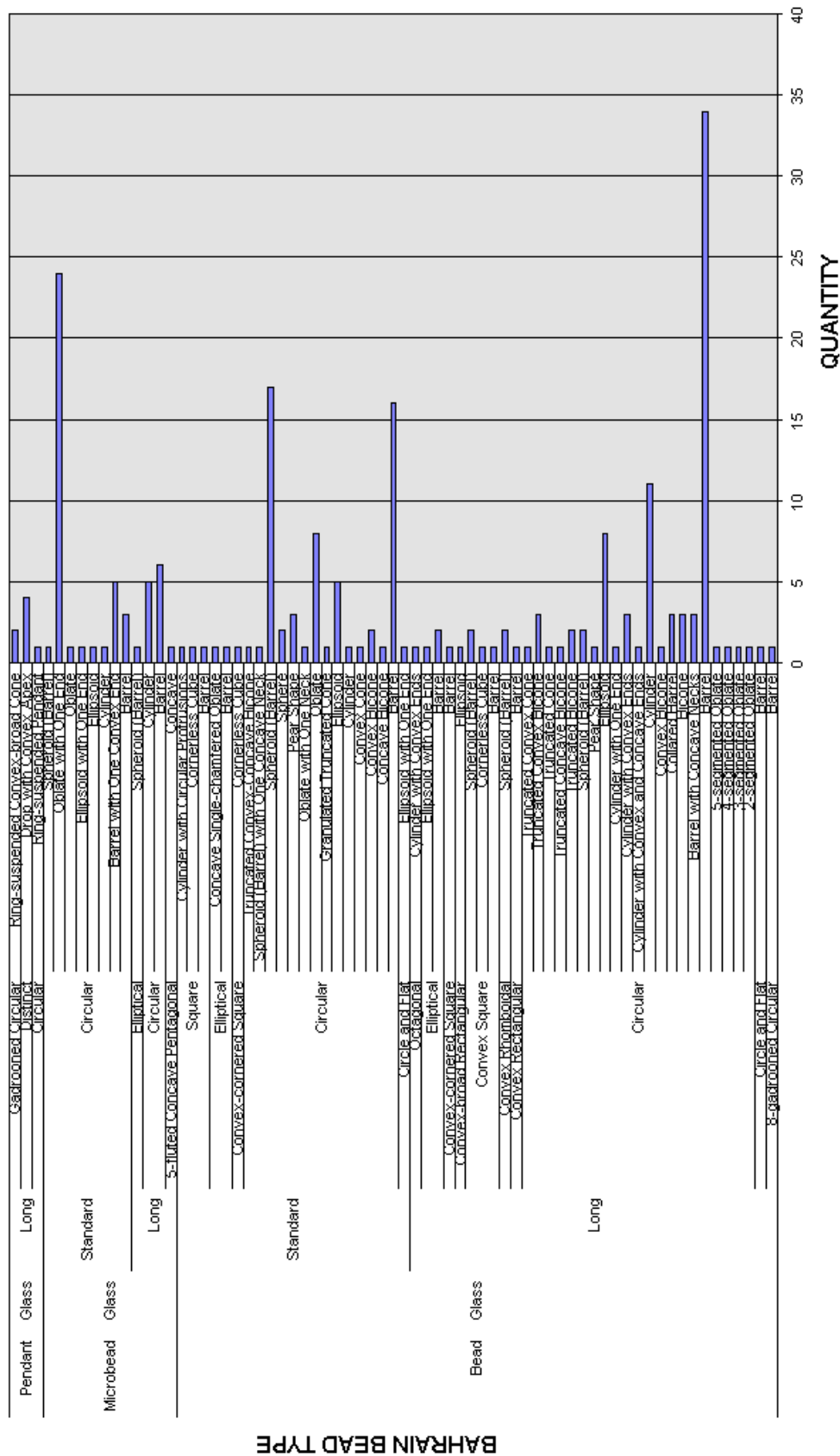
But it is important to bear in mind that in reality there was no complete break between this Tylos identity and its Period IV predecessor, for the reality was not as simple as archaeological divisions of chronology would have us believe. And we still find that traces of the Late Dilmun identity were being hinted at in various ways. The continued practice of burial reuse, which had been a part of Late Dilmun mortuary culture (though mainly focused on Early Dilmun tumuli reuse then) remained a feature of Period V, as did the employment of pot burials (a practice adopted from Mesopotamia in the earlier epoch) (see Herling, 2000: 138; Højlund, 1997i: 158-159; Salman and Andersen, 2009: 19). Even the obol tradition evidenced by some Tylos burials may have been a development of the Ningishzida offering, owing to the central role played by beads and mortuary connotations in both (see ETCSL, 2006b: t.1.7.3.38-44; Herling, 1994: 229; Herling, 2000: 139-140). Moreover, a number of Tylos cemeteries appear to have had an Early Dilmun "core", as it were, indicating a spatial continuity alongside certain aspects of a cultural one (see Alsendi and Ibrahim, 2000: 142). Tylos Mounds 1 and 2 at Karranah, for instance, were built around a core nucleus of Period II burials (Alsendi and Ibrahim, 2000: 142; Herling, 1994: 227, 230-231).

## **B. Period V Glass Bahrain Types: An Overview**

Amidst the glass Bahrain Types of Period V, we find this same process of implicit continuity indicated. For even as glass Types had surpassed carnelian ones in number and variety in Late Dilmun, so too they remained ahead of carnelian Types in Tylos. They retained the position of most-favoured material, acquired in the previous epoch. But in Period V, the difference in numbers and variety between glass and carnelian Types was increased considerably, and this difference was certainly due to the influence of industries further north. This follows the situation that led to glass Types becoming dominant in the first place in Period IV. During the Tylos era, the great glassmaking and glassworking booms of the Hellenistic and Roman periods were brought to bear upon the manufacturing centres of West Asia, the Mediterranean, Persia, and elsewhere, as successive empires held vast tracts of land (Diamanti, 2003: 13; Eisen, 1919: 92-101; Lankton, 2003: 53-54, 63; Stern, 1999: 442). With the booms came not only an increase in production, but an increase in appreciation for glass ornaments. Bahrain certainly took part in the latter, and may have taken part in the former (if the hypothesis of a glassworking industry reappearing in Period V in the “fertile strip” region of the Islands based at or near Shakhoura and/or Saar is correct).



**Fig. 73a.** Period V glass Bahrain Bead Types involving disc and short sizes along with the quantity of each Type. No reference to etching is necessary, since the process does not concern any of the beads or Types in this chart. Also included are those represented by an indeterminable size.



**Fig. 73b.** Period V glass Bahrain Bead Types involving disc and short standard and long sizes along with the quantity of each Type. No reference to etching is necessary, since the process does not concern any of the beads or Types in this chart.

106 distinct glass Types belong to the Tylos era, a phenomenal number not equalled by any other material in any period or chronological range in the Bahrain sample (see Figs. 73a-73b). Now part of the reason for this may be that the Tylos beads form the majority in the sample (2,564 of 4,813 specimens, with at least 1,560 of the 2,564 being of glass), whilst the remainder represents all the preceding periods. But numbers by themselves do not explain diversity, as it is possible for one Type to outnumber all the rest and reduce such diversity.

Moreover, if we lay the Tylos glass Type total against that of all the preceding periods combined, the extreme gulf between the two in terms of typological diversity becomes obvious. The total for all preceding periods and ranges amounts to only 50 Types, barring any possible redundancies due to missing information in any aspect of the typological sequence. When the 106 Tylos Types are set against them, the difference of 56 Types is more than substantial.

However, 50 Dilmun Types have been found amongst 324 glass beads, for this is the glass total amongst the 2,214 Dilmun specimens in the Bahrain sample. Thus, over 14.6% of the Dilmun beads have provided a ratio of one glass Type for almost every ten beads, if all such Types are equally represented. Compared to this, the 106 Tylos ones give us a ratio of one Type per every six or seven Period V glass beads. Diversity is thus shown not only in numbers, but in the frequency with which distinct Types are found amongst the Tylos glass specimens, which is between 30% and 40% greater than that associated with Dilmun.

Of the 106 Tylos glass Types, at least 21 have been encountered amongst the beads belonging to earlier chronological periods and ranges. This leaves 85 that make their first appearance amongst the Period V beads; thus over 80% of all Tylos glass Types.

PERIOD V GLASS BAHRAIN TYPES FOUND IN EARLIER  
CHRONOLOGICAL SUBDIVISIONS/RANGES/PERIODS  
ALONG WITH AN INDICATION OF WHICH  
OF THESE THEY FEATURE IN

Glass Long, Circular, Barrel	IIa-c, IV
Glass Long, Circular, Convex Bicone	IV
Glass Long, Circular, Cylinder	Ib(?), IIa-c, IIb, IIb-c, IV
Glass Long, Circular, Ellipsoid	Ib(?), IIa-c, IIb, IIb-c, IV
Glass Long, Circular, Spheroid (Barrel)	IV
Glass Long, Circular, Truncated Convex Bicone	Ib, IIc, IV
Glass Long, Elliptical, Barrel	IV
Glass Short, Circular, Barrel	Ib-IIc, IIIb(?), IV
Glass Short, Circular, Convex Bicone	IIa-c, IV
Glass Short, Circular, Oblate	IIa, IIa-c, IV
Glass Short, Circular, Oblate with One End	IV
Glass Short, Circular, Spheroid (Barrel)	IIa, IIa-c, IV
Glass Short, Circular, Truncated Bicone	IV
Glass Short, Circular, Truncated Convex Bicone	IIa, IIa-c, IV
Glass Short, Elliptical, Barrel	IV
Glass Short, Circular, Pear Shape	Ib-IIc
Glass Short, Circular, Sphere	Ib-IIc
Glass Uncertain, Polygonal, Polygon	IIb-c
Glass Standard, Circular, Barrel	IIa-c, IV
Glass Standard, Circular, Cylinder	IV
Glass Standard, Circular, Ellipsoid	IIa-c, IV

This shows us that the great Hellenistic and Roman era glass booms not only portray themselves in the number of glass beads belonging to the Tylos era as opposed to any of the Dilmun periods, but also in the number of Types particular to Period V, the percentage of new Types found amongst these, and the increased rate at which a specific Type features amongst the Tylos specimens in relation to the overall bead amount. In all these respects, the Period V glass Types reach new heights substantially beyond those of preceding epochs.

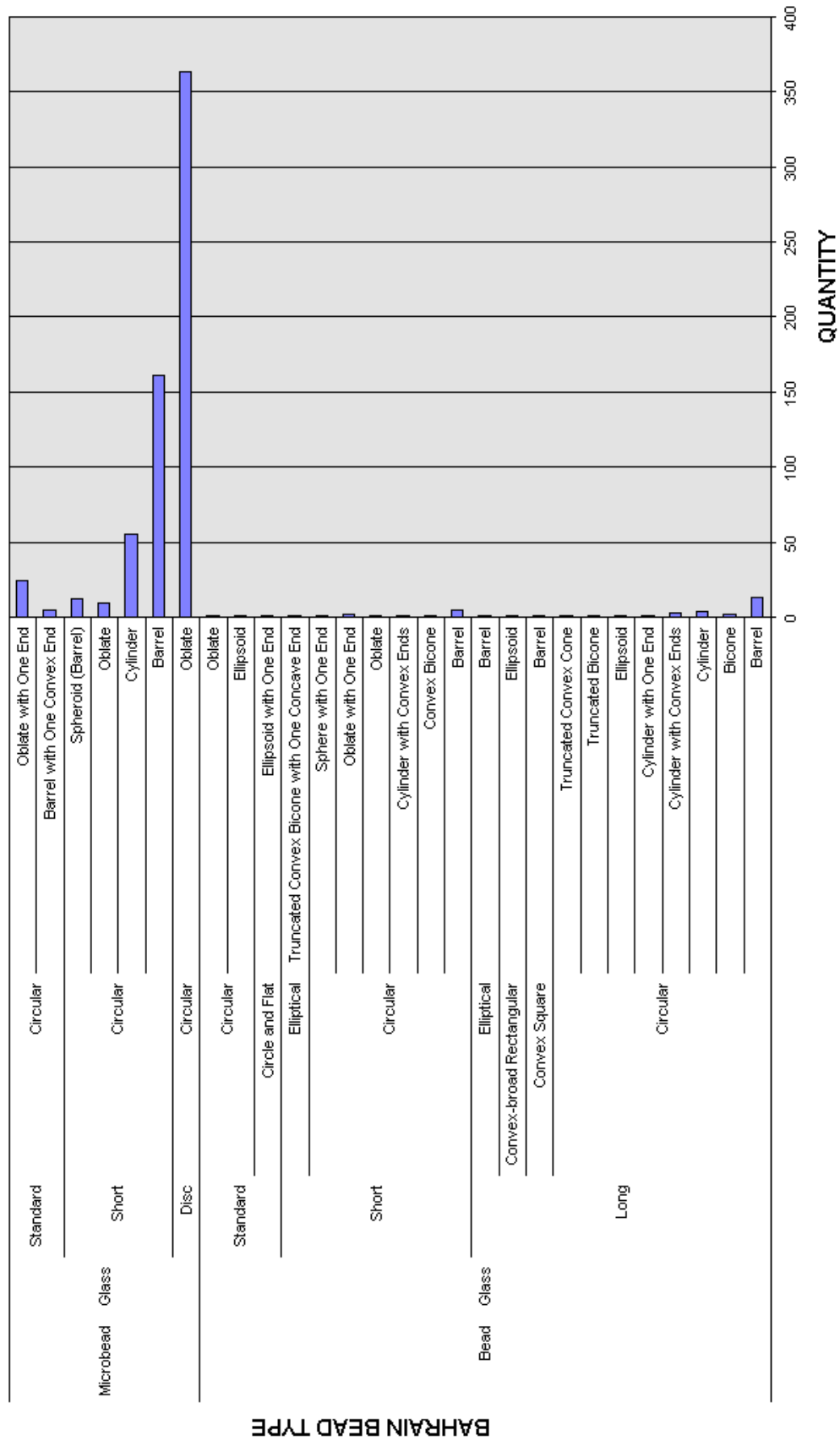
### C. Period V Glass Bahrain Types and the Possibility of Local Manufacture

Even as the above is indicative of Bahrain's participation in the economic circumstances set by glass industries amongst its northern and north-western neighbours, due to its renewed role as a mercantile centre in Period V, the question poses itself: where did the numbers and diversity behind the glass Types in the Bahrain sample come from? The tempting answer is to suggest: through its very role as a trading centre. Certainly this must have been the case to some extent. However, we have already shown in Chapter 8.5 and earlier in this one how local production may not have been entirely inconceivable, especially at Shakhoura and Saar, two sites that have provided the largest glass bead amounts and the greatest indication of the drawing-snapping manufacturing technique. When considering these

as possible sites of manufacture, one has also to bear in mind the use (and possibly occupation) of the “fertile strip” in Bahrain as a sign of relative prosperity; one that featured in Period II and again in Period V, only those eras in which Bahrain’s economic status had reached a certain bountiful extent and social complexity had been similarly affected. Since we are referring to a limited area of Bahrain having been affected in two prosperous milieus set about a millennium apart (between the end of Post IIc and the start of Period V), a strong case can be made for local production having taken place in that specific area. This argument is based on the defined nature of the region that had been affected (precluding the rest of Bahrain), and also it having been the same region that was responsive in the two eras.

