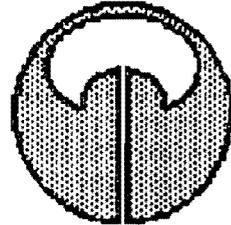


The

MARGARETOLOGIST

Journal of the Center for Bead Research

Volume 8 Number 2 Issue 20 1995



Feature Article: BEADS IN VIETNAM-- AN INITIAL REPORT



TEN YEARS OF THE
MARGARETOLOGIST



GREEK OR ROMAN CARNELIAN
SEAL FOUND AT OC-EO, VIETNAM.
FROM MALLERET 1962:295 (#1279).
SEE STORY ON PAGE 3

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A sketch map of Vietnam with sites in the text. Giang Phet and Giong Ca Vo are within Ho Chi Minh City; Go Hang is in Long An Province.

Through the Eye of a Needle

Ten years! I can hardly believe it. I remember thinking when starting with the first issue of **The Margaretologist** that I was making a commitment to potential subscribers.



Could I fulfill that commitment? Would I be able to produce even two years of the journal? I guess the answer has been "yes."

The lead article on Vietnam focuses on only one area I visited in seven months in Asia. I was also three months each in the Philippines and India and in and out of Thailand.

In the Philippines I worked at the National Museum, training members of the Archaeological and Anthropological Departments. I also worked with the Bead Society (which is getting off the ground after a rough start). There is a lot of interest in Manila alone, judging from the large and enthusiastic groups I had at a lecture and workshop.

In India, John Anthony and I revisited the Gujarat stone bead industry. Like so much else in India, things are changing very quickly. Digging was being done at Damlai instead of Ratanpur, as happened early in the century. In Cambay things were much the same, except that polishing is no longer a secret; a worker revealed the technique to others and now there are eight houses doing this work.

Anthony and I also spent a lot of time in the south, looking for traces of the South Indian stone bead industry [see 6(2), 1993]. Alas, despite several leads and many villages, we concluded it was gone. It still operated late in the 1800s, but all traces have disappeared.

In Thailand, the outstanding time was with Bucklee Bell in Chiang Mai, who is steaming ahead with plans to set up a bead museum. It would be an excellent place, and can take advantage of the growing interest in beads throughout Southeast Asia.

In September I was in Denver and Loveland CO speaking, giving workshops, attending shows, doing research and having a good time. Greetings to all I met there. In respect to one of my latest projects, I spent time with the wonderful collection of beadwork in the Denver Museum of Natural History. More on that later.

This issue has two new features. Readers will remember that after receiving encouragement to run ads, we offered them free to subscribers. No one responded, so after a year I dropped the section. Now two subscribers have responded, and their announcements appear in this issue.

I have not run obituaries in the past, largely because of the timing of *The Margaretologist*. However, I was moved to write one this issue in honor of one of the finest people ever involved in bead research, Elizabeth J. Harris. See page 12, appropriately the Sources page.

Calendar 1995 - 2000

- * Sept. 5 - 22 '95 Lectures Denver Museum National History, Loveland Museum, Workshops at DMNH.
- * 1 Nov. - 24 Dec. '95 Lectures in London, Rotterdam and Bonn. Research in Central/East Europe.
- * 6 - 12 March 1996 Bead Expo '96
- * Summer 1996 Consultant for Denver Museum of Natural History
- * Late 1997 Excavation of Roman Period Egyptian Red Sea Port
- * Spring 1998 Bead Expo '98
- * 1999 Helping set up Bead Museum in Ban Chiang, Thailand
- * Spring 2000 Bead Expo 2000

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Memberships make wonderful presents.

Encourage your Bead Society and bead shops to support us and all research groups.

**Margaret A. Carey
"Gotcha" Award
See page 11**

**NOTE: NEW FAX NUMBER FOR THE
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Bead Societies Please Note:

In the Summer and Fall of 1996 Pete Francis will be free to lecture and conduct workshops. Now is the time to invite him in order to coordinate activities with other groups to share expenses. If interested give us a call.

Advertising:

Each member is entitled to a 15 word ad each four issues; Patrons 2 ads/4 issues; Supporters 4 ads/4 issues. Addresses not counted.

Each institutional/commercial Patron is entitled to a business card size ad 2 times/4 issues; Supporters 4 time/4 issues.

Other rates on request.

Card of Thanks

To the Northwest Bead Society for the grant to allow me to further research in East Europe. Now is the time to start a dialogue with bead people in this area; there is much to be learned. I am most grateful to the support from the Northwest Bead Society.

-- Pete Francis

BEADS IN VIETNAM: AN INITIAL REPORT

Earlier this year I had the chance to visit Vietnam for the first time. While things were not quite so easy for the visitor as they are in much of Southeast Asia, they will certainly get easier now that a quarter century of isolation has been broken by American recognition of its government.

My visits took me to four institutions where I saw and studied beads: the Institute of Archaeology and the History Museum in Hanoi, the History Museum in Ho Chi Minh City (HCMC; consisting of Saigon, Cholon and the surrounding area) and the Museum of Oc-eo Culture in Tan An, Long An province, south of HCMC. I am especially grateful to Ian Glover, Institute of Archaeology, City College, London, who put me in touch with some of the people involved; Allison and Victor Diem of Manila, who made other recommendations; Nguyen Thi Kim Dung of the Institute of Archaeology, Hanoi; and the staff of the institutes I visited.

Background

The name "Vietnam" is Chinese, literally meaning "southern land." While China has had a strong influence on the country, it is a mistake to think of Vietnam as an extension of China. Although the bulk of Vietnamese people ultimately arose in what is now southern China thousands of years ago, that area was not then Chinese. Vietnamese are Southeast Asians, more closely related to Malays, Indonesians and Filipinos than to the Chinese, who constitute only some two percent of the population. No doubt there was also later infusion of island people into Vietnam, further mixing the picture [Cady 1964:16-7; Fisher 1967:66-9].

