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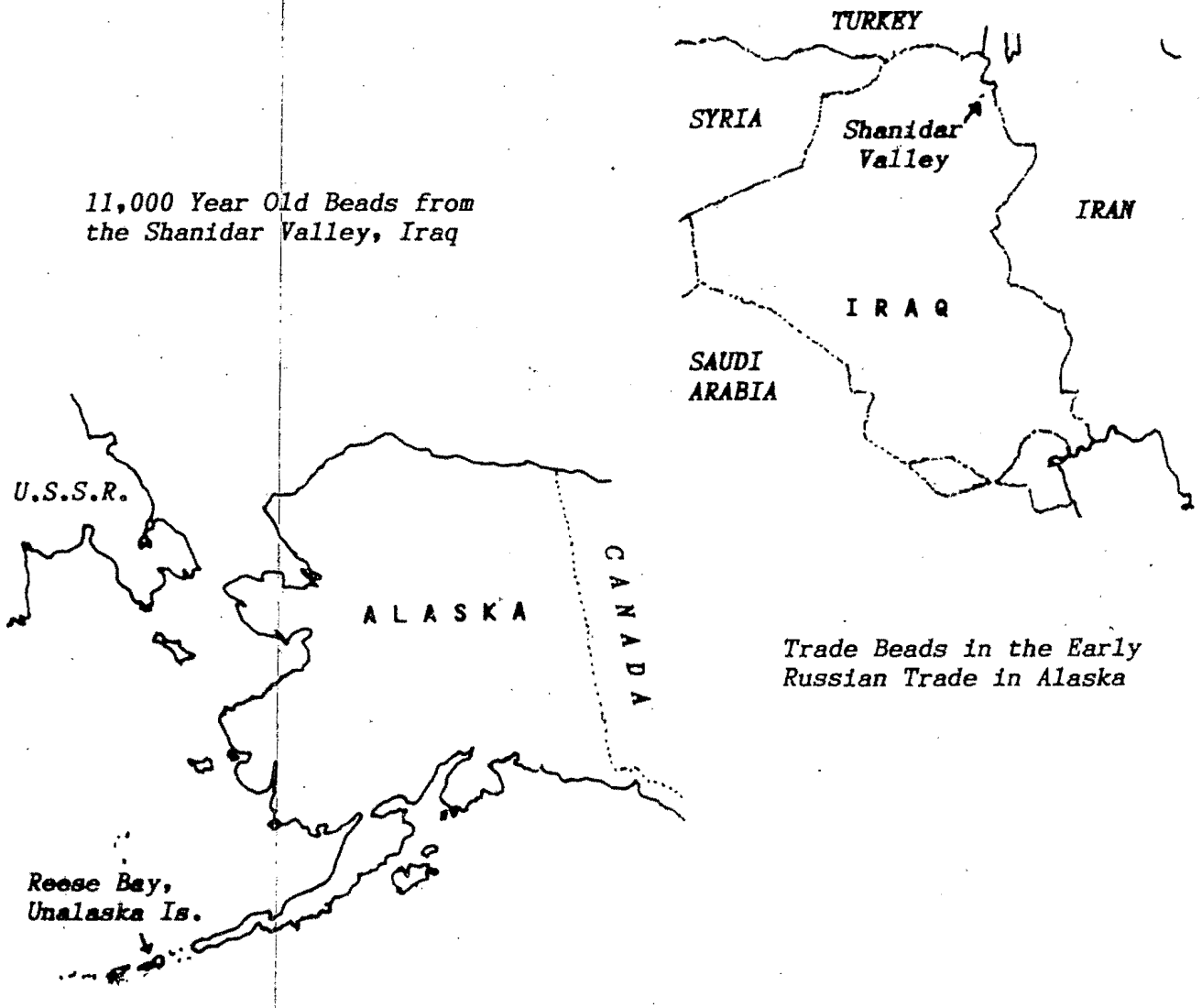
BEADS: OLD AND NEW



11,000 Year Old Beads from the Shanidar Valley, Iraq

Trade Beads in the Early Russian Trade in Alaska

In this Issue:

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Through the Eye of A Needle: The Editor's Page

This issue marks a small milestone in our history, our second volume and the third year of publication. When we began somewhat boldly in late 1985, we could not foretell that we would be so well received. The Margaretologist has significantly contributed to bead studies and many regard it as the most informative bead newsletter published. From the beginning our concentration on the Center's news and research program has made each issue a small slice of our life, documenting our progress in bead research. We thank the many friends who have supported us, and fully intend to continue to bring you the news of our work virtually as it happens.