But how does this argument stand when examined from the standpoint of glass Types? For one thing, it will be noticed that the Microbead Glass Disc, Circular, Oblate is the most significant Type by far at Saar, the site that has contributed the greatest amount of Tylos glass beads to the Bahrain sample (see Fig. 74). 363 beads of this Type from Saar have been noted, forming over 23% of all Period V glass specimens. However, all 363 beads came from the same collection, from the same burial (Grave 69 of Mound 5’s Square G5). The abundance of this Type is therefore due to its great number in a particular set, and so is not an accurate representation of this Type’s influence amongst the glass specimens of Tylos. In fact, the observation that this Type is nowhere else encountered amongst the Tylos glass beads seems to suggest its importance as something particular to Grave 69, with no implications beyond its confines.

It is nonetheless interesting that the 363 beads are all green Indo-Pacific specimens. Normally, the assumption can be made that they were likely transported as finished products from the Indian Subcontinent or some other participant in the Indo-Pacific commercial sphere in which such beads were made and traded. Certainly this was the case with the Late Dilmun Indo-Pacific beads, as no other alternative would have been likely, especially since the locales involved in the early manufacture of such beads were few. But in the case of the 363 beads, the circumstances seem to suggest otherwise; especially since they are not the only Tylos Indo-Pacific specimens in the Bahrain sample. Most of the Tylos glass beads (1,338 out of 1,560) are of this variety, all either manufactured directly by drawing or through the drawing-snapping method.



**Fig. 74.** Period V glass Bahrain Bead Types from the site of Saar along with the quantity of each. It will be noticed that the Microbead Glass Disc, Circular, Oblate is the most abundant variety.

Interestingly, most of the Indo-Pacific drawn glass beads achieved the greatest concentrations at Shakhoura, Saar, Hamad Town, and ‘Aali, representing the two possible geographic zones for the manufacture of glass items and the site (‘Aali) at which the two made contact. Although it might seem this is due to the largest quantities of glass beads having come from these sites, amounts are one thing and percentages quite another.

When we compare the percentages of Indo-Pacific drawn glass beads at the major glass-related sites of Bahrain (based on their contributions to our bead sample), the three associated with possible manufacture and the one (‘Aali), marking the meeting of the two production zones, provide us with the highest ones, all above 80% with the highest being Saar’s over 94%. Karranah and al-Hajjar provide us with over 61.7% and 33.3% respectively (see Tab. 2). When compared to the sites’ bead totals, those of Saar and Hamad Town tower above the others, though the rest (especially that from Shakhoura) are still significant.

This significance becomes all the clearer when compared to that from some of the major sites in West Asia that had been involved in trading Indo-Pacific beads, regardless of period, as well as all such sites in the Philippines put together (see Francis, 2002: 42-43) (see Tab. 3). We therefore see that al-Hajjar is certainly outdone by Siraf as well as 4<sup>th</sup>-6<sup>th</sup> century CE Berenike. The latter also outshines most of the other Bahraini sites, but not by much in terms of Shakhoura. Berenike, however, does not come close, percentage-wise, when compared to Saar and Hamad Town. Incredibly high percentages from both of these dwarf the Berenike one and even that of all the sites in the Philippines, spanning an entire millennium, put together. This seems strongly in favour of suggesting that Indo-Pacific beadmaking took place on Bahrain. If such manufacture was not taking place, then at least it can be asserted that Tylos was a major market if not player in the trading and transportation of such beads. It is also relevant that the three highest percentages (but especially those of Saar and Shakhoura) came from the two geographical zones suggested for possible beadmaking on Bahrain as well as the major sites associated with such a possibility.

Site	No. of Indo-Pacific Drawn Specimens Out of the Glass Bead Total	Percentage of Indo-Pacific Drawn Specimens Out of the Site Glass Bead Total	Percentage of Indo-Pacific Specimens Out of the Site Bead Total
'Aali	62 out of 71	87.32%	30.24%
Al-Hajjar	17 out of 51	33.33%	15.89%
Hamad Town	193 out of 209	92.34%	72.01%
Karranah	42 out of 68	61.76%	20.90%
Saar	633 out of 673	94.05%	83.51%
Shakhoura	394 out of 486	81.06%	38.40%

**Tab. 2.** The number and percentages of Indo-Pacific drawn glass beads at various Tylos sites.

Site	Percentage of the Glass Bead Total	Percentage of the Bead Total
Berenike, Egypt (in the Ptolemaic and Roman eras)	Not provided	4.1%
Berenike, Egypt (4 <sup>th</sup> to 6 <sup>th</sup> centuries CE)	Not provided	41.4%
Siraf, Arabian Gulf	39.7%	18.3%
Aqaba, Jordan	28%	12.8%
All Sites in the Philippines (3 <sup>rd</sup> century BCE to 13 <sup>th</sup> century CE)	Not provided	66.2%

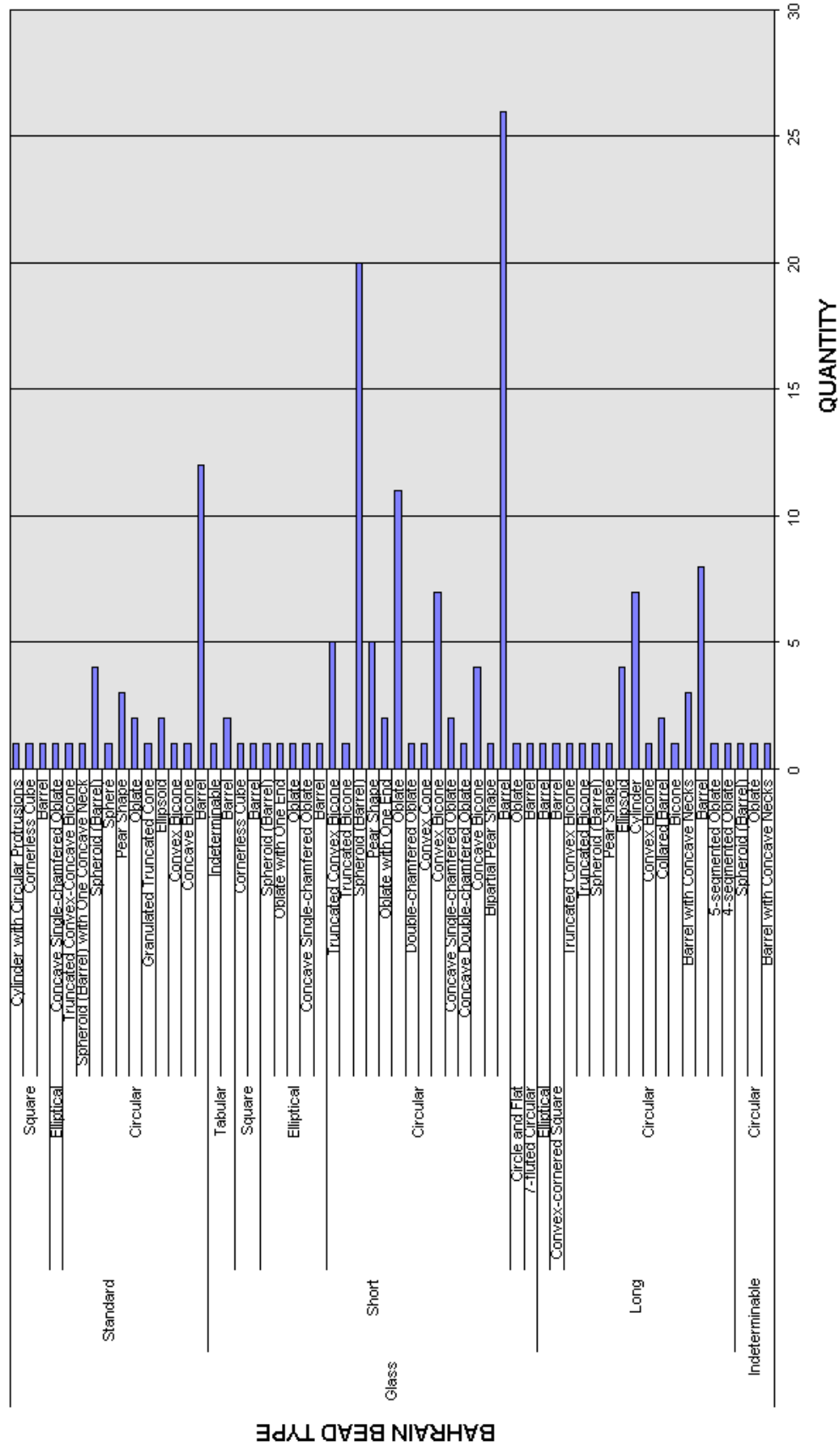
**Tab. 3.** The percentages of Indo-Pacific drawn glass beads at sites from various periods (spanning the Tylos and Early Islamic eras) that were involved in the trade in such items. All percentages were obtained from a study by Peter Francis, Jr. and the omissions of certain percentages are due to their absence in his work (2002: 48-49).

May such percentages not imply a direct relationship between possible production centres on Bahrain and the monochrome Indo-Pacific bead? It would not be far-fetched that this variety was produced on the Islands, especially given Tylos' links with India (through which it not only imported such Indo-Pacific beads, but may have also been tempted to make its own). However, though the above makes a conspicuous case, absolute proof is wanting and, in the meantime, we must temper any tendency to hypothesize with caution.

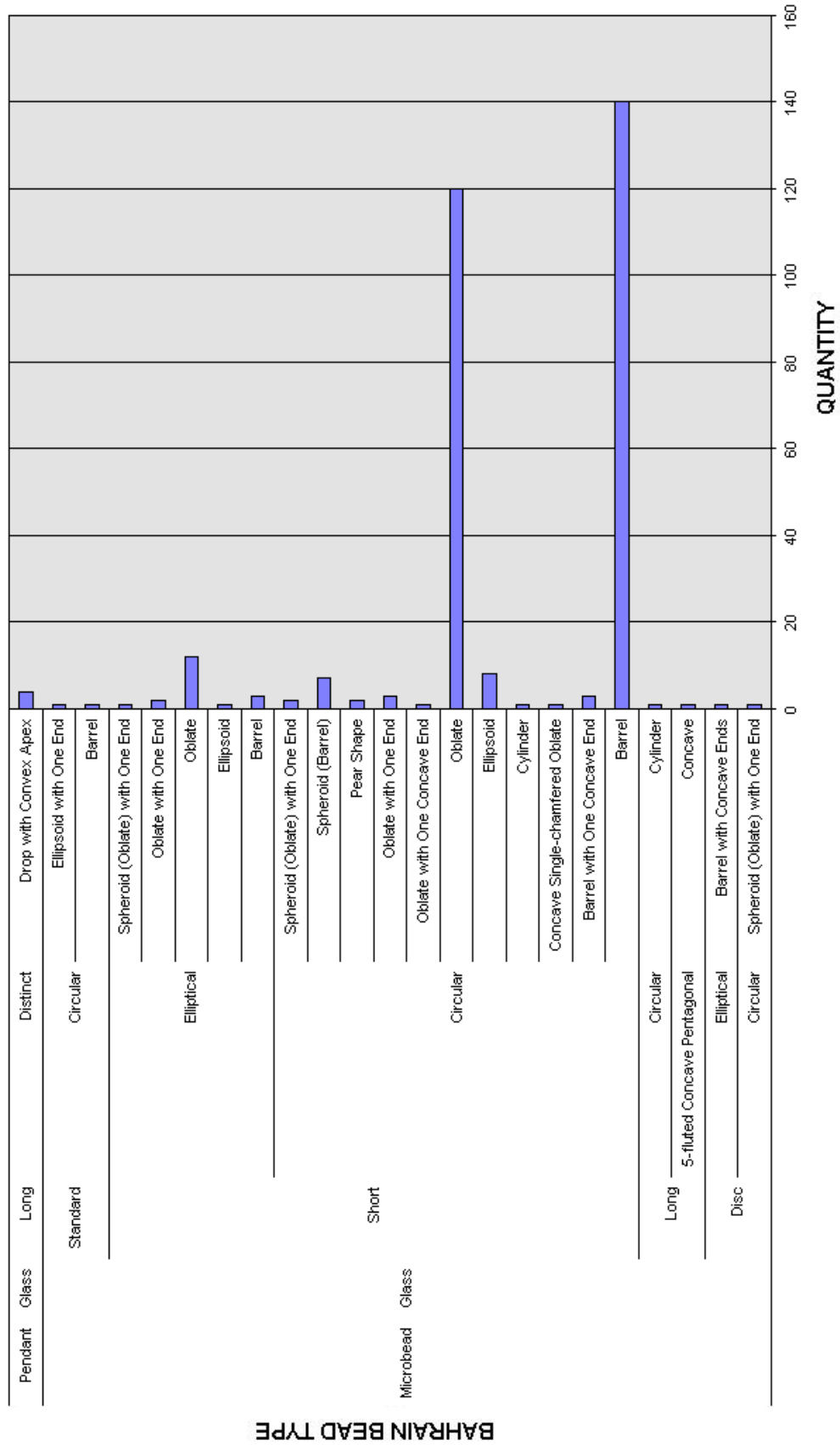
The same may be said of the very notion of glassworking centres in Bahrain. However, one interesting aspect of the glass Types which may shed some additional light is

the distribution of prevalent ones between the various sites. It will be observed that Saar, whilst dominated by the Microbead Glass Disc, Circular, Oblate, also shared something for Shakhoura's predilection for the Microbead Glass Short, Circular, Barrel. The latter Type was the second most dominant at Saar, but the first at Shakhoura (see Figs. 75a-75b). There nonetheless appears to have been a relationship between the two, as well as a slight distinction because of the disc Type at Saar; much weight, however, should not be given to this Type due to its having come from only one collection and context. It should be added that the Type had hardly any presence at al-Hajjar and Karranah, perhaps because they were situated on the fringe of the northern glassworking zone.

At Hamad Town, associated with a third possible glassworking centre, it will be noticed that the Microbead Glass Short, Circular, Barrel still had a prominent presence (57 specimens contributed to the Bahrain sample), only just outnumbered by a different Type: the Glass Short, Circular, Barrel (a non-microbead variation with 62 cases) (see Fig. 76). This last possessed only a marginal presence at Saar and Shakhoura, even though it was in third place at the latter.



**Fig. 75a.** Period V glass Bahrain Bead Types (excluding microbead ones) from the site of Shakhoura along with the quantity of each.