Vietnam's geographic location is key to understanding its history. Mainland Southeast Asia has been the focus of many innovative cultural advances, and Vietnam played an important role in spreading some of these abroad, especially to insular Southeast Asia. The invention of the outrigger canoe by Southeast Asians living along rivers by ca. 4000 B.C. led the people eventually to travel by sea [Solheim 1972:16].

The Vietnamese are not closely related to the Chinese, but are Southeast Asians, with a long maritime tradition.

The long Vietnamese coastline, its central position between the two great powers of India and China, and the naval genius of its people made it a center for commercial and cultural intercourse throughout Southeast Asia and beyond.

The prehistory of Vietnam has yet to be understood fully, partly because of the segmented nature of

archaeological work and the long isolation of the country in recent times. Three cultures are of special interest to us, each named for a "type site," the first site of that culture excavated. They move us from north to south and from an early to a later period.

The Dong Song Culture dominated northern Vietnam from about 1100 to 300 B.C. Characteristic of the culture is the heavy use of bronze, best known in the form of drums, which have been found in South China, Thailand, Laos, Peninsular Malaysia and Indonesia as far east as Irian Jaya (New Guinea). The culture arose indigenously and has its roots far back in prehistory. A remarkable achievement of the people was the building of canals to tame the waters of the Red River Delta, which has given them the alternate name of the Lac (ditch or trench) People [Solheim 1988/9; Tessitore 1988/9].

The Sa Huynh Culture was based in south-central Vietnam. Its origins have been variously thought of as indigenous and coming from insular Southeast Asia, particularly the Philippines. Dates for early Sa Huynh sites range from 1420 ± 40 to 925 ± 60 B.C. Early sites were still at the Neolithic, stone tool using, stage. Later sites adopted bronze and then iron (more so

Dong Son ca. 1100 - 300 B.C.

Sa Huynh ca. 1400 B.C. - A.D. 200

Oc-eo ca. 100 - 700 A.D.

than Dong Son). It is thought that Sa Huynh Culture developed into the state of Lin-yi, of the Cham people around A.D. 200 [Ty 1991; Quy 1991].

The Sa Huynh people were mariners, and the evidence of their sea-trading has been found as far north as Hong Kong and as far south as Java. It seems they had a special relationship with what is now the Philippines. Many Sa Huynh objects are found there, especially in the northern part of the archipelago, and the pottery of the two have been linked by Solheim [1981:48-57] into the Sa Huynh-Kalany Complex (Kalany Cave is a site in the Philippines where ceramics similar to those of Sa Huynh are found).

The Oc-eo culture was based in the Mekong River Delta. The remarkable archaeological remains found there by Malleret [1962] caused him and many subsequent (particularly Western) scholars to equate it with Funan, the first state of Southeast Asia, though there is disagreement about the nature of the "state" [Hall 1982; 1985:48-77]. This view is not so widely held in Vietnam. Perhaps because Funan is a Chinese name (based on the Khmer word for mountain) they prefer to speak of the Oc-eo Culture. Personally, I see no escape from the identification; early Chinese texts describing Funan place it just where the Oc-eo Culture is located at the same time. Others will have to decide what the culture should be called; I shall use

the two terms interchangeably.

Oc-oo is already familiar to most **Margaretologist** readers. It is one of several sites in Southeast Asia to which South Indian glass (and perhaps stone) bead-makers emigrated, lived and worked. The chief products of the glass beadmakers were small, monochrome drawn Indo-Pacific beads, widely spread throughout Southeast Asia and, indeed, from Japan to West Africa. The "mother site" was Arikamedu, in southeast India, often discussed in this journal.

Dong Son Stone Beads and Rings

The remarkable site of Trang Kenh in Hai Phong district is matched by the remarkable work done on the material by Nguyen Thi Kim Dung, who excavated it. Five radiocarbon dates from the site range from 1355 ± 90 B.C. to 955 ± 100 B.C. The layers with artifacts are 1.8 to 2.1 meter thick, but there were no changes in the ornaments or their tools within them.

Trang Kenh is a Bronze Age site and may be considered a workplace for Dong Son ornaments. The raw material was nephrite jade, which is not locally available, and it is not known why this place in the Red River delta near the sea was chosen as the workshop for the ornaments. The ornaments were similar, being cut from flat pieces of nephrite in a circular pattern. Depending upon their size, they are classified as bangles (some flat, and some with round or triangular cross sections), small rings, perhaps for the finger, and disc beads.

The large number of unfinished ornaments and the

wheel was rotated about seven to eight turns a second and pressure put on the drill bit. The motion cut a perfectly circular groove into the disc. Water and water with stone dust were added to the groove to cool the operation and add some abrasive. After drilling about halfway through on one side, the disc was reversed and a groove cut into the other side.

After four hours cutting a nephrite disc a little more than 6.5 mm thick, Dung could punch out the central plug. The outer ring could then be polished or ground to form a bangle. The plug was then reused in the same way to form a ring of smaller diameter. Smaller and smaller rings were thus made until they were no longer practical for wear. The smallest plugs were then perforated in the center with drill bits with a U-shaped tip mounted in a bow drill, making beads.

As Dung put it in a paper not yet published, "The microwear observations on tools, finished nephrite ornaments and waste material from Trang Kenh, supported by experiments, indicate a rather high level of development using quite complex tools for jewelry manufacture in the late second millennium BC in northern Vietnam." She does not claim that all problems have been solved for the ornaments at this site, not even all technical ones, but the ingenious method she has reconstructed is quite remarkable. [all information from Dung 1995, personal communication and Dung n.d.]