This issue contains the results of investigations of beads from two sites entrusted to us for cataloguing and reporting. The formal results will be published in the excavation reports, and we have been urged to submit our findings to archaeological journals. They are also of wide enough general interest for "Bead Report" in Ornament magazine.

However, our members deserve to be informed first. Some may see other, perhaps longer or illustrated reports, so here we focus on the major issues involved. The conclusions herein are our own, but the people who deserve the ultimate credit are those who toiled in the field, systematically, carefully gathering the raw data -- the beads and the facts about their locales and dates -- upon which our work is based.

We have said it before, but it is worth repeating: little or none of this information would be available if the beads had not been scientifically excavated, but had been plundered and sold on the antiquities market. How would we know that spacer beads for multiple strand necklaces date back 11,000 years? Or that the so-called "Russian Bead" was neither the first nor most important bead the Russians used in Alaska. These are examples of the value of archaeology to bead research. Bead research must, in its turn, cooperate fully with archaeology. The repetition of this theme may bother some, but it needs to be said and needs to make an impression.

This issue also carries an article which discusses two "new" tools being used at the Center. The piece on the fluorescing of glass and organic beads is entirely preliminary, and we would like to hear from any reader who has had experience with this technique to increase our understanding of its use.

Special thanks go to Drs. Ralph and Rose Solecki of Columbia University, who made their material available for study and have been most helpful in many ways. Also to Dr. Jean Aigner, who sent the Alaskan beads and provided other information, and Dr. Curt Beck, who analyzed the amber bead from Reese Bay. Drs. Leonard Gorelick and John Gwinnett also deserve our thanks for their patient cooperation in introducing me to perforation impression techniques, while Dr. and Mrs. Gorelick have often put up with my using their lovely home as a base of operations on several occasions.

The **Margaretologist**, the official journal of the Center for Bead Research, is published twice annually for Members and Patrons of the Center. Members ($25 for two years) and Patrons ($75 for two years) also receive discounts on our publications and other benefits. Patrons are sent new books as they are published.

The Center for Bead Research 4 Essex Street, Lake Placid, N.Y. 12946

SHANIDAR CAVE AND ZAWI CHEMI SHANIDAR IRAQ: BEADS OF THE EARLY "NEOLITHIC REVOLUTION"

The New Stone Age has been called the "Neolithic Revolution." "Neolithic" refers to then new technique of grinding stones, but the age saw many other innovations as well. Early farming led to permanent villages where crops and animals were raised. As food became more secure, population grew, and increased leisure, safety, and community interactions led to new inventions. The earliest uses of metals, small machines, and pottery, the elaboration of tools, trade, clothing, shelter, and probably larger vocabularies, oral traditions, and aesthetic appreciation were all products of this age.

Several inventions affected beadmaking. Trade brought exotic materials, including copper, gold, and silver. Hard stones beads could be ground like tools, and why not turn the bow and arrow into a drill? Changes did not happen at once or in one place, but the Neolithic is key to the bead story.

Thus, I eagerly accepted the invitation to study beads from Shanidar Cave and Zawi Chemi excavated by Ralph and Rose Solecki. Not all beads from these sites are at Columbia University (most are in the Baghdad Museum), but enough were available to give a picture of early Neolithic beads.

Both sites are Early- or Proto-Neolithic in date. Radiocarbon dates at Zawi Chemi are 10,870 ± 300 years old; for the Shanidar Neolithic, 10,600 ± 300 years old [Solecki 1980:67]. The two sites are related. Zawi Chemi is in the Shanidar Valley, surrounded by rugged peaks of the Zagros Mountains of eastern Iraq. Shanidar Cave overlooks the valley, and is so hospitable that people lived there 45,000 years ago, and others are living there now. The Zawi Chemi people apparently wintered in Shanidar Cave, where a cemetery of 26 people was found, mostly of children and infants.