**Fig. 75b.** Period V microbead glass Bahrain Bead Types from the site of Shakhoura along with the quantity of each.

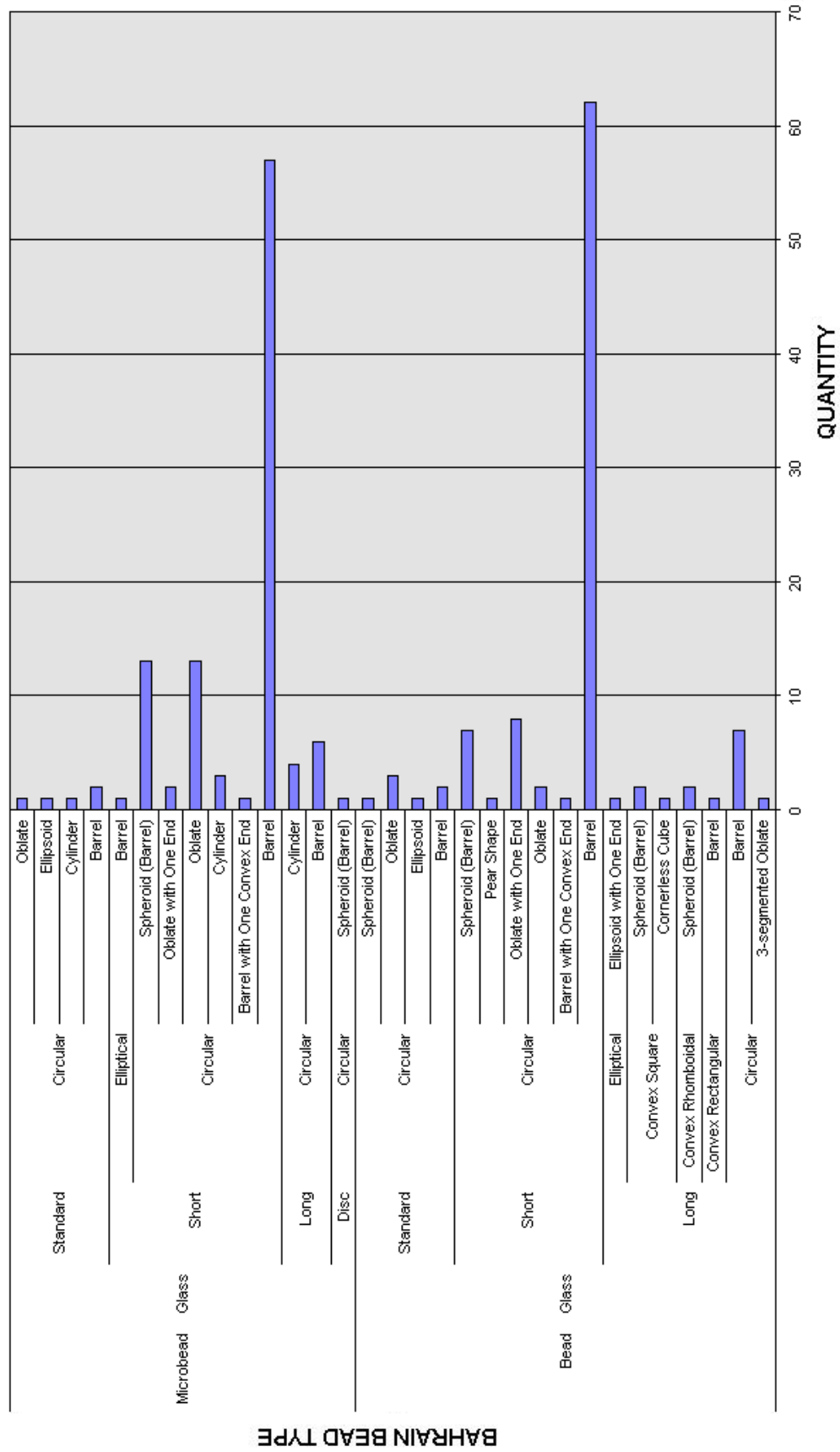


Fig. 76. Period V glass Bahrain Bead Types from the site of Hamad Town along with the quantity of each.

‘Aali, the meeting place of the two geographical zones associated with possible glassworking industries, apparently contributed no barrel-related Types at all, and was dominated rather by the Glass Short, Circular, Oblate (56 cases) (see Fig. 77). This may indicate some association with the Shakhoura centre, where a microbead variation of this Types featured as the second most numerous; but suggesting an independent manufacturing identity for ‘Aali is also not out of the question.

#### **D. Some Implications of the Period V Glass and Gold-Glass Bahrain Types**

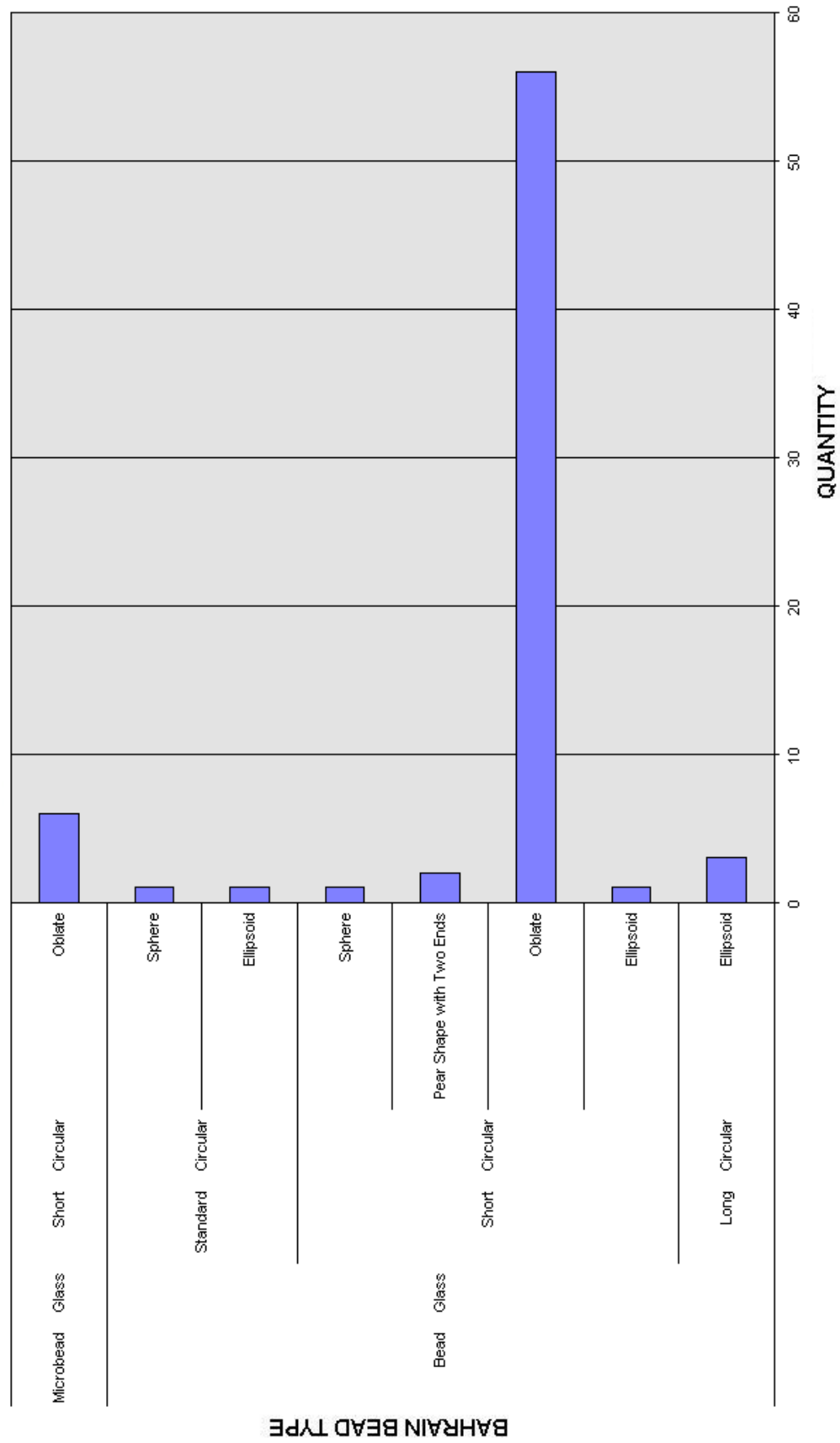
On the whole, the situation regarding glass bead Types in Period V continued the trend already witnessed in Period IV. Influenced by the industrial booms in glassmaking and glassworking during the Hellenistic and Roman eras, under the sway of its larger neighbours to whom it owed allegiance (even nominally), Bahrain’s reclamation of its role as an entrepot allowed it to exploit its mercantile connection to meet its needs. In this sense, we also have another example of an underlying continuity between Bahrain in Late Dilmun and Tylos, even though the latter is recognized as a distinct archaeological culture.

If a difference be sought, from the standpoint of glass Types, we can say that Tylos saw Bahrain take greater responsibility for meeting the demand for glass products than in Late Dilmun; for though in Period IV its commercial relations proved useful in attending to it, in Tylos this was taken to an entirely new level. If the Indo-Pacific drawn beads were acquired from such sites as Arikamedu and Mantai, the major producers of this variety during the Iron Age (since Taxila would no longer have been involved), then its interaction with the Indo-Pacific economic sphere must be highlighted (see Francis, 2002: 27-30; Lankton, 2003: 61, 69). If, as may have been the case, Bahrain took into its own hands the manufacturing of such beads (which it would nonetheless have acquired through Indo-Pacific interaction, either in Period IV or V), then the effects of commerce would have aided local glass production in more ways than one. Any notion of local manufacture, though, should be tempered by the likelihood that a portion of the Indo-Pacific beads are of foreign make and were imported.

The same may be suggested for the Tylos gold-glass beads in the Bahrain sample, which could have been obtained through trade (directly or not) with West Asian centres or else manufactured through imported materials (colourless glass and gold). The 25 collared specimens of such beads, though, almost certainly came readymade from India, which has been recognized as the place specializing in their manufacture; and such origins may extent to

include their non-collared counterparts (see Francis, 2002: 42-43). However, if Bahrain did indeed practice glass bead production, since it was in contact with India (being aware of its beadmaking industries) as well as capable of acquiring through trade the necessary materials (for instance, colourless glass from West Asia), local adoption of such manufacturing need not be discounted; especially since bead “collars” represented a development of the Indo-Pacific industry (see Francis, 2002: 42-43). Such would have been the effect of commerce. However, evidence is required before anything more than a hypothesis can be suggested.

Commerce, nonetheless, did allow Bahrain to reach a new socio-economic high, not necessarily comparable to the one in Period II in extent but assuredly in some of its effects (such as a reuse of the “fertile strip” for burial and a possible reinvigoration of synthetic beadmaking – glass particularly, in Tylos – on the Islands).



**Fig. 77.** Period V glass Bahrain Bead Types from the site of 'Aali along with the quantity of each.

## **E. Period V Carnelian Bahrain Types**

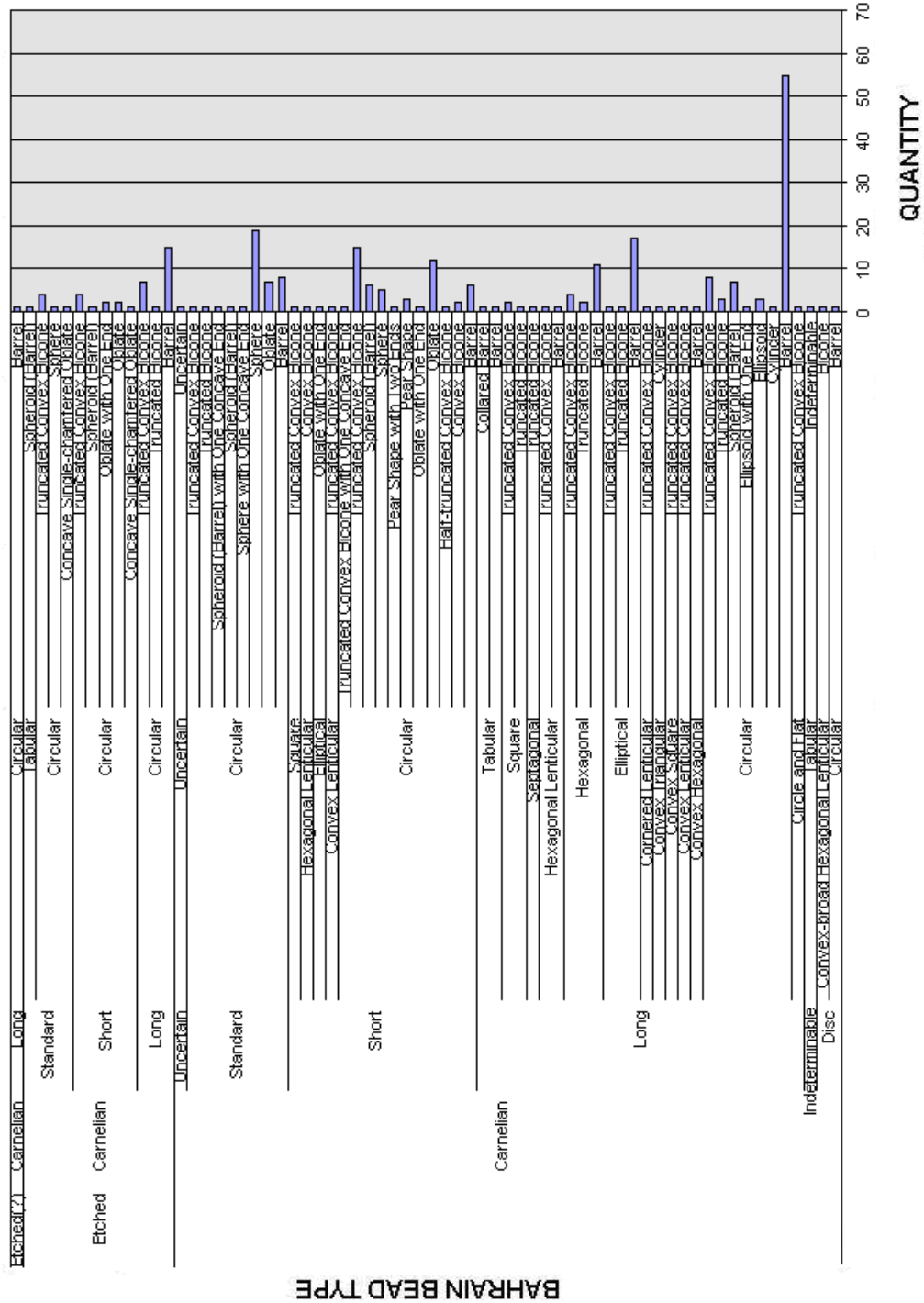
We find a similar occurrence with regard to stone beads, perhaps owing in part to the importance placed on such items by the Romans (who preferred them to glass ornaments) and the Sasanians (with their appreciation and even adoption of carnelian etching) (Lankton, 2003: 64, 68). Carnelian Types, for instance, amount to 77 distinct ones amongst the Period V beads in the Bahrain sample (see Figs. 78a-78b). Much as the Late Dilmun variety of Types had only been surpassed by that of Period II, we find this tendency continuing amongst those of the Tylos era, so that the carnelian Types of all previous epochs (except Period II, once again) in our sample are dwarfed. In itself, this is another indication of an undercurrent of continuity between Late Dilmun and Tylos. The far greater variety of Tylos Types only emphasizes the new prosperity economically achieved by Bahrain in Period V, since almost three times the variety of Late Dilmun has been attained.