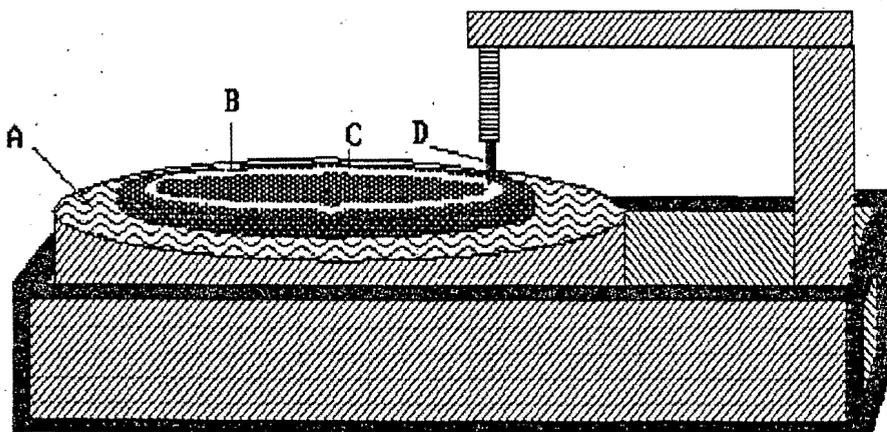
Sa Huynh and the Development of Glassmaking

Outstanding among Sa Huynh objects is a group of ornaments so distinctive that they may be taken as diagnostic of this culture. These include bangles, some with flat cross sections, often decorated with four bud-like protrusions on the outsides, and others triangular in cross section.

These bangles, especially triangular sectioned ones of glass, are fairly common in the Philippines, and Rey Santiago of the National Museum and I often discussed where they may have come from. It is now

clear that Beyer [1947:183], who thought they were Cambodian or Southeast Asian and Fox [1970:139] who guessed South China or Indochina, were not far off.

Smaller versions of the flat bangles with buds or points were made with slots that ran to the center to be used as earrings. A burial at Phu Hoa, Dong Nai province, of the second millennium B.C. now in the History Museum in HCMC had small strings of beads hanging from the bosses on the outside of the earring.



Schematic drawing of simple machine to cut successive rings from nephrite. A is a wooden wheel that turns like a potter's wheel. B is the nephrite disc. C is the groove. D is the drill bit.

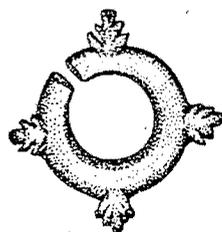
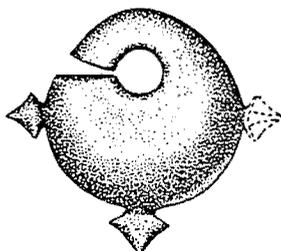
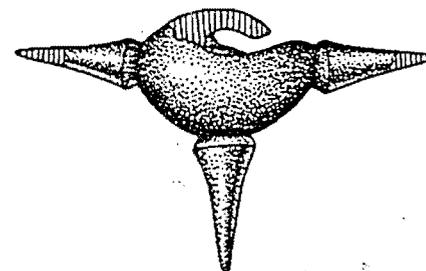
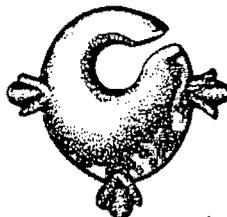
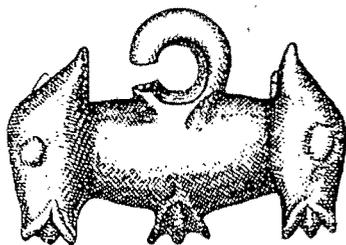
tools used to make them make it certain that this was a manufacturing site. Dung experimented with the tools, particularly jasper drill bits. This, along with microscopic examination of both ornaments and drill bits, led her to understand the method by which the ornaments were made.

A piece of jade was chipped into a large rough disc, which was then polished on both sides (and probably the edge). This was then fastened to a wooden wheel, similar to a potter's wheel. Above the disc was mounted a drill bit with a V-shaped gouge end. The

Another earring distinctive to the Sa Huynh culture has a drop-shaped section, sometimes with elements on top, sometimes with long pointed protrusions, and sometimes rotated to hang by a loop. I have adopted the simplest form as the logo for the Center for Bead Research; while originally an earring, the Ifugao of the Philippines, who make it, wear it as a pendant.

Chi Minh City, (ca. 300 B.C.) in the HCMC History Museum, where a glass one hangs by the side of the head. The identity of the animal is not clear. Fox [1970:128] said the heads were "probably" horses. Suchitta [1984:153] guessed they were calves and Bellwood [1985:276] thought them to be deer.

One or more of the ornaments described above



Various Sa Huynh Ornaments.
At upper left is a bicephalic ear pendant. The others are forms of the *lingling-o* ear pendant.
From Fox 1970.

The literature calls it *lingling-o*, after H. Otley Beyer, who lived many years in the Philippines and married an Ifugao woman [Fox 1970:126; Solheim 1981:44]. However, when I interviewed Ifugao makers, women who had them as heirlooms and the curator of the Kiangnan Museum, they had not heard this name and called them *bung* or *boong* [Francis 1992:6-7].

In sites following the Sa Huynh period, *lingling-o* earrings were made of metal, sometimes using wire to imitate the shape, as at Oc-ao, Vietnam [Malleret 1962:73-4, 81-2] and Chansen, Thailand [Bronson and Dales 1972:40, fig. 12], both of the first millennium A.D. This style is still found in several places today. The Ifugao make them and wear them as pendants and trade them to their neighbors, the Bontoc, Kalinga and Gad-dang, who wear them as earrings. As an earring it is known ethnographically from Java [Malleret 1962:pl. XX], Sumatra [Gerlach 1971:pl. 21.1, 18] and among the "Sea Dyak" (Iban) of Borneo [Roth 1968:68]. On Sumba island in Indonesia a complex gold model is called *mamuli* [Keane 1988]; highly elaborate ones are valued, but are no longer produced [Ibid.:12, n. 8].