The Beads of Shanidar Cave

The beads I studied from Shanidar Cave were from or near these burials, and included 45 of pink calcite: a barrel, and 44 small discs. Eighteen of the disc beads were from Burial No. 14 on a triple strand necklace held apart by spacers with three holes. To date, the Shanidar spacers (this one is made of chrysocolla) are the earliest ones known, and represent an important advance in bead design. A spacer from Karim Shahir, Iraq, is perhaps slightly later [Braidwood and Howe 1960: pl. 23.10], and those from Çatal Huyuk, Turkey, are much later, about 5900 B.C. [Mellaart 1964:95].

The Beads of Zawi Chemi Shanidar

The Zawi Chemi beads are quite different from those from the Shanidar Cave cemetery. None are colorful, and most were made from bone. We can assume that the finer beads of the cemetery were deposited out of love and grief, and chosen from among the best available. The Zawi Chemi beads were broken, discarded, unfinished, or too common to search for if lost.

Rose Solecki divided the 59 bone beads into three groups. Sub-types A and B are tubes mostly of bird bones (the Bs are flatter than the As). Sub-type C are barrel beads of mammal bones. There were enough unfinished beads to work out how they were made.

The bones were first grooved around the circumference with a stone blade. After several grooves were cut, the segments were detached by bending the bone until it snapped. Then a segment was rubbed lengthwise against a hard surface (such as stone, perhaps with abrasive) to straighten and smooth it. Next the ends were ground down roughly, then ground against a finer surface (fine-grained stone, leather, or wood) to polish them. Finally, the bead was polished lengthwise. The bores of most finished beads are polished, but we do not know if the beadmaker or the rubbing of the string did this.

There were several flat pointed pendant-like bone and ivory objects with perforations at one end, often decorated with incised lines. Rose Solecki's keen eye detected that their tips, and only their tips, are highly polished. Pendants would not be worn to create this effect, but some tools would be, such as those used to pull fiber through a weave for baskets or mats. While they may have also been worn as pendants, there is no evidence for that, and we can only consider them as tools.

Perforation Techniques

A key question is how objects were perforated at this time. A variety of methods was used. Most Zawi Chemi beads were naturally hollow bird bones. Other bones only had to have their marrows cleaned out. But some objects were drilled. The Shanidar Cave stone beads were all bored from two sides with flint drills rotated mechanically, probably with a bow. A long lenticular double convex bead of chrysocolla required much work and skill; it was drilled from each side at least 2.0 cm deep.

Several different borers were found at Zawi Chemi. Long, thin ones flaked down the length were the type used for the Shanidar beads and a few at Zawi Chemi. But most Zawi Chemi beads were drilled by hand, as shown by wobbly, eccentric apertures, with thicker drills of more triangular section.

In conclusion, Shanidar Cave and Zawi Chemi give us an idea of beads worn at an early date, and illuminate technological inventions at this time. The first spacers appear, with new possibilities of bead use. The bow drill was employed, but not universally, only on thick material and finer beads. There was a well developed aesthetic sense, the first in the region, with multi-strand necklaces of contrasting colored beads and decorations on bone tools.

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RUSSIAN BEAD TRADE IN ALASKA

Reese Bay, an Aleut village on Unalaska Island, is being excavated by the University of Alaska, Fairbanks, under Jean S. Aigner. The beads sent to me were found in the 1986 excavation in the remains of a longhouse.

The first known outside contact was when Ivan Solov'ev visited in 1765. In 1778 Captain Cook's party landed nearby at English Bay and visited Deep Bay. Reese Bay was still occupied in American times (from 1867), but the longhouses had been abandoned soon after 1805, when Nikolai Rezonov of the Russian American Company persuaded the chief that they were unsanitary.

This is important because Alaskan archaeologists have a problem in sorting Russian and American-brought goods. The Reese Bay longhouses were abandoned before A.A. Baranov contracted for goods from Yankee skippers beginning in 1807, and from the Hudson's Bay Company, starting in 1839.

An amber bead and 76 glass beads were sent for my examination. There were 49 monochrome "seed" beads, a small bugle, 9 small cornaline d'Allepos, and 10 white on grey or clear on whites. Nine beads were wound.

Where were the glass beads made? A Russian bead factory was opened at Ust Rudisky in 1753 by the polymath M. V. Lomonosov. Nothing is known of the beads produced there, and the factory turned entirely to mosaic tiles within two years [Menshutkin 1952:95-8]. Reese Bay beads must have been obtained from elsewhere. The "seed" beads are probably Venetian, but might also be French [Kidd 1979:31-2] or English [Kidd 1979:46; Karklins 1987b], though our knowledge of these beadmakers is limited.