A further hallmark of continuity may be found in the number of etched Types in Tylos, which once again builds on foundations established in Late Dilmun. 15 Tylos etched carnelian Types have been noted amongst the 77 mentioned above. Exactly the same number exists amongst the Period IV beads in the Bahrain sample, and is similarly overshadowed by the 54 etched Type total of Period II. However, compared to Late Dilmun, 15 etched Types means almost 20% of the 77 total carnelian Types as opposed to over 55% amongst the Period IV ones. The implication seems to be that though the number of carnelian Types as a whole increased dramatically in Period V (compared to IV), the number of etched ones did not, thereby giving them a smaller presence amongst the Tylos beads in the Bahrain sample.

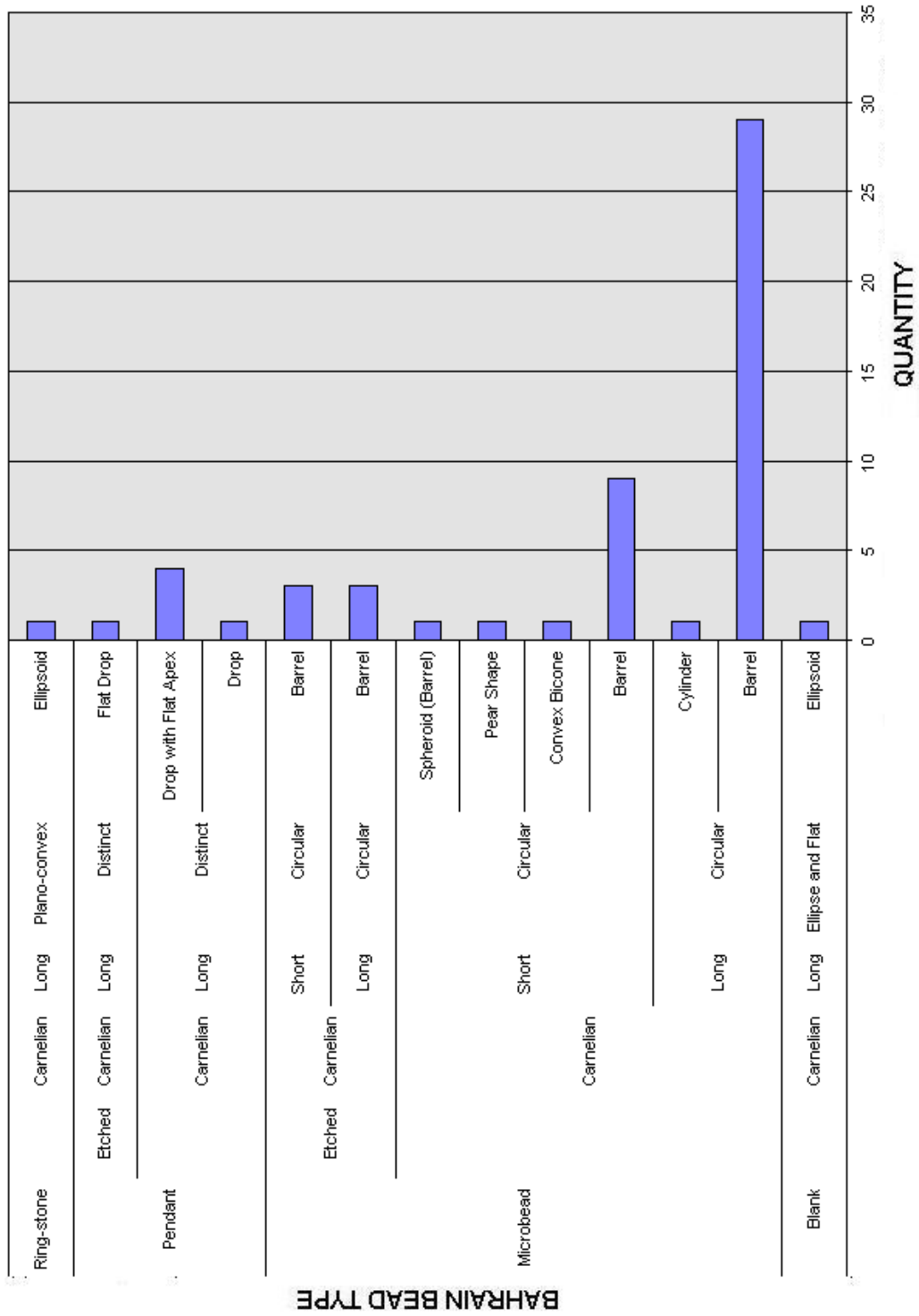
The suggestion seems to be that the demand for etched carnelian beads, at least according to Type, was not facilitated as much by trade with the Indian Subcontinent and other regions (for example, Persia in Sasanian times, which also produced etched carnelian beads). Instead, whilst finished carnelian specimens were acquired from the east, etching retained its local character, which did not improve between Periods IV and V but rather supported a continuation, at least in this aspect of the etched carnelian beadmaking process. We find proof of this local character in the fact that almost all the Tylos etched carnelian beads in the Bahrain sample are wholesale etched, exhibiting a feature that was as particular to Bahrain in the Tylos era as it once had been to the geographical region of Dilmun. It is thus conceivable that the same local etching centre responsible for such beads in Late Dilmun may

have still been active in Period V. If so, it would only have served to exemplify (like all the other details already discussed) the continuity of various cultural traits between the two eras.

When examining the Tylos regular carnelian bead Types, it will be noticed that the Carnelian Long, Circular, Barrel is the most common one in the Bahrain sample, followed to a far lesser extent by its microbead variation. There is nothing unusual in this for, as we already noted above, both the circular cross-section and the barrel profile shape are the most numerous in their respective categories. What does stand out amongst the Period V beads, however, is the number of Carnelian Long, Circular, Barrel specimens (and those of its microbead variation) recovered from Shakhoura. The next two highest amounts have come from Karranah and al-Hajjar, both situated nearby. At all other sites, the above two Types (the regular version and its microbead variation) were found in relatively few numbers, like most other carnelian and etched carnelian Types.



**Fig. 78a.** Period V carnelian Bahrain Bead Types (excluding those with other functions, such as microbeads) along with the quantity of each. This graph only takes into account those Types represented by beads that can be dated securely to Period V.



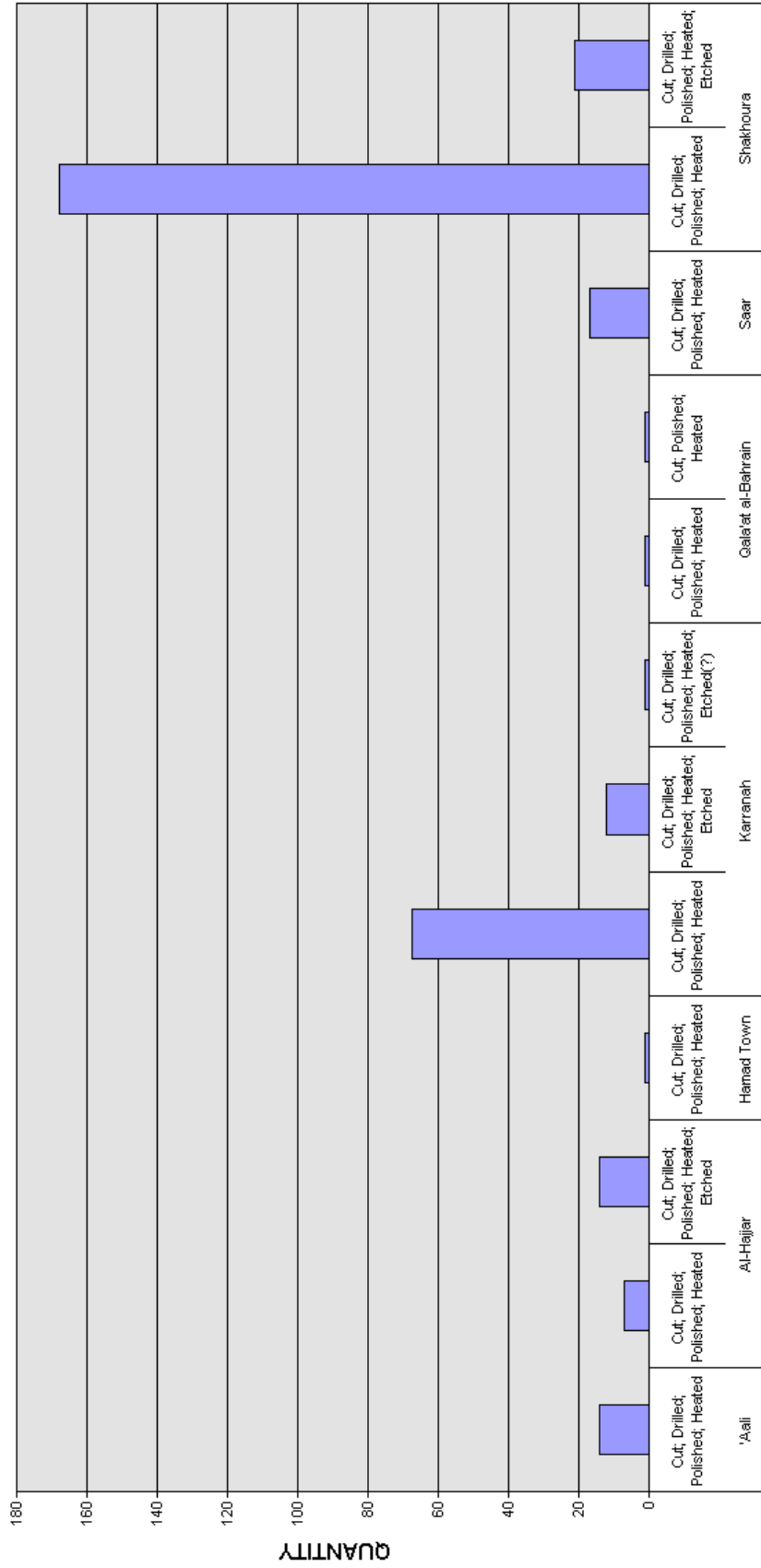
**Fig. 78b.** Period V carnelian Bahrain Bead Types involving functions other than that of a regular bead. The quantity of each Type is included.

The proliferation of the Carnelian Long, Circular, Barrel (microbead or otherwise) at Shakhoura is an unusual phenomenon that cannot be easily accounted for, even if a partial explanation can be made by suggesting the large Tylos bead quantity from Shakhoura as behind it. But what about the other sites that have yielded considerable bead numbers, such as Saar? And are the next two highest amounts (though by a huge margin) associated with sites located within proximity of Shakhoura (heading in a northerly direction)?

The percentages of carnelian beads and Types from Shakhoura are significant, far more than those of such beads and Types from any other site and not wholly explained by bead quantities associated with it, as already mentioned. May it not be possible to suppose a special relationship between the site and carnelian ornaments? Perhaps here is the local centre for wholesale etching associated with Tylos (and possibly Late Dilmun) for which we have been searching. The fact that all etched carnelian specimens and Types from Period V came only from Shakhoura, Karranah, and al-Hajjar, the three sites already mentioned, and no other, may bear heavily on this matter. To this can be added that almost all etched beads (and all are wholesale but for one exception) of other materials also came from these three sites, with most derived from Shakhoura (see below) (see Fig. 79).

Whilst a possible etching centre would have altered the carnelian beads, it certainly would not have manufactured them in the Tylos era. Rather, supplies of readymade items would have been employed. We find support for this in the fact that crudely cut carnelian specimens were not encountered in the Tylos era as they were in Early and Late Dilmun. Moreover, the fine craftsmanship of the carnelian beads of Period V suggests Indian manufacture. The fact that the Romans relied heavily on India for stone beads, using Arabian Gulf trade as a channel for their procurement, already supports this (Francis, 2002: 104-105, 196-197). Some of the greatest seafarers of the Tylos era, with a hand in trade, were the Nestorians (Lankton, 2003: 68). They had several established centres in the Gulf, including in Bahrain, and had settled as far afield as India itself (Andersen, 2007: 242-243; Insoll, 2005: 247; Larsen, 1983: 59). The Nestorian presence and involvement in trade assured the arrival of Indian goods on Bahrain. We also know that Sasanian monopoly over Gulf trade set boundaries on Roman access to the Indian stone bead industry, but acquired etching technology for Persia (Lankton, 2003: 67-68). Sasanian interest in the Indian industry was therefore quite established. Bahrain, under Sasanian hegemony for several centuries in the Tylos era, would have benefited off this interest through commerce, even as it did in the

earlier phases of Period V. Carnelian and other stone beads would have been part of the flow of such commerce.



**SITE AND BEADMAKING PROCESS**

**Fig. 79.** The total number of Period V carnelian beads broken down by site and beadmaking process. Etched specimens were only provided by al-Hajjar, Karranah, and Shakhoura. It should be noted that this graph only takes into account those beads that can be securely dated to Period V.

## **F. Period V Agate, Banded Agate, Onyx, and Green Quartz Bahrain Types**

Agate, banded carnelian (as a variation of regular carnelian), amethyst, transparent quartz, and quartzite Types have been noted amongst the Tylos beads in the Bahrain sample (see Fig. 80). Evidence of the Bahrain-India trade, certainly in terms of material but also likely in manufacture (based on the quality employed), is conspicuous in that almost all 46 beads covering collectively these five material Types came from Shakhoura, Karranah, and al-Hajjar once again; the only exceptions (B1116 and B3368) came from Saar and ‘Aali (B1315). Three of the banded agate beads (including one from Saar) are also etched specimens. The example from Saar (B3368) is one of the three “finely etched” Tylos beads in the Bahrain sample and may represent a finished (including etched) Indian product (because such etching is non-existent amongst the rest of the Tylos beads). It is also perhaps relevant that this specimen was not from the three sites mentioned above in connection with wholesale etching.