A third earring type consists of a thick horizontal bar hung from a central loop with "buds" directly under the loop and identical animal heads on either end. These "bicephalic pendants" have also been called "double zoomorphic-heads." That they were worn on the ear rather than as a necklace pendant is clear from a burial at Giang Phet, Can Go district, Ho

have been found archaeologically in many places in Southeast Asia: Hong Kong [Finn 1958:147], Taiwan [Lien 1991:345-8], the Philippines [Fox 1970:123-39], Thailand [Suchitta 1984:153; Glover 1990:20] and Sarawak [Bellwood 1985:276]. The early ones were all of stone, commonly nephrite jade. In the Philippines, where they are more numerous than anywhere outside Vietnam, shell and clay imitations were apparently locally made [Fox 1970:123-39; Thiel 1986/7:250-8].

Some of these ornaments have a chronological development. Quy [1991:6] indicates that stone bangles, including those with four "buds", are found in the early Sa Huynh period, and the bicephalic earrings only in the late Sa Huynh.

Glass versions of the plain bangles, the *lingling-o* earrings and the bicephalic earrings were all produced in the late Sa Huynh period. The glass bangles have a fairly wide distribution in Southeast Asia, but I know of no glass *lingling-o* outside Vietnam and only two glass bicephalic earrings, both from the Philippines, one excavated at Rito Fabian Cave in Palawan and another found by Beyer in Rizal province [Fox 1970:123-39].

Giong Ca Vo in Can Gio district, Ho Chi Minh City, has produced evidence of glassmaking. In the material excavated is a considerable amount of fritty waste glass. It is black or dark green, doubtless colored with iron. Triangular sectioned bangles of the same color (and some colored purple with manganese) were also found, as were dark green glass rods

Glass versions of Sa Huynh stone ornaments point to glassworking in the Sa Huynh Culture

and drawn tubular beads. Three holes in the ground, each about 80 cm (31.5 inches) in diameter were also found to contain white sand, likely used to make the glass. Giong Ca Vo has been dated to about 100 B.C. [Dung 1995: personal communication]. Bicephalic earrings from Giong Ca Vo were made by joining the

Glassmaking at Giong Ca Vo indicates a Sa Huynh glass industry

five parts (the loop, the horizontal bar, the bud projection and the two heads) after each had been fashioned independently. The bangles were made by expanding beads into rings working at a furnace. The beads are drawn, but are unlike the numerous Indo-Pacific beads on the site, technically and in size and shape. They were cut from rather short tubes of glass, judging from the shortness of stretched air bubbles near their surfaces. After being cut, they were not reheated to round off their sharp ends or had been just barely heated. The beads are tubes, with diameters of about 4 mm and lengths of 8 to 12 mm.

Most other beads were imports, chiefly from India. These include carnelian, onyx, amethyst, garnet and quartz beads, many of them faceted. There were cornerless cubes and collared beads, suggesting importation from India. There were a few etched carnelians with multiple zones, which are probably Indian, but not diagnostic of the North or South.

As I have said, there were also Indo-Pacific beads in cobalt and copper blue, red, dark and light semitranslucent green and opaque yellow. This raises the question of whether Indo-Pacific beads were made in Vietnam at this time or whether the beads at Giong Ca Vo were also imports from India. The latter seems more likely; there was no evidence for Indo-Pacific beadmaking at Giong Ca Vo. However, the fact that glass was already being made and worked into various ornaments in southern Vietnam must have made the later transfer of the Indo-Pacific beadmaking technology easier.

Oc-eo, Funan and the Oc-eo Culture

Without entering the debates over the names of Funan/Oc-eo Culture and the meaning of "state," one observation struck me as significant. The Museum of Oc-eo Culture in Tan An is sponsored by the People's Committee of Long An province, who are dedicated to archaeological work and support the museum well. In the last few years about 100 sites of the Oc-eo Culture have been discovered by the museum, a surprising number for a small province somewhat north of Oc-eo itself. Ten of these have been excavated, and walking into the museum is like walking into an Indian museum. The sites all had Hindu or Buddhist temples, and virtually everything (except the burial practices) reminded me of India.

It had often been said that Funan was Indianized, but the extent of that influence, particularly in the later period (most of these sites are fifth to eighth

century) surprised me. Now, with the understanding that glass was made in the late Sa Huynh period and the extent that Indian ideas and motifs were adopted in southern Vietnam, the immigration of South Indian Indo-Pacific beadmakers is no longer mystifying.

I was able to examine beads from two Oc-eo Culture sites: Oc-eo itself in HCMC and Go Hang in Tan An. I had initially hoped to see all the glass wasters from Oc-eo, as reported by Melleret [1962], but was restricted in time in the History Museum, where mostly beads were given to me to examine, though I saw some wasters. The examination will prove helpful when it is completely analyzed: here I shall mention only two highlights.

Garnets and Gems in Ceylon

Among the Oc-eo material were garnet beads, rough-outs and flakes. Garnets are a tricky subject, and you are invited to read the box on the next page before proceeding.

The Oc-eo material is similar to Arikamedu's. However, there was a clear difference in the relative proportion of garnets. In the 1989-92 Arikamedu excavation we uncovered 227 pieces of garnet. Of them, 219 were of the violet almadine variety. This is found in South India, especially near Kondapalli in Andhra Pradesh. The village has "long been famous" [Bauer 1966:304] for producing it. Kondapalli, along the lower reaches of the Krishna River, is within the Golconda diamond region and agates and carnelians are also found there.

A few garnets at Arikamedu were hessonite (also called essonite or cinnamon stone), a brownish variety of grosserite. There were only eight pieces.