The Wound beads and the China Problem

The wound beads present a different picture. Only one has a known origin: a violet bead with a yellow "squiggle" pattern, formed by combing (pulling a rod through) a row of applied circles while they were still hot [Kelly and Johnson 1979]. Such beads are on Venetian sample cards [Karklins 1982:36, 56ff], as late as 1899 [Francis 1980:35]. Two others are probably European, a white "barleycorn" bead and a green pressed drop-shaped bead.

Two amber colored "mulberry" beads were found. These are well known beads, dated in the USA from 1670 to 1833 [Quimby 1966:86; Brain 1979:111]; amber ones are rather rare in the U.S. They may be Dutch [Karklins 1987b].

The other wound beads are oblates. Two blues and one white are well made, evenly coiled with small perforations, but two amber beads were unevenly coiled from bubbly glass, are somewhat irregular, and have large bores.

Wound blue beads are rare in most of America, except for the later "Crow" beads of the Great Plains [Hail 1980:52] and the different "Padre" beads of the Southwest [Sorensen 1970:16]. However, in the Northwest, they were in great demand [Woodward 1967:17-8; Strong 1959:226]. They were probably the Chief Beads of the Columbia River Basin, a term that refers to the status of the beads, not to the owner. White wound beads have a similar distribution, although they took second place to the blues.

Amber colored beads appear on 17th and early 18th century sites, much earlier than Reese Bay. Two scholars pointed out that they were gone after 1745 [Wray 1983:45; Harris and Harris 1967:156]. Later amber glass beads were made differently, with a single turn of glass [Good 1972:115].

History shows that these beads were not well known among Americans. Lewis and Clark were poorly informed about the beads needed in the Northwest, and took few blue ones, only to learn their mistake too late:

> [For a skin we offered] a watch, a handkerchief, an American dollar, and a bunch of red beads; but neither the curious mechanism of the watch, nor even the red beads could tempt him; he refused the offer but asked for tiacomashack or chief beads, the most common sort of coarse blue-coloured beads, the article beyond all price in their estimation. Of these blue beads we have but few, and therefore reserve them for more necessitous circumstances. [Lewis 1814:84; see also Francis 1986a:44-6]

Lewis called these beads common or coarse: "[the] most inferior kind, are esteemed beyond the finest wampum." [Ibid:144] James King, with Captain Cook at Prince William Sound in 1778, said the same thing:

> [T]he most certain proofs of their hav^{g} a frequent supply of articles belonging to civiliz'd Nations are their blue beads; these of which they set a very great Value, have not the good shape of English beads, but are manufactured by some nation ruder in this art than ourselves, they are about the size of a large current berry, & intended to be (but are not) round... [Beaglehole 1967:1418].

Two facts suggest these beads were not European: 1.) They were not used in eastern North America, and 2.) They were not recognized by white Americans or Englishmen. Where were they made? The most likely source is China.

There has been a lively debate over this. Woodward [1967:14-9], Sorensen [1971:15], and Jenkins [1975:6] do not agree, while Chu and Chu [1973:138], Liu [1975:14] and Ross [1975:3-4] do. Four objections have been raised by Woodward and the others. Let us look at them.

1. When the term "China" bead is used, this may refer to glass mistaken for porcelain. This is a possibility; there are several known instances.

2. Beads from China were not necessarily made there, as especially the English maintained large warehouses with European goods. This is granted.

3. China was never a great glass beadmaking or exporting country. This is a persistent notion [Van der Sleen 1967:99], but is wrong. Although they do not rank as great beadmakers, the Chinese made beads continuously from about 1000 B.C. [Francis 1986b:8-17;1986c:6]. China was a more major exporter than had been thought, selling beads all over Asia from at least the 13th century [Francis 1986b:32-4; 1986c:7]. More to the point, they sold beads to the Russians in the 18th century, who imported them duty-free [Coxe 1780:241].

4. Recent Chinese beads are not like those found in the Northwest trade. True, but some older Chinese beads are. [Harris 1985:9; Chu and Chu 1973: 141] We now know of a greater variety in Chinese glass beads than had been thought: Ming Period beads were made by different techniques; there were at least four beadmaking cities in the 19th century; and different types are made today, indicating more than one source [Francis 1986b:30-1; 1986c].