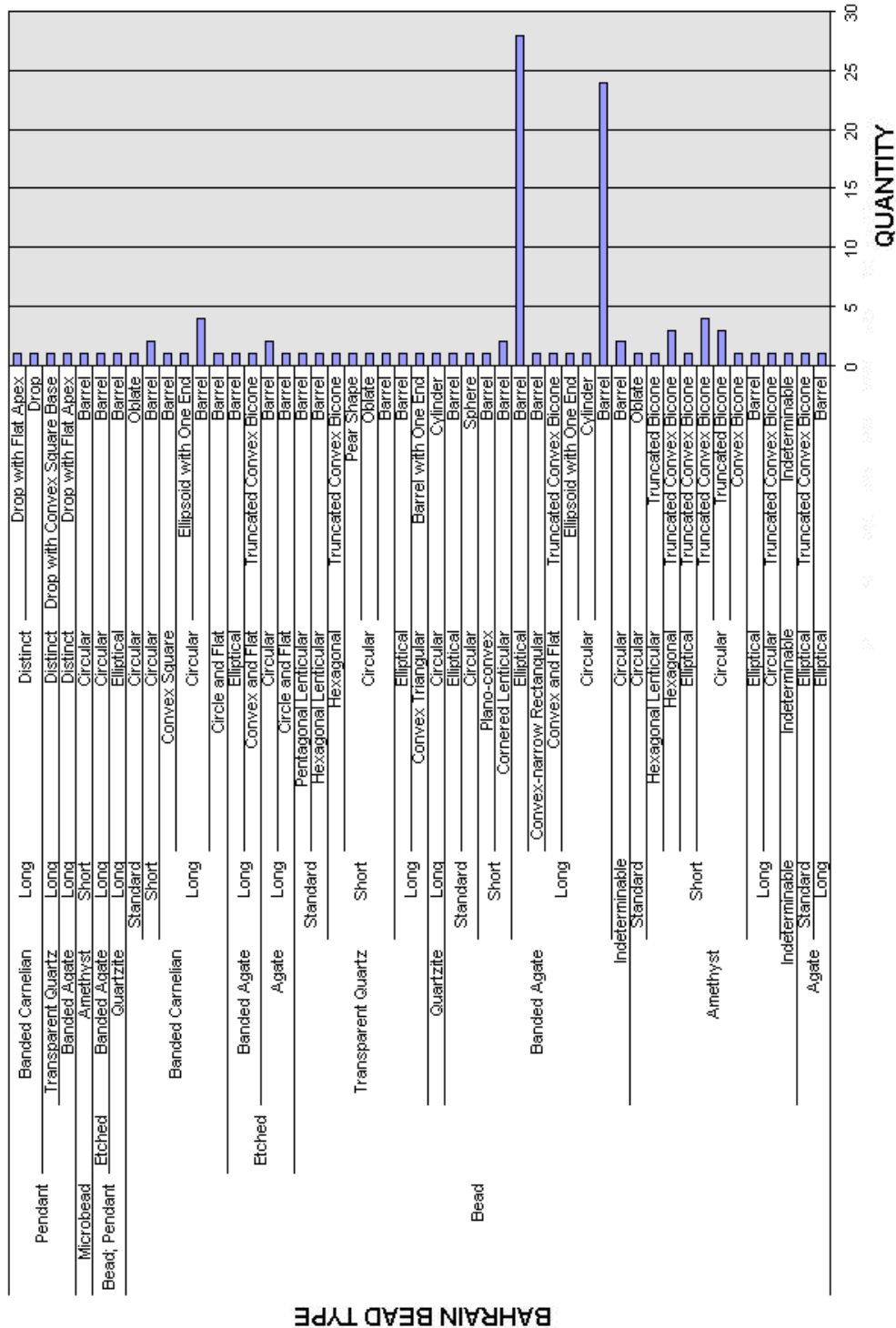
The most numerous stone bead Types amongst the Tylos beads in the Bahrain sample, after those of regular carnelian, are those of banded agate (14 Types) (see Fig. 80). Again, almost all specimens were recovered from Shakhoura, Karranah, and al-Hajjar; four banded agate exceptions, out of 67, were from Saar (B1114, B1120, B1122, and B3184). The most dominant Types are the Banded Agate Long, Circular, Barrel (24 cases) and Banded Agate Long, Elliptical, Barrel (29 cases). There are also three wholesale etched Types amongst the 14, each represented by a single specimen (B2584, B4539, and B4640). These were obtained from Shakhoura, one of the three principal sites already named in connection with wholesale etching.

Also representative of Indian contact, like the other stones discussed above, are onyx and green quartz (Dubin, 2006: 35) (see Fig. 81). The lone ivory specimen and Type may also be associated with India, though it is not unlikely that Bahrain’s African contact could have been behind it, especially since it seems likely – due to the presence of such beads since the Late Dilmun era and especially during Tylos – that the Islands were involved in transporting Indo-Pacific drawn glass beads (many of which were shipped to the East African coast) (see Dubin, 2006: 35; Francis, 2002: 49, 157-158).

Actual black-and-white onyx made its first appearance in Late Dilmun, and Tylos continued yet another trend obtained from the preceding era. The Onyx Standard, Circular, Sphere (two cases) and Onyx Long, Convex and Flat, Truncated Convex Bicone (one case)

are the only Tylos examples; they were recovered from Shakhoura, thus providing further support for the relationship between this site and Indian stones. The demand for onyx and the continued use of onyx imitations in glass in Period V (e.g. B879, B3964, B3965, B3967, etc.) emphasize the weight placed upon Indian contact and its shaping of ornamental preferences in Bahrain; tendencies not lost as Bahrain moved from Period IV to Period V. Parallels to the onyx imitations, in both style and Type, are also known from elsewhere in West Asia, with examples belonging to Period IV as well as the Roman and Parthian eras (contemporary with Period V) (Dubin, 2006: 52-53, Pl. 42).

This relationship seems to have been primarily focused on carnelian, perhaps as readymade objects to be etched, but to have included other stones as well. The latter may have been due to a run-off of Indian manufactured items harboured at the site and imported alongside the carnelian beads. If so, then it is very likely that a great deal of the stone specimens from Shakhoura, like some of the finely made carnelian beads and those of other materials, arrived in Bahrain as completed objects.



**Fig. 80.** Period V Bahrain Bead Types involving agate, banded agate, banded carnelian, amethyst, transparent quartz, and quartzite. This graph only takes into account those Types represented by beads that have been dated securely to Period V.

The Green Quartz Short, Elliptical, Truncated Bicone and Green Quartz Short, Unworked, Piece represent a material brought in from India that was generally quite rare. The place of manufacture of these items is elusive, though a simple drilling as the unshaped B372 received could have been done at either end of the Bahrain-India commercial link. But the trading network in which Bahrain participated at this time was not limited to just that, involving a persistence of older established routes and contacts, as evidenced by lapis lazuli, lapis paste, and steatite beads and Types belonging to the Tylos era. These simply reinforce the notion of continuance between Periods IV and V.

All other stone Types, however, are evidently outnumbered by those of carnelian. But whilst carnelian, once the prime material (especially in Early Dilmun), was overshadowed by glass in the Tylos era (and Late Dilmun), faience (once almost as visible as carnelian) appropriately took third place. It did so both in terms of the number of specimens and number of Types.

### **G. Period V Faience Bahrain Types**

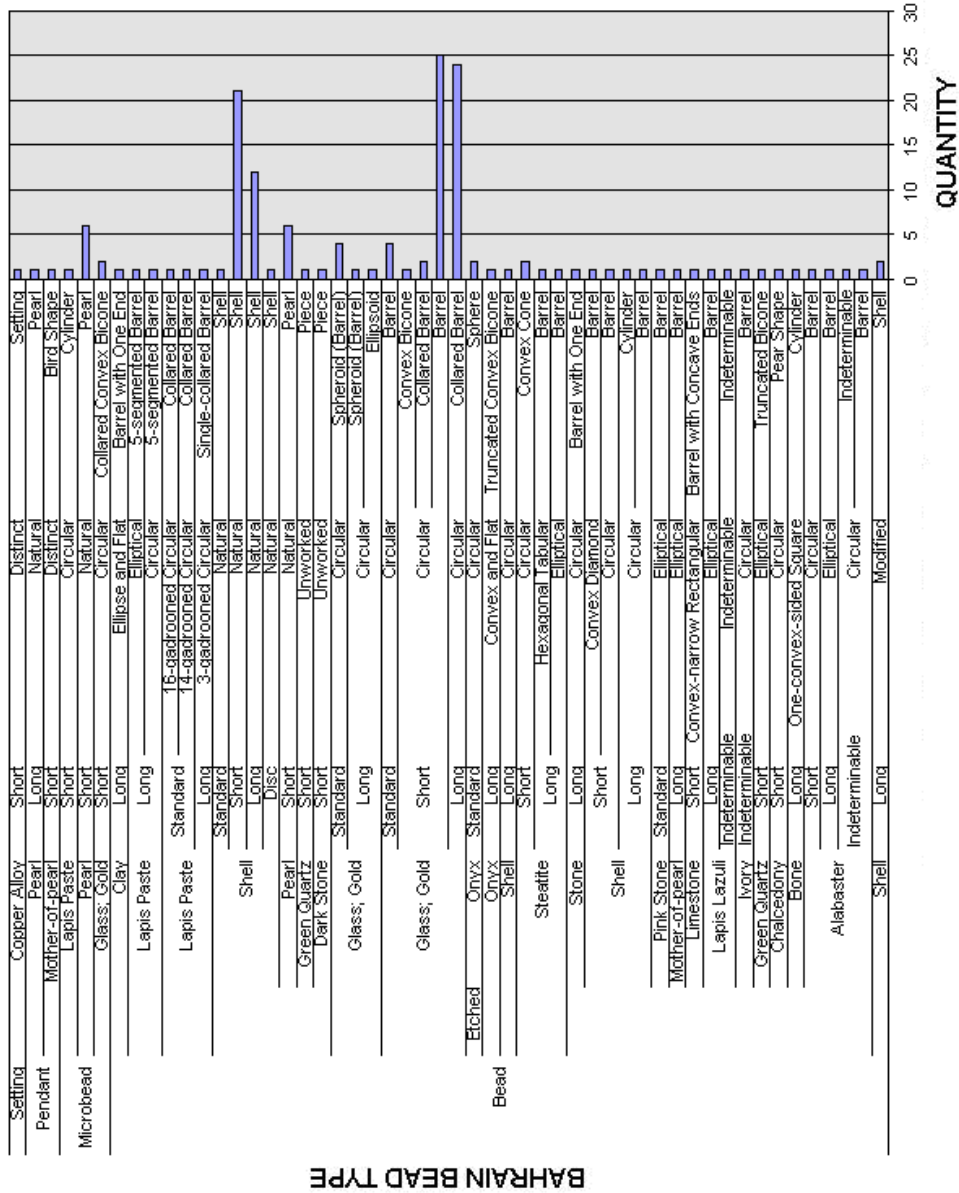
26 different Period V faience Types have been noted, with the Microbead Faience Disc, Circular, Barrel being the best-represented (222 cases) (see Fig. 82). Apart from the cross-sectional and profile shape involved being the most common, this Type's remarkable similarity (in form and hue) to the green Indo-Pacific beads from Shakhoura makes it reasonable to assume it to have been a cheaper alternative to the latter. Like the Indo-Pacific green beads mentioned, the 222 faiences cases also came from a single burial (Grave 3 of Mound 1's Square 9). This context was also situated at Shakhoura, again like that of the Indo-Pacific collection.

When considering the Tylos faience specimens and Types as a whole, it will be found that Shakhoura, together with the other two sites mentioned in connection with possible glass production, are the only ones to have contributed to the Bahrain sample, apart from 'Aali (which has produced only two Period V faience beads – B1386 and B1406). And 'Aali has already been suggested as a site connecting the two possible glassworking zones if not a centre for such activity in its own right. The faience beads and Types may therefore be the result of local work, and the connection with possible glassworking areas makes sense; for the same pyrotechnology would have been required for both materials as well as related ones. Frit, faience's unglazed coarser cousin, for instance, has less of a presence amongst the

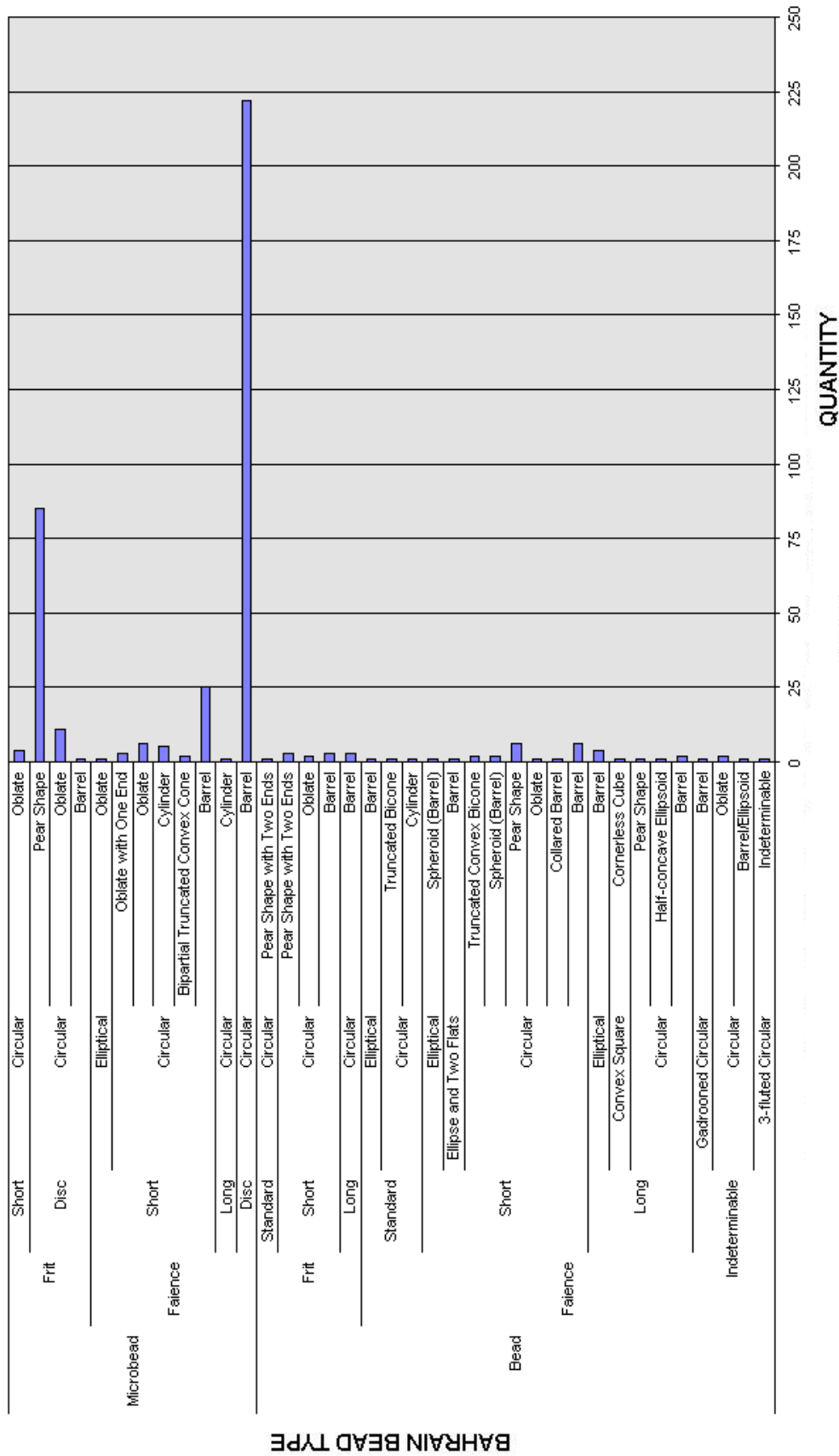
Bahrain sample's Tylos specimens: 113 beads represented by 9 Types, and all from a single context at 'Aali (see Fig. 82).

#### **H. Locally Produced Period V Bahrain Types**

Apart from glass, faience, and frit possibilities, local products generally remained a prominent feature of the Tylos assemblage, with such examples as: the 1) Limestone Short, Convex-narrow Rectangular, Barrel with Concave Ends; 2) Short, Natural, Pearl; 3) Long, Natural, Pearl; 4) Mother-of-pearl Long, Elliptical, Barrel; and 5) Pendant Mother-of-pearl Short, Distinct, Bird Shape. All these represent materials available locally and are certainly of Tylos manufacture. The pearl Types are natural examples of those Arabian Gulf products familiar to the Romans (see the Tylos section of Chapter 8.5), whilst the final Type mentioned above (of mother-of-pearl) – though fashioned in Bahrain – possesses a stylistic appearance that should be compared to similar pendants found throughout the Near East.