Considering the garnet evidence at Oc-eo and Arikamedu lead to some ideas about Sri Lankan gem mining history

(counting an entry in my notes of "many small" as one) or 3.5% of the total. Since it looks similar to some spinels and zircons, I tested a piece in the Beck laboratory with the fusion test, and it proved to be hessonite. Bauer [1966:350] said "most of the hessonite of gem-quality comes from the cinnamon island of Ceylon," and Warmington [1928:253] said they, "come almost entirely from Ceylon as pebbles," adding that they may have been Pliny's *chryoselectri*. Pliny [Eichholz 1962:269] said these stones, whose name means "golden amber," came from Pontus (north-western Turkey). If Pliny was right, then a source from Ceylon (Sri Lanka) or eastward is highly unlikely. Nonetheless, though there were no other stones at Arikamedu that could be identified from Sri Lanka, I first assumed the hessonite was.

But I no longer do. In the Oc-eo material there were 41 pieces of almadine garnet, but 32 of hessonite, making 43.8% of the total. Could these have been

A FEW WORDS ABOUT GARNETS

There is no one garnet. Rather, there is a "family," more correctly called a "series" or "group" of garnets. All garnets have a physical composition that can be expressed by the formula $3X_2Y_3Z_2O_{12}$, in which X is an ion (usually of calcium, manganese, iron or magnesium) bonded to eight oxygen atoms, Y (aluminum, iron, vanadium, chrome or titanium) is bonded to six oxygen atoms, Z (silicon or titanium) is bonded to four oxygen atoms and O is the oxygen.

Confused? You're not alone. Obviously there are many possible combinations of garnets. There are also two groups of people interested in garnets: mineralogists and gemologists. Although they both agree that there are some "ideal pure" garnets or "species," they don't see them in the same way. Standard mineralogical texts (e.g. Pough 1960:294; Sinkankas 1966:534) refer to six garnet species: pyrope (magnesium-aluminum garnet), almadine (iron-aluminum), spessartite (manganese-aluminum), uvarovite (calcium-chrome), grossularite (calcium-aluminum) and andradite (calcium-iron). Bauer (1966:346), published in English in 1904 omitted spessartite; perhaps it had not yet been discovered.

Stockton and Manson (1985) examined hundreds of garnet samples, including ones from new deposits in East Africa. They proposed a list of eight species. They demoted uvarovite to a variety of pyrope rich in chrome. This left them with five species, which they supplemented with common mixtures; pyrope-almadine, pyrope-spessartite and almadine-spessartite. There are many more varieties, and doubtless many that are yet to be discovered and recorded.

Nor can one tell garnets apart by looking at them or using the standard refractive indices or specific gravities. Chemical analysis is expensive and time-consuming and no one wants to use it on gem stones anyway. Stockton and Manson propose using color, refractive indices and absorption spectra to separate garnets.

Clearly, this is a complex problem. I confess that my identifications of almadine and hessonite must be tentative, based on a few tests and geological knowledge. Incidentally, Stockton and Manson (1985:214-5) note the endings -ine and -ite are both in common use, both understood (you will note the differences used by different people above) and both acceptable. I suppose I am being inconsistent by using almadine and hessonite, but so are most other writers, and that's half the fun.

from Vietnam? The answer is "yes." A mineral dealer I met at the recent Denver Gem and Mineral show, who does a lot of business with Vietnam, showed me hessonite from Lam Dong province which looked very like the Oc-ee material. Lam Dong is in southern Vietnam, in the central highlands, only some 200 kms north of HCMC; it would have been accessible to the Oc-ee people. Of course, one cannot judge on looks alone, and I have not tested the Oc-ee garnets, so the possibility exists that it might be some similar stone, though I think that is remote.

This brings us to the question: Was Sri Lanka producing gem stones early in the current era? Early Greek and Roman writers, from the fourth century B.C. to A.D. 24 (Onesicritus, Megasthenes, Erasthenes, Hipparchus and Strabo) do not mention precious stones from there, only pearls, tortoiseshells (some big enough to use as a roof) and the largest and fiercest elephants in Asia [Francis n.d.]. Pliny the Elder (died A.D. 79) noted that precious stones and pearls were "held in honour" in Ceylon [Rackham 1942:405].

The anonymous Greek writer of the *Periplus of the Erythraean Sea*, a mariner writing in the late first century, said of the island, "Its northern part is civilized, and the passage to it is long, and it is so large that it reaches nearly to the coast of Azania [Africa] opposite. It produces pearls, and precious stones [in the Greek, "diaphanous stones"] and muslins and tortoiseshell." [Huntingford 1980:54]

But, there are problems with this. The northern civilized part is principally the port of Mantai, closely linked with Arikamedu and Oc-ee [see 1988 2(2); Francis 1989a]. Sri Lanka is not nearly as large as the writer supposed. His error was the norm at the time, because all traffic was transshipped through the reefs and islands of "Adam's Bridge," which cuts the Palk Strait between India and Sri Lanka; no one sailed around. Pearls, tortoiseshell and cloth could well have been products of Sri Lanka, but Mantai was also an important trading post and goods could have come from Arikamedu or any of the more easterly marts with which Mantai did business.

The sixth century historian Procopius tells us of the attempt of Justinian I of Byzantium (reigned 525-65) to secure Mantai from the Persians, but was interested in the silk, not the stone trade [Dewing 1929:193]. It was an Egyptian, Cosmos Indicopleustes, writing first-hand about Sri Lanka around 550, who first affirms local mines of precious stones. He was evidently in Mantai, and said the island was divided into two kingdoms, one with the harbor (Mantai) and the other the hyacinth country [McCordle 1897:364]. Exactly what his hyacinth stone was is open to question. Sapphires and amethysts have been suggested; in Cosmos's description it seems to be a ruby. The modern hyacinth stone is a zircon, and only in the last century was it separated from our friend, hessonite.