We have not proven these beads are Chinese, but we must not dismiss China out of hand any longer, as there is increasing evidence for this: 1.) China made and exported beads for a long time. 2.) The first beads brought into Alaska by Vitus Bering in 1741 were Chinese [Golder 1922:99, 147, 272] 3.) American traders bought these beads in China [Porter 1931:459-61; see also Woodward 1967:18-9 and Quimby 1978:237] 4.) The Russians were so anxious to acquire Chinese glass beads that they charged no duty on them in Siberia [Coxe 1780:241]. 5.) Their limited distribution, and the unfamiliarity with them by Europeans and Eastern Americans is also strongly suggestive.

Finally, we note a bead distinctive by its absence at Reese Bay, the so-called "Russian" bead [Harris 1985]. Although Quimby suggested they were introduced early [1978:236], they were clearly not part of the Early Russian trade at this or contemporary sites [Francis 1987].

The Mechanics of Bringing Beads to Reese Bay

European beads for Alaska would have been brought by the Russians across Siberia. As for possible Chinese beads, the Russians had a closer source. Coxe [1780:241] said at Kiakhta (Maimatschin in Chinese), the Sino-Russian trading post on the Mongolian border, that among goods exempted from Russian customs were "glass corals, [and] beads..." The Russians must have had a good use for them; the logical outlet was Alaska. It is also possible, but unknown, that Chinese traders visited Reese bay on a less regular basis.

The Russians handled Reese Bay-type beads. Large (wound) beads, usually blue or white, were called *korol'ki* by the Russians, while "seed" beads, again predominantly blue and white were known as *bisera*. Both types appear over and over again in the literature of early contacts and settlement of Russian America. They also have been excavated in several early Alaskan sites [Francis 1987]. In 1811 a ship of J. J. Astor's American Fur Company traded gin for beads at Sitka: the beads were small blue and white beads and large dark and light blue ones [Porter 1931:521].

However, the consumers dictated the bead selection. Pale blue beads were most desired all along the coast. We noted Lewis and Clark's experience at Columbia Sound. Among the Yakutat Tlingit they were the most precious bead [de Laguna 1972:445], as was true at Prince William Sound [Cook in Beaglehole 1967:346], and on Kodiak Island [Sauer 1802:177].

On Unalaska itself, James King described all the larger wound beads from Reese Bay, "They were very fond of beads but prefered [sic] those colors & sizes that came the nearest to what they had from the Russians, such as blue, white & brown about the size of a large pea." [Beaglehole 1967:1427]

The value of blue beads was a trait of the northwest cultural sphere. The desire for brown (amber) beads came from the love of real amber, found in Alaska, with pieces gathered on river banks and seashores. The amber trade was often mentioned [Francis 1987]. Coxe said that Fox Island Natives, "wear strings of beads in their ears, with bits of amber, which the inhabitants of the other islands procure from [Alaska], in exchange for arrows and kamli [an outer garment]." [1780:257]

Alaskan Amber Bead

The amber bead found at Reese Bay is apparently local. It is a disc crudely ground from a small nodule with two bores, one through the short axis, and the other crossways through the long one. Curt W. Beck at the Amber Research Laboratory kindly agreed to analyze it. He reported (77. Contribution of the A.R.L.) a weak infrared spectrum, which was computer expanded, with free carbolic acid, and the exocyclic methylene group. The adsorption pattern ruled out Baltic amber, and is very similar to Alaska II amber, the dominant amber type identified in a study of 22 Alaskan amber samples [Beck 1977]. The report concluded:

> It must be stressed that the spectral identify of the Reese Bay bead and and of Alaska Type II amber is strongly suggestive of a local origin of the bead without, however, positively proving it. Infrared spectra quite similar to Alaska II are produced by ambers of the Atlantic coastal plain, e.g. from Kreischerville, Staten Island, New York. Like Alaskan amber, these are Cretaceous in age and appear to have similar botanical sources, and hence chemical compositions, that no distinction [between them] is possible.

> However, since Alaska furnishes amber of the same kind as the Reese Bay bead, and since amber has been reported... from Unalaska Island itself, it is reasonable and within the principle of parsimony to conclude that the bead was very probably fashioned locally from raw amber.