**Fig. 81.** Period V Bahrain Bead Types involving all materials not covered in Fig. 80 and excluding carnelian, glass, faience, and frit. The quantity of beads representing each Type in this chart is shown. This graph only takes into account those Types represented by beads that have been dated securely to Period V.



**Fig. 82.** Period V faience and frit Bahrain Bead Types along with the quantity of each. No reference is made to the presence or absence of etching since this process does not apply to the Types concerned.

On the whole, the Period V Bahrain Bead Types indicate that some West Asian influence seeped into Tylos, even as developments in glass technology and demands for luxury items did. Both economically and culturally, this was balanced by bead styles associated with eastern trade involving the Indo-Pacific mercantile sphere. Tylos' interaction with its northern neighbours, as a vassal state as well as emporium, however, did augment its prosperity in Period V as it did in Period IV, another indication of continuity between two eras distinguished chronologically and archaeologically, but bound together by an undercurrent of similarity that made Bahrain what it was till the advent of Islam on the Islands.

## CHAPTER 10

### Conclusion

Throughout the course of this work, the process of forming a bead typology specific to ancient Bahrain was offered and the actual series of Types obtained in this fashion put to use. In doing so, the beads of the Dilmun and Tylos eras as well as their subdivisions (and chronological ranges related to these) were examined. One by one, the most essential features of these beads were studied, from the simplest examination of quantities as these applied to chronology, site, and context to a more detailed look at materials, colours, diaphaneity, beadmaking processes, perforations, and even the Bahrain Bead Types themselves. Over the course of the last three chapters and their various sections, the afore-going were analyzed and, with every group of features so treated, the data provided by these was applied to an archaeological narrative of Bahrain.

But this narrative was ultimately a backdrop against which further insight into the Dilmun and Tylos eras was gained. For instance, it cannot be denied that the Bahrain Bead Types along with the many features that comprise them and the beads they represent do support the framework of what we know of the socio-economic development of Bahrain from the 3<sup>rd</sup> millennium BCE to end of the Sasanian period and the subsequent rise of Islam on the Islands (see Chapters 7.6, 8.5, and 9.6). This accords with what has been postulated in various studies over the years (e.g. Andersen, 2007: 231-243; Salman and Andersen, 2009: 177-181; Edens, 1986: 195-216; Højlund, 2007: 123-136, Fig. 262; Rao, 1986: 376-382).

However, despite affirming the above, the Bahrain sample and the typology derived from it do shed light on different aspects of this narrative as well, bringing details into sharp focus and introducing others hitherto obscured or only guessed at. For instance, whilst we know that Bahrain was already engaged in commercial enterprises across a vast network and with partners such as Mesopotamia and the Indus in Period I, it is by examining the bead assemblage from that epoch that further evidence is gained for the particulars of such trade. Carnelian coming in from the Harappan region as well as steatite from Persia and lapis lazuli from Badakhshan or the Chagai Hills (also transported by the same routes that carried steatite) all point to such interaction (see Chapter 8.5) (Crawford, 2004: 180-181; Francis, 2002: 7, 103-111, 117, 180, 244; Herrmann, 1968: 21-27; Lankton, 2003: 32). Beads of these materials

from Period I have been noted in the Bahrain sample (see Figs. 1-3). Nonetheless, we find from an examination of some of the oldest burial beads on Bahrain, such as those from the Jemdet Nasr grave at Hamad Town, that the interaction mentioned above may have been something inherited by the Islands from their East Arabian origins or else already present in a far earlier era, predating even the official start of Period I (see Chapter 8.5).

A study of the Bahrain sample also provides us with further information concerning the origins of these beads as well as their manufacture. In the absence of crudely cut carnelian specimens in Period Ib, it seems that at this early stage Dilmun was yet acquiring its beads readymade from its sources abroad (see Chapter 9.6). At least, it has been argued that the Indus was Bahrain's major provider of carnelian (and likely other stone) beads at this point in time (see Chapter 7.6 and Chapter 9.6).

Alongside such reliance on foreign products, there is also evidence of local bead manufacture in Dilmun. With the adoption of local Barbar styles of pottery, manufacture branched out to include beads of clay as well, produced from much the same materials as (at least) Barbar ware 1 (see Chapter 8.5 and Chapter 9.6).

Such local production, whilst significantly present, did not keep Bahrain from being swayed by the economic and cultural fortunes that swept its neighbours and trading partners. As the appreciation of hardstones took greater precedence in the 3<sup>rd</sup> millennium BCE, and diversity amongst such materials became as significant as the use of softer stones, Bahrain took part in the same trend and exhibited the same appreciation and commercial focus (see Diamanti, 2003: 9). This is only natural, given that the economic situation in the Near East required it during the Early Dilmun era and Bahrain, as indicated by the ratio of hardstone beads (especially carnelian) to softer ones in the sample studied in this work, simply followed suit (see Chapter 8.5).

Economic circumstances affecting softer stones were not without impact, though. Lapis lazuli beads, already in evidence in Period I (as indicated), were highly valued, a trait acquired from Mesopotamian religious culture not to mention economic pressure (as the tale of Enmerkar has proven) (see Lankton, 2003: 31-34). But as lapis lazuli became scarce from the late 3<sup>rd</sup> millennium BCE onwards, whilst retaining its specialness, it became a much-valued item with great demand that outshone the supply proper to it (Lankton, 2003: 31-34, 40). The shortage of lapis lazuli resulted in fewer specimens being archaeologically found, as indicated by the finds at Ur when placed against the backdrop of similar ornaments discovered elsewhere in the Near East (Lankton, 2003: 39; Tallon, 1995: 91). The Period Ib

bead assemblage from Bahrain (dated to a later time) similarly suffered, but it is a testament to the ongoing commercial progress of Dilmun even in its Period I that such beads were yet found in it (see Fig. 3 and Chapter 8.5). It is also a testament to the wealth and far-reaching commercial ties that Dilmun held with various sources of materials and beads in the late 3<sup>rd</sup> millennium BCE; for it was able to circumvent the shortage to some extent and acquire that which must have been quite expensive in a world with high demand and short supply.

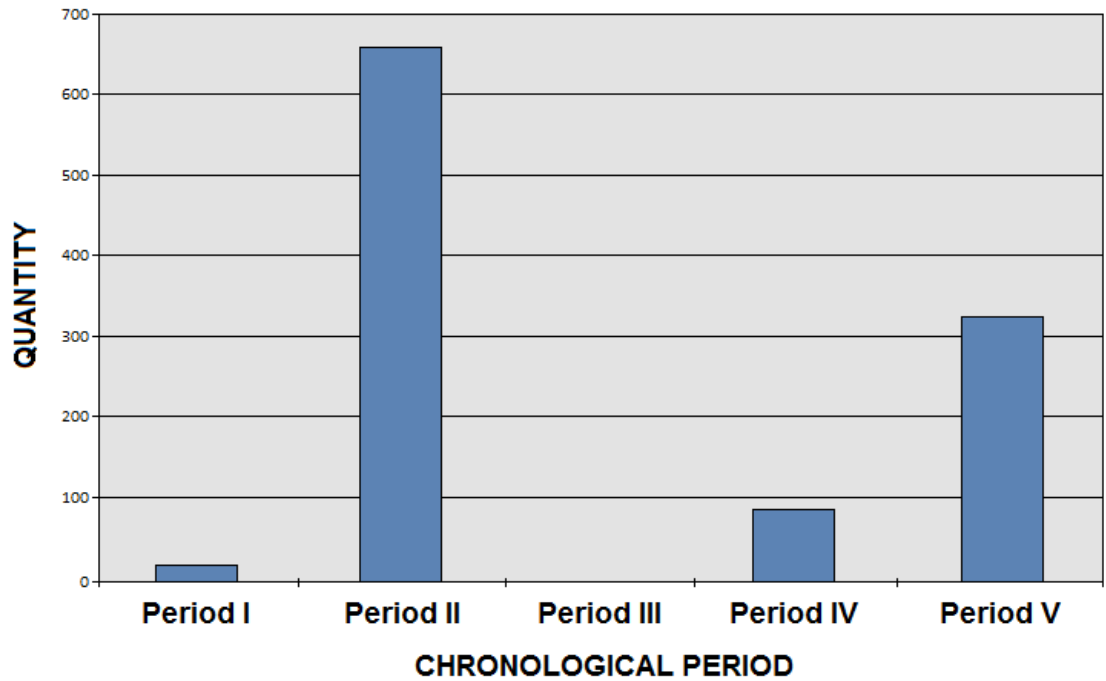
Glass beads also appear amongst the Period I (specifically Ib) specimens from Bahrain, further enhancing our understanding of the comparative wealth exhibited by the Islands even before it reached its socio-economic apogee (see Fig. 4 and Chapter 8.5). Being “prestige” and luxury goods at a time when such ornaments were restricted only to the upper echelons of society in the Near East, Bahrain’s urban and burial sites both provide indications of glass beads having been in use (see Lankton, 2003: 45). In at least one case, such a bead was used in imitation of lapis lazuli, thereby supporting the notion that Dilmun participated in an appreciation of the same as well as the repercussions of the shortage of this material experienced by the rest of the Near East (see Chapter 8.5). It also reinforces the notion that lapis lazuli was a much valued item associated with the upper echelons, as even the imitation came from an elite burial (that of an Elite Early Type mound – BBM 20709 – at Wadi as-Sail).

Turquoise, a material also held in high esteem in the Near East, but not to the same extent as lapis lazuli, was naturally scarce in Period I and thereafter as well, much as lapis was (see Chapter 8.5) (Lankton, 2003: 39, 46). It has been surmised that the majority of early faience was made in imitation of turquoise, and this assertion is well supported by the Period Ib faience beads (see Chapter 8.5) (Lankton, 2003: 46). Again, in this is found another indication of a Bahrain swayed by the cultural and economic environment of Mesopotamia.

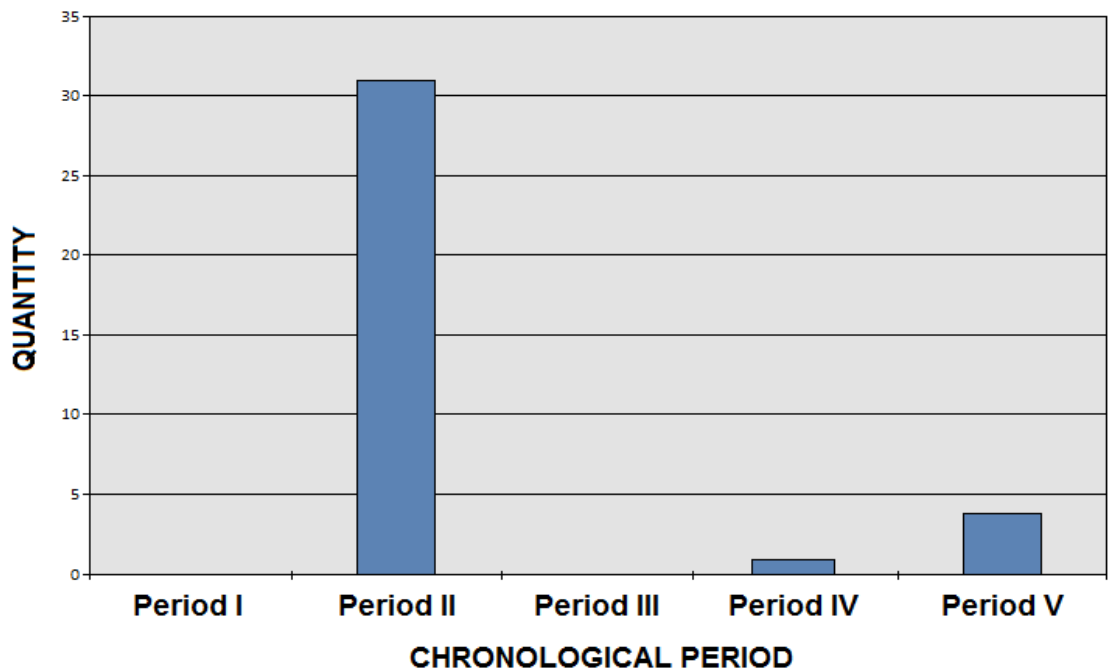
But Mesopotamian influence was not singular in its effects on Period I Dilmun. Rather, in the conspicuous presence of carnelian beads and Bahrain Bead Types related to this material in Period I (specifically Ib), which from the start took centre stage in terms of abundance, a great Harappan influence coming from further east and comparable in extent to the Mesopotamian one must surely be noted (see Fig. 1, Chapter 8.5, and Chapter 9.6). The preference for etched carnelian even at this point only highlights further the Indus connection, from which Bahrain must have acquired its favour towards such decoration. From the start, however, etched specimens (as shown by the Bahrain sample) displayed a predilection for being etched wholesale and not via patterns (see Chapter 9.2 and Chapter 9.6). The

technological appreciation of Indus etching was therefore tempered early on by a more local tradition involving it. In a certain respect, this proves the enduring quality of Indus influence on Bahrain, as such etching became central to much of carnelian bead use in Dilmun and would remain present up to and throughout the Tylos era. However, it also represented a more local focus on bead augmentation, which may have burgeoned into an attempt at manufacture in Period IIa.

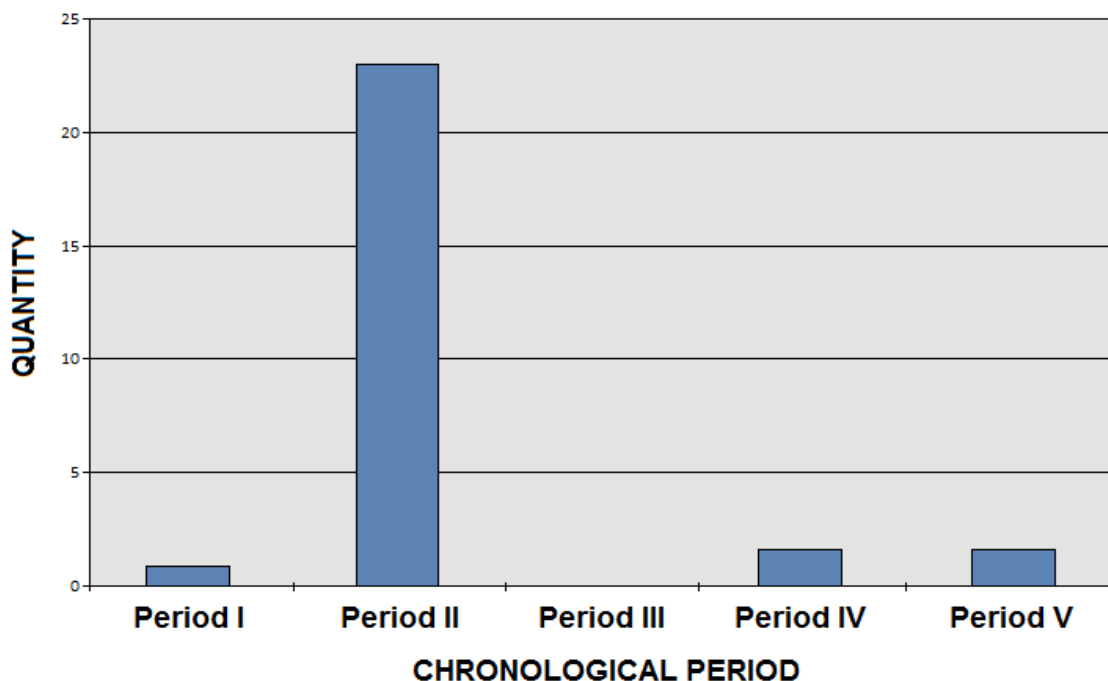
Period II beads and Bahrain Bead Types generally portray socio-economic growth and development for most of that era as Dilmun came into its own in an environment based on its continuing if not expansive commercial importance (see Figs. 1-6). This has been the suggested model based on Early Dilmun burials, but it is also augmented by an analysis of the beads from Period II (see Højlund, 2007: 124-126, Fig. 262). There is a very visible boom in the transition from Period I to Period II according to the Bahrain sample. The diversity and numbers associated with different materials as well as Bahrain Types related to these make this apparent (see Chapter 7.6 and Chapter 9.6). Such diversification, at least in terms of materials, which include both semi-precious stones and glass as well as more mundane examples (such as slate or shale), may well represent the development of social stratification on the Islands. On the other hand, the diversity of the more precious materials suggests the new economic heights to which Dilmun had risen at the end of the 3<sup>rd</sup> millennium BCE and from which its socio-economic situation was to see continued prosperity throughout the rest of Period II. This is supported by the beads and Bahrain Bead Types of Periods IIb and IIc, when augmented by the IIb-c chronological range (employed to avoid a skewed picture based on fewer beads being specifically dated to one or the other of the two chronological subdivisions) (see Chapter 7.6 and Chapter 9.6).