It looks as though there was no mining in Sri Lanka before the current era. In the first century references to precious stones are ambiguous, because they may have been imported. Only in the sixth century is there

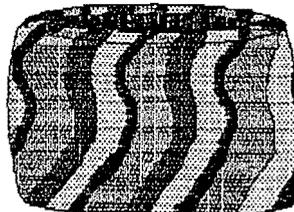
a clear allusion to them. This may be why Arikamedu did not use Sri Lankan stones.

Striped Glass Beads

In his book on Oc-eo, Malleret [1962:269] discussed two different striped glass beads, which he recognized were different, but inexplicably put together (No. 1238 in the text and plates, Museum no. 3539 and new Museum number 2804 -- see what fun this is?). Now that I have had a chance to look at these beads, they can be separated.

The smaller beads with straight stripes are striped drawn beads, products of one of the Indo-Pacific beadmaking sites. Mantai is the most likely source, as it made the greatest variety of such beads.

The larger ones with the twisted stripes are the small versions of what the Indonesians call "pelangi" (rainbow) beads [Adhyatman and Arifin 1993:65-6]. They are assumed to have been made in East Java in the ninth century, but being at Oc-eo, might be a century or so earlier. This is of interest, because the "bird bead," which is found in some numbers in Indonesia is also present in some quantity at Oc-eo. The origin of the bird beads is not yet pinpointed, but we now have examples of two beads matching in these two regions.



"Pelangi" bead

An Unusual Etched Carnelian

The beads I had a chance to examine closely at the Oc-eo Museum in Tan An were from Go Hang, a first century site in Long An province, dated to the first century or so. They included Indo-Pacific beads and a number of quartz and carnelian beads, all of which looked like Indian production.



A side of the large etched carnelian from Go Hang.

The most interesting bead was a large (ca. 1.9 x 5.3 cm) etched carnelian barrel. It had floral designs, two three-leaved figures, one on top of a crescent and the other on a boat-shaped device. The third design is a tree-like motif.

I know of no parallels for the design. Even the size is unusual. Although etched beads of similar sizes are reported occasionally, they are rare, and I know of only a half-dozen. (Forgive me for not listing the references; the bibliography is already too long. If you want them, let me know.) Mystery, mystery.

Conclusion

This brief overview is not an introduction to beads and ornaments of this large and ancient land. Rather, it highlights certain periods with the hope of de-

fining some problems and working toward solutions of others.

Perhaps most notable is the way in which these studies dove-tail into work carried out in other parts of South and Southeast Asia. The common use of lingling-o and other earrings, glass bangles and nephrite jade beads in the Philippines is made clear by the relationship between the archipelago and Vietnam. While some earrings of the Philippines are local productions, their prototypes are from Sa Huynh, and some of them direct imports. I would now also ascribe the hithertofore ambiguous glass bangles and the nephrite beads of the Philippines to Vietnam.

Nephrite beads are an important part of the Philippine bead assemblage and their origin has been a mystery [Francis 1989b:4-5]. The dating of the type collection in the National Museum is being revised, but as it now stands, they make up 0.1% of all beads from the Late Neolithic (dated by Fox to before 700 B.C.), 32.8% of all beads from the Early Metal Age (Fox: 700-200 B.C.; I suggest a later terminus) and 0.3% (1 bead) from the Developed Metal Age (Fox: 200 B.C. to A.D. 1200). These dates fit nicely with the Sa Huynh period. Moreover, two types, small disc beads and long square tubes, some with grooves down the sides or on the end, are seen at Trang Kenh and Giong Ca Vo, respectively. None of the hexagonal tubes or other shapes have been seen, but the manufacturing site of nephrite beads in the Sa Huynh period have also not been identified.

The problems associated with garnets are leading me to believe that the interactions between Arikamedu and Oc-eo were even more complex than had been envisioned. I now believe the source of Arikamedu's hessonite to be Vietnam and not Sri Lanka, which may not have producing precious stones in the early Arikamedu period.

Another clear connection between Oc-eo and this time Indonesia, especially East Java, comes in the form of the small "pelangi" beads now identified at Oc-eo. Along with the "bird beads," they are evidence for trade, perhaps through an intermediary, as the source of the bird beads is not yet identified.

Also outstanding is the discovery of glassmaking and working at Giong Ca Vo. This lends strength to the growing assumption that there were glassmaking sites in mainland Southeast Asia before the arrival of Indo-Pacific beadmakers. It not only makes their immigration clearer to understand, but also explains the origins of glass bangles, earrings and perhaps some beads. It gives me hope that the sources of Ban Chiang (Thailand) type glass beads and objects and some other bead types found in the region will eventually be traced.

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OUR READERS WRITE

Navajo Juniper Seed Beads

Mary R. Musgrove of Des Moines, Iowa, reawakened to an interest in beads by reading Beads of the World, has been writing me in recent months. Among the stories she tells was one I thought was very interesting, and with her permission, I have extracted it for you. It concerns the juniper seed beads used by the Navajo of New Mexico and Arizona:

"The Navajo call them "spirit beads," but most white people translate the Navajo word and call them "ghost beads." The use of these beads appears to be pretty much limited to the Navajo people, and to their reservation. The reason: they are the seeds of the juniper tree that grows in that area. Unlike most junipers, which have two seeds in each little berry, this one has just one seed. They are commonly made into single or double strand necklaces, spaced with seed beads, and with a looped tassel at the bottom. Mostly they are sold by children at regular tourist stops or in camp grounds, price under \$5.