The Use of Beads

There is no archaeological evidence yet for bead use at Reese Bay. Solov'ev visited Reese Bay in 1765 and described Unalaska ornaments:

> They make three incisions in the under-lip; they place in the middle one a flat bone, or small colored stone; and in each of the side-ones they fix a long pointed piece of bone, which bends and reaches almost to the ears. They likewise make a hole through the gristle of the nose, into which they put a small piece of bone in such a manner as to keep the nostrils extended. They also pierce holes in their ears, and wear in them what little ornaments thy can procure. [Coxe 1780:151]

A bit later G.A. Sarychev with the Billings expedition visited Unalaska in 1790-91 and reported (enamel, pearls, and coral are all glass beads):

> [Dress fronts and arm openings are] trimmed with a row of pearls or coral. Their festival dress is similar in shape, but more enamelled, and bordered with rows of corals, bird's beaks and goats' hair.... They pierce the cartilage of the nose, and wear long pendant ornaments of amber, coral, and enamel.... They also pierce two holes in the hollow of the [under] lip, in which they wear long thin bones; round the edges of the ears they sew ornaments of blue and white enamel [1806:8-9].

The Aleuts' fondness for ornaments led them quickly to adopt glass beads, which they wore especially on their caps, on the bone in the lower lips (apparently a symbol of ethnic identity), in their ears (especially large white beads), and noses, but not as necklaces [Francis 1977]. These unusual ways may explain the cross perforations of the amber bead. It may have been strung or put on the bone in the lip with one hole, while other beads hung on a strand threaded through the other.

Summary and Conclusions

Glass beads brought to Reese Bay during a short period (about 1765 to 1806), were Russian imports. Most were European: the "seed" beads, the squiggle design (Venetian), the mulberry bead (Dutch?), and the teardrop and barleycorn beads. But the wound blue and white beads, popular throughout the Northwest but hardly or never found in the East, and unknown to early English and American explorers, and the amber glass beads with no contemporary parallels elsewhere in America, were probably not European, but more likely Chinese. We have not proven this, but the possibility can no longer be dismissed out of hand as it has been for so long.

The Russians had "seed" and wound beads, especially blue and white, but final choices were dictated by the Aleuts, who loved blue beads as did their neighbors. Amber glass (even mulberries) substituted for real amber. The Unalaskans wore beads in many different ways, and the locally made amber bead with its unusual perforations may have been part of these styles.

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S O M E "N E W" B E A D R E S E A R C H T O O L S

Two new tools for bead research have become available to the Center in the last few months. We have not developed either technique, but have recently acquired them, and they have already proven useful in bead research.

Perforation Impressions

The use of perforation impressions to study boring methods was pioneered by Leonard Gorelick and John Gwinnett, well known for their work, especially as published in Expedition. They have trained me in the technique and given me the Vinyl Polysiloxane, and we are cooperating on several projects. Gwinnett is a professor at Stony Brook, New York, with access to a scanning electron microscope (SEM), which takes spectacular images of the bores. In addition, some characteristics can be seen under a magnifying glass. The process is easy; the impression material sticks to nothing (except clothes), and dries very quickly. It is not destructive to any by the most friable materials, and can be used with beads in museum or collections.

One of the more spectacular finds was a double diamond drill bit used on a multiply partially drilled chunk of quartz from Arikamedu, India (ca. 250 B.C. - A.D. 250), lent me by the Pondicherry Museum. Earlier, Gwinnett and Gorelick had discovered such drills used at Mantai, Sri Lanka, about 700 to 1000 A.D.; the Arikamedu piece dates the technique back several centuries. This finding is now in press.

Macroscopic examinations (with a hand lens), have revealed folded glass beads from Medieval Nishapur, Iran, and Early Historic Mantai. The amber bead from Alaska was perforated through the short plane first and then lengthwise, although how far apart the operations took place is unknown.

Future projects with Gorelick and Gwinnett include the history of diamond drill bits and glass beadmaking techniques.

Fluorescence

Fluorescence is an emitted light caused by energy flowing through a body. To see this, the light source must be shorter than the visible spectrum. X-Ray fluorescence is used to analyze materials. Mineralogists use ultraviolet (UV) light, the most common and useful being short-wave UV light. To test for fluorescence a specimen is put under a UV light in a darkened room. It is simple and non-destructive. The Center's experiments have already proven interesting and helpful, and we shall expand this work in the future.