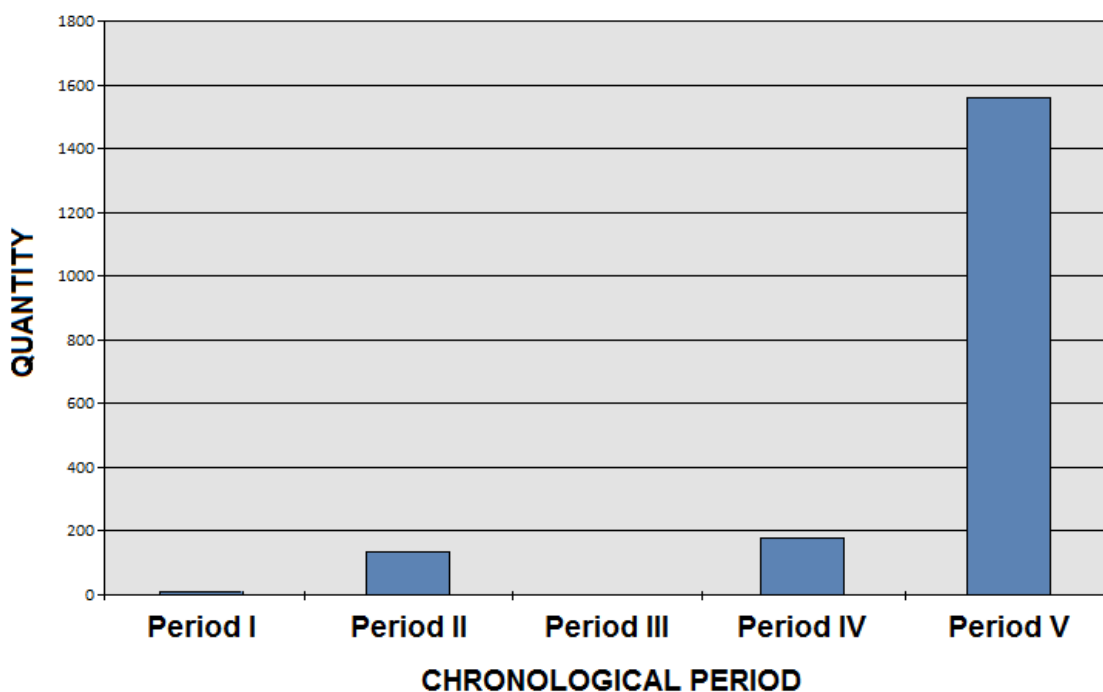
**Fig. 1.** Regular (that is, non-banded) carnelian bead quantities in the Bahrain sample belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account beads of uncertain material or chronological attribution. It also excludes those assigned to chronological ranges that span more than one period.



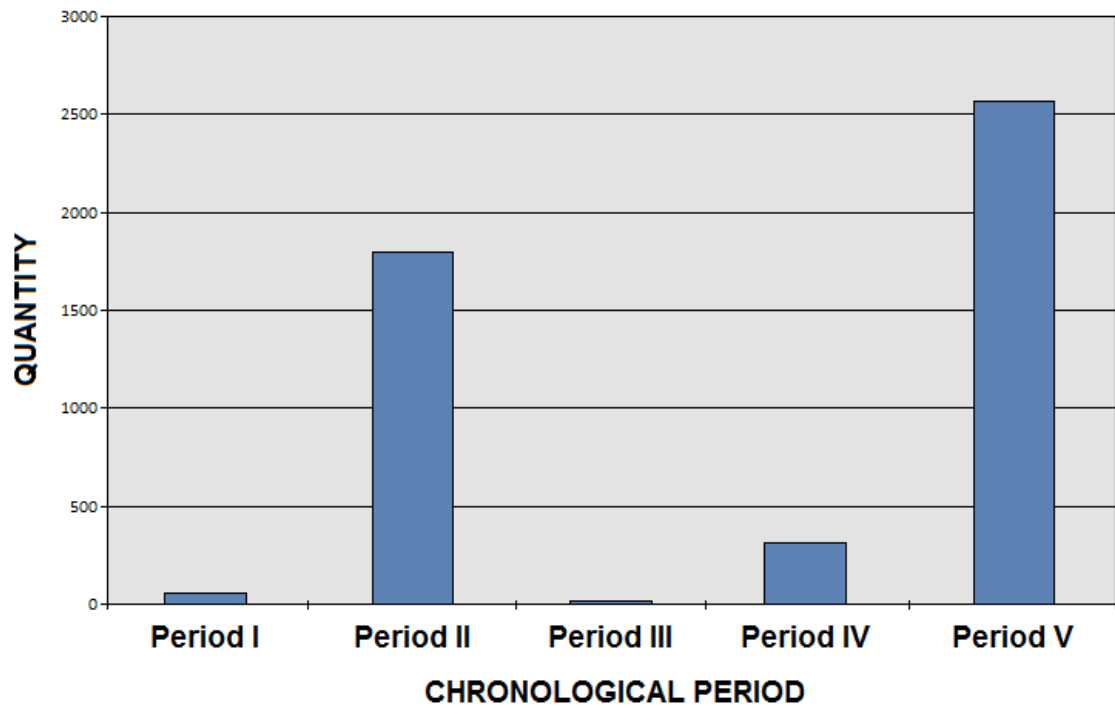
**Fig. 2.** Steatite bead quantities in the Bahrain sample belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account beads of uncertain material or chronological attribution. It also excludes those assigned to chronological ranges that span more than one period.



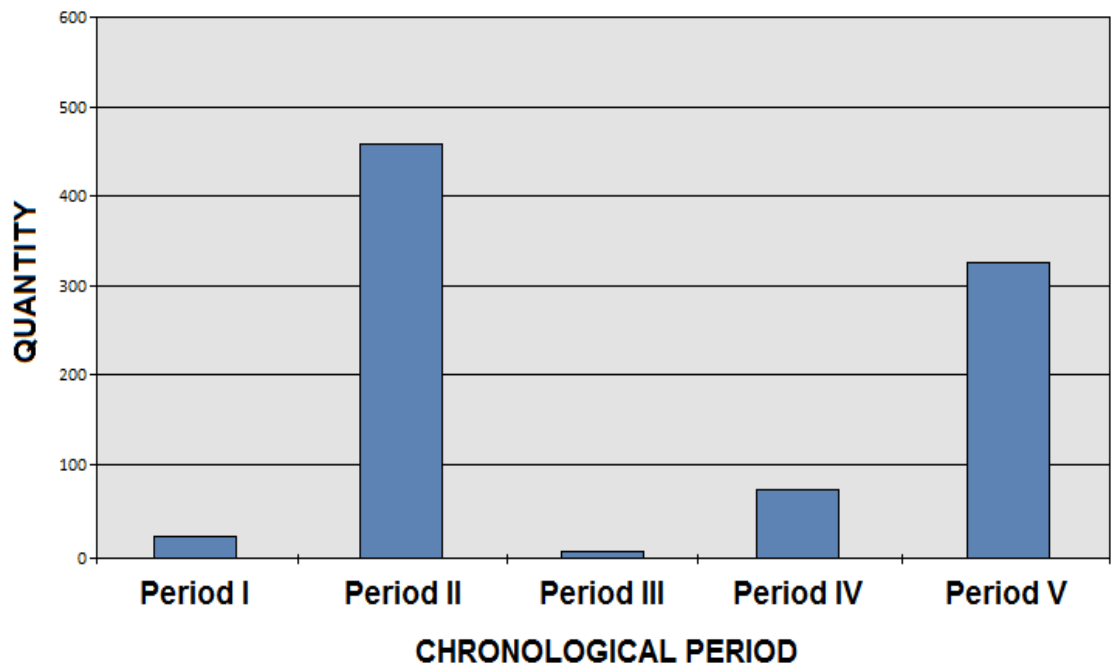
**Fig. 3.** Lapis lazuli bead quantities in the Bahrain sample belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account beads of uncertain material or chronological attribution. It also excludes those assigned to chronological ranges that span more than one period.



**Fig. 4.** Glass bead quantities in the Bahrain sample belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account beads of uncertain material or chronological attribution. It also excludes those assigned to chronological ranges that span more than one period. Moreover, no gold-glass beads are involved in the graph (due to their representing a combination of materials).



**Fig. 5.** Bead number totals in the Bahrain sample belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account beads of uncertain chronological attribution. It also excludes those assigned to chronological ranges that span more than one period.



**Fig. 6.** Quantities deriving from the Bahrain sample and representing Bahrain Bead Types belonging to Periods I, II, III, IV, and V respectively. It should be noted that this graph does not take into account Types of uncertain chronological attribution or those assigned to chronological ranges that span more than one period.

Bahrain, however, remained established in its commercial role, participating in the same trading mechanisms (or similar ones) that had existed in Period Ib. Carnelian, lapis lazuli, and steatite continued appearing in ornamental guises throughout Period II, attesting to the enduring nature of these mechanisms (see Figs. 1-3 and Chapter 8.5). Similarly, the appreciation for such stones as lapis lazuli continued to lend an air of Mesopotamian culture to Dilmun, as did Mesopotamian pottery imports and other items (see Højlund, 2007: 125-126). The value placed upon turquoise, shared with Mesopotamia, is illustrated by an abundance of turquoise-imitation faience beads provided by the Bahrain sample as well as an actual turquoise specimen (see Chapter 8.5). The clay crescent-shaped pendant from Period IIa, moreover, though of local Bahraini manufacture (evidenced by the nature of the material used) nonetheless represents a form that was well-known to Dilmun's northern neighbours throughout the 3<sup>rd</sup> and 2<sup>nd</sup> millennia BCE and was associated with the Mesopotamian moon-god Sin (see Chapter 9.6) (Lankton, 2003: 42).

In Period IIa, however, Mesopotamian influences were somewhat overshadowed by Indus ones (see Højlund, 2007: 125). Indications of these Indus influences may be found in the realm of carnelian beads. The number of carnelian beads and the multitude of carnelian Bahrain Types from Period II generally outweigh those of any subsequent era represented in the Bahrain sample (see Fig. 1, Chapter 8.5, and Chapter 9.6). However, within the scope of Period II, it is amongst the IIa beads that etching finds its greatest visibility, a remarkable example of the extent to which Indus influences had seeped into Dilmun culture (though the beginnings of such influences can be traced at least to Period I) (see Chapter 9.2). Other indications are the growing diversity of hardstones available amongst the beads from IIa, if not Period II as a whole, showing a greater dependence upon the Indus for trade in ornaments (see Chapter 8.5). At least two examples of Indus-type long "tubular" beads have been noted amongst the Period II specimens, showing that such trade involved some readymade objects (if it was not heavily dependent on such products from the Harappan region) (see Chapter 9.6).

Perhaps the greatest indication of Harappan influences, retained from the preceding Period I but finding greater impetus in IIa as may be surmised from carnelian Bahrain Types and the weight given to etching, came in the form of local attempts to appropriate certain aspects of the hardstone industry; at least, such as were concerned with carnelian. We thus find crudely cut carnelian beads, made either through neglect during the shaping of bead blanks or hastily performed polishing (see Chapter 9.2 and Chapter 9.6). Regardless, such

beads have yet to be uncovered in the Indus, Mesopotamia, or Persia (e.g. see Jyotsna, 2000: 87-100). They seem to represent a phenomenon more particular to the geographic region marked by Dilmun. Despite a seeming hiatus in Period III, the validity of which may be called into question by the few Middle Dilmun beads in the Bahrain sample, such crudely cut carnelian beads were a feature not only of Period II, but also of Period IV in Bahrain's chronology (see Chapter 9.2 and Chapter 9.6).

Wholesale etching, a pre-existent feature of carnelian specimens from Bahrain (preceding Period II), was also a feature of such beads as of the more numerous finely cut examples from these eras (see Chapter 9.2 and Chapter 9.6). Such etching was retained in the Tylos era as well. Like crude cutting, wholesale etching appears to have been a feature of the geographical region occupied by Dilmun throughout all its periods as well as Tylos in the subsequent era. A trait obtained from an appreciation of Indus contact in a previous age (as already explained), but recognized as a localized phenomenon, it became more widespread in Period IIa as increased economic diversity and reach brought greater emphasis to the Harappan permeation of Dilmun culture.

The reverse may be stated regarding the subsequent chronological subdivisions of Early Dilmun, as etching became somewhat less abundant amongst the beads from IIb and IIc (considered against the backdrop of specific specimens from these sub-periods) (see Chapter 9.2 and Chapter 9.6). Diversity of materials and Bahrain Types as well as the occasional example of definite Harappan make nonetheless indicate continued importance as Dilmun retained its role as middleman in the trade between the Indus and Mesopotamia (see Chapter 8.5 and Chapter 9.6). Nonetheless, such trade appears to have facilitated greater focus on the latter, and Dilmun began to adopt particular Mesopotamian cultural markers, evident for instance in the seal iconography from Bahrain (Højlund, 2007: 125-126).