"About 20 years ago we watched a Navajo boy take these seeds out of a pan of water and poke holes through them with a safety pin. So we took home some of the berries and tried it, with no luck at all. One end was much too hard. A year or two later we found the answer in the campground at Natural Bridges National Monument. There was a mouse hole between the roots of a piñon tree and during the winter the mouse had chewed off the hard cap of juniper seeds, eaten the flesh inside, and discarded the hollow shells outside the hole. So these shells of juniper seeds were, indeed, left for the Navajos by an unseen "spirit." And soaking them in water made it easy to pierce holes.

"This type of natural bead seems to be limited to the Navajo, unlike corn, pumpkin, and melon seeds that many Indians use for tourist necklaces (even dyed with aniline dyes), or wild cherry and wild plum pits that I've seen used, but rarely."

Three of the four juniper seed beads Mrs. Musgrove sent me looks as though they had been pierced in just the way she explained: chewed off on one end and pierced through with a needle. However, the other one and most (but not all) of the juniper seeds in a strand sent to the Center years ago by the late Elizabeth Harris appear to have been worked with a tool, which cut across both tips of the seeds to open them.

Are both methods in use? It would take a lot of seeds to make many necklaces, and that would mean finding a lot of mouse nests if nature alone is going to do the job. Does anyone have any more information?

After the letter quoted above, I wrote Mrs. Musgrove to ask permission to reprint this story. She kindly agreed, and asked me to append this note:

"Please add a strong warning: In that area mice are carriers of the hanta virus, which has been fatal to a number of people who handled articles contaminated by mice. There is no way to know whether juniper seeds near mouse nests have been contaminated, so for the present it might be dangerous to pick them up.

My daughter [in Colorado] has told me there are also warnings against picking up piñon nuts."

So, what does this mean to collectors who may want a string of juniper seed beads and piñon nut beads? Does anyone have any ideas?

Cornerless Hexagonals and Cut Blues

I have heard from several readers on this issue; most like the idea of using "Cut Blues" to describe these beads [Issue 19, 8(1):11-12]. One did not.

From Karlis Karklins: "I believe that the terms we develop and use should be as descriptive and accurate as possible. To me 'tubular, cornerless hexagonal' is exactly that. 'Cut blues' is extremely vague as this could cover any bead that exhibits grinding (this includes molded and 'mandrel-pressed' beads) and is restricted only to blue specimens. The fact that some people find my term too technical does not render it useless. God knows where we would be if we had to change terminology every time someone rolled their eyes when a term with more than one syllable offended their ears. Serious bead researchers must strive to come up with meaningful, descriptive terms and not try and be crowd pleasers. If we do not do this, we will be taking more steps backward than forward."

Quite right. However, "Cut Blues" was not offered as an alternative for scientific classification. My concern was the erroneous "Russian," which is very misleading for many people. This is not to ignore scientific classification; Karklins' term is better there. But in the vernacular I don't see Cornerless Hexagonal ever replacing Russian; maybe Cut Blues will.

Of course, they are not all blue, but I added the color (taken from Russian Blues) because "cut beads" can mean many things, even beads not ground e.g. "two-cut seed beads." Karklins used Cornerless Heptagonals and C. Octagonals; my error.

We have subsequently discussed this and I think he sees my point; whether he agrees with me or not, I am not sure. But, he did end his letter with: "And to show that I harbor no hard feelings toward the man who heartlessly attacks my near-perfect and creative terminology [I am renewing my subscription]."

Most disturbing was what he said about the wonderful picture of the "manilla" wreck [correct citation: Mendel Peterson 1977 Reach for the New World National Geographic 152(6):724-67]. Karklins (1991, not 1984) was the principal investigator of those beads. The picture has white "Atlas beads," made of a satiny glass, drawn into a pentagonal tube and ground at the corners -- cornerless pentagonals. These are known to be Czech, dating as early as 1800. On the "manilla" wreck, they would date to ca. 1750, substantially before Cut Blues, and I cited them as evidence that the Czechs were making faceted drawn tubes ground at the corners a long time ago.

Alas, Karklins knows first-hand that these beads were not found with the Bermuda "manilla" wreck. They were apparently just added to the pile of beads for the photograph. The moral? Believe nothing of what you hear and only half of what you see.

THE MARGRET A. CAREY "GOTCHA" AWARD

Margret herself writes, "The Gotcha award is one way of ensuring Margaretologist gets carefully read?" No, but that's not a bad idea. I have always known I am a poor speller. The indignity of being knocked out early in a spelling bee or given a "-" on an otherwise good paper "for spelling" has plagued me all my life. (Not to mention Beads of the World.) I knew it was not laziness, as some teachers said. I know now it is a form of dyslexia (hope I spelled that right!). It was ironic that the year I spent in Spain (1971-2) I decided to write rather than paint. Had I chosen the latter, I might be making beads now.

Computer spell-checkers are great for me, but they don't catch everything. Foreign words are especially hard (as are numbers). But computers have their problems, too; this desktop publisher eats letters and does other odd things. Anyway, I stumble on.

Margret Carey wrote in June: "When I saw this on the inside cover page of Margaretologist #18, I didn't quite know how to react --'What cheek!' fought with a feeling of smugness at this indicator of Fame at Last in U.S.A." Well, I warned her when she left my house last year. I am tempted to add that The Margaretologist should be underlined and both the title and the U.S.A. require the article in front (Gotcha, Margret).

She wasn't sure if she was eligible, but, of course she is. (Now may be the time to publicly thank her for all the other proofreading she has done for me.) She wins hands down for issue 18, 7(2), and is strongly in the running for issue 19, 8(1), but has competition. I greatly appreciate her efforts (and that of others) and the chance to make so many corrections. The Margaretologist will never be perfect, but with the help of readers, we can at least make it better.

From this issue, you will have only until the next issue to send in corrections (but still until next issue for #19). This will be easier for readers to follow. Remember the rules: Spot a typo and get a point; spot an error of fact and get three points. The reader with the most points gets a bead sample card.