No literature covers all the phenomena we are investigating. There are many works on fluorescence in minerals [Gleason 1972]. For glass, Weyl [1951] is probably most complete. Data on organic materials is scattered.

This introduction is based on early experiments. I would be most grateful if any reader could supply more information, correct misconceptions, or furnish or guide me to other published sources. With the precaution that these are preliminary findings, an outline of what has been discovered to date is offered. Specific discussion of minerals is omitted because the literature on it is extensive and nothing new in that line has been noted.

Organic Materials

Bone and teeth (including ivory) do not fluoresce when fresh. When buried they usually absorb fluoride, which fluoresces deep blue. This cannot be used to date beads, as the fluoride content in soils differ.

Shell fluoresces orange in patches or swirls due to aragonite, which with calcite makes up most shell. The phenomenon is not observable on all specimens, but can be seen on some ostrich eggshells.

Some ambers fluoresce, but not Baltic amber [Bauer 1904:539]. Yellow Mexican amber fluoresces a bright yellow, while the orange and red amber of the same locale do not. The specimen from Alaska (this issue) also did not fluoresce. This may be a useful tool for initial placing of amber sources.

Glass

Certain glass ingredients, especially colorants, will fluoresce. This is sometimes masked, especially by iron or because of the physical state in which they are held in the glass. The identification of some ingredients is useful for dating (particularly with newer beads), or assigning origins. A summary of some of the important ingredients is in Table 1:

Table 1: Fluorescence of Some Glass Ingredients

Glass color	Fluoresces	Ingredient	First used	Locale
Tr. green, etc.	Green	Uranium	early 19th C	Bohemia, Japan
Op. yellow	Yellow-red	Cadmium sulfide	late 19th C.	World-wide
Topaz	Orange*	Cadmium sulfide	late 19th C.	World-wide
Clear	Blue	Selenium + CdS	late 19th C.	World-wide
	Yellow**	Manganese	ancient	World-wide
Tr. Red	Orange	Selenium + CdS	late 19th C.	World-wide
White	Yellow, White	Tin	13th c.	World-wide
Tr. Violet	Yellow**	Manganese	ancient	World-wide

* Light colors may also fluoresce white or yellow
** With pure zinc present may fluoresce red or orange; with zinc in willinite state will fluoresce green.

In addition, some other fluorescent effects can be seen. Opal glass will fluoresce green if it has been struck (cooled and then reheated to bring out the color) at a high temperature. If about 5 % lead is present it fluoresces a weak green, moving to blue and completely disappearing when about 60 % of the glass (by weight) is lead.

Testing with a UV lamp has already proven useful in identifying some materials and suggesting some dates for glasses. More work is contemplated, and we welcome any readers interested in this tool to contact the Center.

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A M B E R N O T E S

The golden fossil resin, used for beads for countless generations, continues to provide new insights about past life. A frog in Dominican Republic amber reported by George Poiner and David Cannatella in Science indicates that the Caribbean Islands had wildlife before they split off from the mainland some 20,000,000 years ago. Entrapped air in amber 80,000,000 years old from Manitoba, Canada analyzed by Robert Berner and Gary Landis had up to 35 % oxygen, much more than now (21 %), and more than had been expected from this period. A highly evolved stingless bee in 80,000,000 year old amber from New Jersey indicates an earlier than expected evolution of bees and flowering plants, according to David Grimaldi at a recent symposium.

New York Times (1987) "Ancient Frog in Amber," 8 September, p. C 10.

Science (1987) "Ancient Air Analyzed in Dinosaur-Age Amber," 239(4829):890.

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P U B L I C A T I O N N O T E S

Director Peter Francis has been awarded the 1987 Kerr History prize for the outstanding contribution to the history of New York from the New York State Historical Association for "The Beads that Did Not Buy Manhattan Island." As a result, the Center received much local, regional, and national exposure in newspapers and on radio and T.V.

Reprints of the article are available from the Center at $4.00.

The Pondicherry Museum (India) has published Bead Emporium: A Guide to the Beads from Arikamedu in the Pondicherry Museum by Peter Francis. The book is a guide to the beads from this early site for museum visitors describing the displays Francis developed there. It is also a useful introduction to the beads of this important site even for those not visiting the museum.

It will soon be available from the Center. 35 pp. + color plate. $6.50.