On the whole, Period II has been regarded as the apogee of Dilmun socio-economic development. Bahrain's mercantile importance was at its height, and the environment on Bahrain reflected it. Qala'at al-Bahrain was expanded and furnished with a city wall as well as monumental buildings (Højlund, 2007: 124). An Early Dilmun settlement flourished at Saar (Killick, 2003). And the Barbar Temples as well as other major sites (e.g. the Diraz Temple, Umm es-Sejjour, etc.) were similarly established and prosperous (Højlund, 2003d: 323-330; Roaf, 2003b; Potts, 1990: 207). The burial tradition of Bahrain grew and solidified into eight cemeteries, occasionally (as the contexts of our beads have shown) spilling out into the surrounding land or having satellites outlying the major groups of tumuli (see Højlund,

2007: 18, 124). The contexts of our beads have also shown the proximity of the “fertile strip” to have been used for burial at this time, a feature which seems to correlate to those eras in which Bahrain’s socio-economic development reached a certain “critical mass” (see Chapter 7.6 and Chapter 9.6). This has been shown by a similar tendency in the Tylos era, but not witnessed by the intervening Periods III and IV.

The use of areas around the “fertile strip” for burial depended on the occupation of sites nearby, and must necessarily portray various aspects of the occupants themselves based on their dead. Since the Bahrain Islands represent an environment that is not very large in terms of spatial extent, availability of materials and beads made from these would not have been an issue across sites. Instead, social or economic status would have been a greater determinant. However, though varying amounts of beads of certain materials are witnessed in the Bahrain sample, there is no indication of a severe economic deprivation at one site as opposed to another, or of poverty. It is for this reason that an abundance of glass specimens from Shakhoura and faience from Hamad Town, as well as diminishing numbers from outlying sites, seem to suggest two geographic zones associated respectively with each of these materials (see Chapter 8.5).

The unusually high percentage of such beads even makes it likely manufacture took place within these two geographical zones at the sites mentioned. Admittedly nothing short of glassworking waste would conclusively prove such a hypothesis, though the spatial diminution of glass bead finds in moving away from these sites as well as an analysis of the quantities of drawn-snapped glass microbeads (these representing mass production) and Indo-Pacific drawn glass beads, involving both Periods II and V, do make a strong case (see Chapters 8.5, 9.2, and 9.6). The numbers themselves, let alone the particulars of the kinds of beads recovered from these sites, make them uncannily suggestive of manufacture in an era when glass was less widespread than it would later become. Moreover, it is unlikely that a socio-economic factor would have caused similar phenomena to occur in the same areas approximately a millennium apart (that is, in both Period II and Period V), as a social or mercantile elite would not be expected to occupy the same space and furnish burials in these regions between two chronological periods separated by so wide a temporal gap. A more likely cause would be linked to the locations themselves, perhaps geologically (as far as this met the needs for glass and faience manufacture) or else in terms of fuel. The latter makes a strong case, for both the “fertile strip” in the northern zone and the western portion of the Hamad Town zone (approximating to many of the modern villages along the western coast of

the main Bahrain island) would have been irrigated, with the run-off of date palm cultivation being a useful source to fuel the pyrotechnology necessary for glass and faience production (see Chapter 9.6).

Regardless of whether such production took place in Bahrain or not, the presence of significant glass specimen quantities and Bahrain Types amongst the Period II beads only highlights the wealth of Early Dilmun and that demand for luxury items (such as glass ornaments) that such prosperity assuredly brought (see Fig. 4, Chapter 8.5, and Chapter 9.6). The abundance of these items at a time when glass was yet not widely available (i.e., most of Period II) makes it more conspicuous. However, between 1700 and 1500 BCE, when glass ornaments became more widely procurable in the Near East, the reverse became true of the bead situation on Bahrain (see Bienkowski and Millard, 2000: 129; Lankton, 2003: 39). In fact, no glass beads from Period Post IIc are included in the Bahrain sample, a state of affairs likely explained by the decline that had set in and was being endured by Dilmun at this time (see Chapter 8.5). Local manufacture of different sorts would have been curtailed, and any items obtained from abroad would have suffered in diversity and number as Dilmun's participation in international commerce waned and reached its lowest ebb.

Despite this, the Post IIc beads in the Bahrain sample have shown us that such commerce was not entirely disrupted, and that even in its darkest hour, Dilmun retained a measure of contact with its trading partners. Materials such as carnelian, steatite, lapis lazuli, and even gold (or finished beads made from these) were being acquired from regions as diverse as the Indus Valley, Persia, and Afghanistan (see Chapter 8.5). This seems to contradict the general nature of a decline as exhibited by other finds from Bahrain as well as the stagnation of Dilmun urban and burial sites. The contradiction, however, can be explained by the fact that the graves at Karranah from which the beads represented by these materials were obtained were undoubtedly wealthy, owing to the affluence indicated by the ornaments from them. Some form of social or mercantile elite must have yet existed at the occupation site supported by the Karranah cemetery. Such an elite segment of society may have existed nearby since Period IIa, when the highest carnelian amounts as well as a strong tendency towards translucency in carnelian beads characterized the burial beads at Karranah, only being matched in terms of diaphaneity by Saar (see Chapter 8.4 and Chapter 8.5).

Over the centuries that represented the Middle and Late Dilmun eras, a gradual rebuilding of Bahrain's economic role took place along with a reclaiming of attendant fortunes. It was a slow process, aided by the importance laid on the Islands by succeeding

northern states that held sway over them (Lombard, 2000b: 108-109, Lombard, 2000c: 116-119). The Period III beads in the Bahrain sample are scanty in number, but do provide a hint of diversity in terms of material (see Fig. 5, Chapter 7.6, and Chapter 8.5). This seems to show the initial hints of such reclamation. Only one possible glass bead, however, may belong to this epoch in the sample (see Chapter 8.5). This is understandable, given that Bahrain, being under the control of the Kassites, would have shared in the fortunes of its northern overlords. As all the old beadmaking centres of West Asia were destroyed or fell into abeyance, glass ornaments all but disappeared from the archaeological record of the region (Lankton, 2003: 46). Only a few sites, located in northern Persia or Egypt, continued to make them, and if our bead is indeed of glass, then it must have come from one of these (see Lankton, 2003: 46-47). If so, it bears evidence of trade in a time poorly represented amongst our bead collection.

Period IV, on the other hand, has a far greater presence in the Bahrain sample (see Fig. 5). The number of materials as well as Bahrain Types is once more extensive, indicating notable participation in the steatite and lapis lazuli trade (see Figs. 2-3, Fig. 6, Chapter 8.5, and Chapter 9.6). Moreover, a close relationship with the Indian Subcontinent is perceivable, alongside a reinvigoration of commercial mechanisms comparable to those that existed between Dilmun and the Indus in Periods I and II. Black-and-white onyx, only just introduced in India towards the end of the Late Dilmun era, seems to have made an immediate appearance on Bahrain, as did glass imitations of the same (see Chapter 8.5) (Francis, 2002: 13). Indo-Pacific drawn beads, denoting some reliance on the South-East Asian bead trade, also became a prime feature of the glass bead assemblage of Period IV (see Chapter 9.6) (Francis, 2002: 19-50).

Whilst carnelian bead numbers and Types achieved a resurgence as ties with the Indian Subcontinent were strengthened, they were overshadowed by the size of the glass bead assemblage (in terms of bead numbers and not diversity of Type) (see Fig. 1, Fig. 4, Chapter 8.5, and Chapter 9.6). In the wake of glassworking becoming more widespread around the middle of the 2<sup>nd</sup> millennium BCE (if not before) and the recovery of this industry early in the 1<sup>st</sup> millennium BCE under the prerogative of Assyrian and Babylonian rulers in Mesopotamia, this overshadowing is understandable if not indeed expected (see Lankton, 2003: 47). It would further herald the situation with glass beads in the Tylos era.

Our examination of the glass beads from Late Dilmun, along with the carnelian and faience ones (being the most numerous varieties following glass), has also revealed some

interesting aspects of the Snake Sacrifices at Qala'at al-Bahrain, which belong to the later phases of the era (see Højlund, 1997h: 134-144). In particular, an establishment of value in combination with a predilection for certain substances (i.e., the three mentioned) has been observed (see Chapter 8.5). Moreover, an examination of both the contexts of the Snake Sacrifices as well as the beads they contained allows us to suggest a possible connection with the Mesopotamian deity Ningishzida if not the actual tale of his journey to the Netherworld (see Chapters 7.6, 8.5, and 9.6).

Ultimately, the Period IV beads and Bahrain Types studied in this work have shown us influences borne by the socio-economic situation in Mesopotamia at different points in Late Dilmun as well as similar influences coming in from the Indus. The scenario thus provided seems to parallel, though on a lower scale, that which existed in Periods I and II, and would continue on into Period V.

The Tylos era has been regarded as a distinct cultural epoch on Bahrain, based on the archaeological record as well as the nature of finds at Qala'at al-Bahrain and cemeteries specific to Tylos, not to mention the actual nature and layout of these cemeteries (Herling, 2000; Salles, 2000). However, an examination of the Bahrain sample and its Types has shown that it had much more in common with Late Dilmun and certain aspects of the earlier Dilmun epochs inherited through Period IV than would appear to be the case.

This situation, moreover, was not restricted to the beads of Bahrain, but other aspects of Tylos culture. For instance, certain cultural features adopted out of necessity in Period Post IIc had ingrained themselves in Bahrain's cultural mindset so fully that they were retained in the Middle and Late Dilmun eras. Examples include the reuse of older burials as well as collective interment. In essence, this reveals the nature of growth as a betterment without "cauterization"; that is, without a breaking with the past. Rather, there is a development that sees old customs and cultural qualities brought under a new socio-economic impetus and justified thereby rather than according to the original impulse which introduced them in the first place. Such was the case during the Middle and Late Dilmun epochs, and we find it also in the continuity perceivable under the new cultural veneer assumed by Bahrain in the Tylos era.

It is through such continuity that, building on the development of its economic importance in Periods III and IV as well as the "globalization" resulting from a succession of large empires from the middle of the 1<sup>st</sup> millennium BCE onwards, Bahrain also began to achieve a socio-economic status that, for the first time since its heyday in Period II, came near

to approximating the one it had enjoyed in Early Dilmun (see Diamanti, 2003: 13). The “fertile strip” was once more employed for burial, and all that this implies is also suggested (see Chapter 7.6 and Chapter 9.6). Moreover, the diversity of bead materials as well as the proliferation of bead numbers and Bahrain Types, taking the trends already visible in Period IV to a whole new level, provide ample proof of commercial reach and relative prosperity in the Tylos era (see Figs. 5-6).

As in Period IV, glass beads far outnumbered carnelian ones in Period V (see Fig. 1, Fig. 4, and Chapter 8.5). This is natural, given the great epochs of Hellenistic and Roman glassmaking and glassworking that were contemporary with various phases of the Tylos era (see Eisen, 1919: 92-101; Francis, 2002: 87-88; Lankton, 2003: 53-54, 63; Stern, 1999: 442). Despite being overshadowed in bead numbers, carnelian Bahrain Types were more numerous than the specimens they represented, bringing additional focus upon the commercial exchanges that must have taken place between Bahrain and India in Period V (see Chapter 9.6). The same may be stated regarding the continued presence (though in far greater quantities) of Indo-Pacific bead types (which relate to the South-East Asian bead trade in general) as well as collared gold-glass beads (see Chapter 8.5 and Chapter 9.6) (Francis, 2002: 19-43). In addition, it should be added that it is through an analysis of both the form and manufacturing methods associated with certain comparable but non-collared gold-glass specimens (hitherto simply regarded as belonging to Period V, without further elaboration) that it has become possible to date them more specifically to phases within the Tylos era (see Chapter 8.5 and Chapter 9.2).

Though the Indian impact upon Tylos can be noted in terms of beads and Bahrain Types from the latter, Mesopotamian influences are not lacking either. In this we are provided with another example of continuity between Period IV (and preceding Dilmun epochs in some cases) and Period V. The contexts from which some of the Bahrain sample beads have come, such as pot burials and perhaps even the Snake Sacrifices (if the Ningishzida connection is valid), originated in the mortuary and religious traditions of Mesopotamia (see Chapters 6, 7.6, and 9.6) (Højlund, 1997i: 158-159). Even the use of beads as part of the obol custom highlights this (see Chapter 6 and Chapter 7.6) (Herling, 2000: 139-140).

As may be observed from the foregoing, a study of the beads comprising the Bahrain sample and the Bahrain Types so obtained have not only strengthened our understanding of the chronological framework and socio-economic development of Dilmun and Tylos, but have also shed additional light on certain aspects of these. In doing so, they have arrived at the

aim for which they were examined in the first place and, moreover, they have even suggested new hypotheses and lines of enquiry only tentatively treated in this work.

Part of the examination of the Bahrain beads in this work lay in isolating the most important qualities of these items for study and thereby creating a Bahrain Bead Typology for use. This was achieved, with the rudiments of the same having been set forth in the previous chapters (especially the preceding one). Based upon a bead assemblage particular to Bahrain, and so catered to those beads found upon it whilst yet structured according to the best of what other typologies (based on more diffuse collections of finds) have to offer, this Bahrain system of bead classification will hopefully be of use in the future to archaeologists studying the ornaments of the Arabian Gulf and specifically Bahrain.

But a typology is not the only avenue through which sense can be made out of an archaeological bead assemblage. The factors which constitute such a typology, or are crucial to a proper understanding of any ornament (based on Chapter 3), are equally revealing and necessary to a full appreciation of such items. By examining these, it became possible to compare relative quantities of bead materials from different sites and various contexts spanning the chronological eras on Bahrain, or to determine the special relevance given to translucent carnelian specimens at Karranah and Saar in Period II (see Chapter 8.4 and Chapter 8.5). Similarly, it was by looking at the Bahrain sample from the standpoint of these factors that the status of carnelian and glass as the hallmark materials of Dilmun and Tylos respectively was objectively established as more than a simple supposition, and wholesale etching shown to have been almost exclusively preferred in both these eras to its pattern-based counterpart (see Fig. 1, Fig. 4, Chapter 8.5, and Chapter 9.2). In a comparable fashion, a study of perforation types across the Bahrain sample made it possible to designate Type VIa as the most widespread and determine the relative percentages held by other varieties in the sample (see Chapter 9.3). By examining such perforation types in conjunction with the measurements of respective beads, it also became possible to identify the kind of drill used to make them as well as the place of perforation in certain cases (as with the long Ernestite drills used with “tubular” Indus beads) (see Chapter 9.6). By considering such factors as those exemplified above, an understanding, however rudimentary (for this work marks only a beginning), is attained of the Bahraini beads and the “gap” in our archaeological knowledge of these small finds (for such existed in the absence of any closer examination of the beads) thus becomes filled.

Peter Francis, Jr. used to say that the study of such ornaments is “not about beads, it’s about people” (Francis in Diamanti, 2003: 8). The truth of this statement needs no justification, as beads touch every aspect of the life, not to mention social and economic needs and means, of a culture. From fashion and trends, to the availability of particular materials and the wealth and commercial contacts necessary to secure them, to the hierarchical stratification of society or the doctrinal and religious views associated with certain beliefs and the material representations of those beliefs, beads permeate every aspect of a culture. The same may be put forward regarding their role in ancient Dilmun and Tylos. The Bahraini beads point to the numerous facets of life and the ups-and-downs of social and economic milieus in one of the major emporiums of the Arabian Gulf, regardless of chronological period. They offer us a tale of continuity, with brighter epochs and dimmer moments, but ultimately the ornaments provide us with a singular story of how Bahrain retained a certain identity established over the course of millennia (irrespective of being Dilmun or Tylos) in which its ancient beads played a most crucial and pervading part.