CORRECTIONS FOR-ISSUE 18, 7(1)

[first number is page, c is column, p is paragraph followed by a colon indicating line]

2 c1 p5:7 explain

3 c1 p5:5 Mendoza

3 c1 p 2:2; 4 c2 2:4, 3:1 Latin binomials should be underlined or italicized.

c2 p7:12 Fejérváry-Mayer

5 c2 p5:3 Tenochtitlan

6 c1 p3:6 Selden

(Selden is misspelled elsewhere 4 c1 p4:4, 7)

6 c2 p3:1 hypothesis

7 c2 p1:2 Ramirez

8 Anders Ixtlilxochitl

9 c2 p3:6 shells

12 c1 p2:3 principles

p4:5 One is

p6:1 Margret said "There are," but it would be better to change "steps"

14 c1 p1:1 Christraud

Changes to the bibliography on page 9, by codex:

Baranda - Antigüedades

Borbonicus - Bibliothèque

Borgia - Nowotny

Pátzcuaro - Rubí

Rios - Stabilimento

Tlaxcala - Antigüedades

Ramirez

Selden

Total points: 24

She also noted that Codex Rios and Vaticanus 3738 are the same and that Códice is Spanish for "Codex" I knew those things, but didn't think it worth pointing out the first and used the Spanish original when it was in the title. Thanks, Margret.

MORE ON BEADS IN THE CODICES

In the new Codex Borgia (see Sources) Byland's commentary helps resolve two images I mistakenly identified in issue 18 [7(2):figs. 3, 13].

They are in a series of 25 on pages 58-60 of the codex. Byland writes, "In my opinion the best interpretation of these pages yet offered has been made by Peter van der Loo (personal communication). He has suggested that they represent a sort of numerical prognostication of the success of marriages."

In ancient Mexico people were named for their birth days. Each had a number from 1 to 13 and one of twenty day signs (alligator, wind, house, etc.). Adding the numbers of a couple's names make 25 combinations from 2 to 26, shown by the dots below the couples. A sky sign above and the panel as a whole shows their fortune.

A sunny sign means bliss; a cloudy one, trouble.

In fig. 1 they are fighting. The woman holds a chain of beads around the husband's neck, who is attacking her. It is all cloudy. In fig. 2



Fig. 1.

the man has the sun, but the woman the cloud. Both are wearing vulture? masks and eating beads, for a reason not immediately apparent. That these are beads is suggested from coming from turquoise pots and being colored green.



Fig. 2

SOURCES

Díaz, Gisele and Alan Rodgers (intro. and commentary by Bruce E. Byland) 1993 The Codex Borgia Dover, New York. xxxii + 76 color plates. \$14.95.

Dover has done it again. There are only two reproductions of Mexican painted manuscripts in print and easily available, and Dover publishes them both (The Codex Nuttall is the other one). They are a feast for anyone interested in pre-conquest Mexico and they are full of beads, costumes and ornaments.

Díaz and Rodgers carefully redrew the pages to record (or restore) as much of the information it contains as possible. Byland's commentary is concise, yet rich and helpful. Several readers have said they liked the article on beads in the codices. This volume (and Nuttall) belong on their shelves.

Kock, Jan and Torben Sode 1995? Glass, Glassbeads and Glassmakers in Northern India THOT Print, Vanlose, Denmark. 32 pp. (inc. covers). \$10 + \$12 (for U.S.)

I am reviewing this fine, well-illustrated book for Beads 6, so will only say here that it is the best treatment to date of this important industry and an update to my earlier work. I shall see if I can't import it to make it less expensive for American readers.

Lapidary Journal 1995 The Bead Annual (October) 49(7) 234 PP. \$3.95.

I haven't had time to read everything in it, but as usual it is beautiful. This is the third and the biggest of their Bead Annuals. There is an emphasis this time on glass beadmaking.

True to form, there are many bead articles, how-to-do pages, great ads and wonderful pictures. Lapidary Journal now runs so many bead articles that the monthly is as important to bead people as Ornament. A subscription is in order (even though for the third year running and after several calls, they still have the Center's phone number wrong).

Liu, Robert K. 1995 A Universal Aesthetic: Collectible Beads Ornament, Inc., Vista CA. 256 pp. \$49.95.

The long-anticipated first book by the world's premiere bead photographer is a sumptuous offering. No one does it better, and many beads are shown individually so one can savor their beauty.

There are some minor problems. There are errors in citations, dates and geography. Trying to look up a reference is frustrating, as are misnumbered references to other pages in the book. The text is not as rich as the plates.

I suppose my biggest misgiving is the emphasis on the value of ancient beads. Pointing out how prices have skyrocketed is arguably a function of a book on beads as collectibles. But, how much will this influence future (and present) collectors? Liu is uncomfortable that ancient beads can only be gotten by

looting sites. He discusses it often and even indexes "looting." But, the rationale that the harm is done, someone would buy the bead anyway and one person's refusal to buy beads does no good (p. 87) is shortsighted. Better that influential writers like Liu state outright that it is illegal (he does) and should not be done. We should take pride in the cultural heritage of the world and do our best to preserve it. It worked for elephant ivory. Why can't it work for antiquities?

Loveland (Colorado) Museum/Gallery "Contemporary Beads and Beadwork: Innovative Directions" September 2 to November 26, 1995. Entrance Free.

A wonderful and fun show. I was honored to speak the day before the official opening with Kathryn Moss. The reception was enlivened by a clever touch: a beaded and bespangled belly dancer!

Showcased are contemporary beadmakers and beadworkers: Larry Fuente, Joyce Scott, Dan and Eve King Lehman, Patti Walton, Virginia Blakelock and many others. It is truly a treat. (See the review in the 1995 Lapidary Journal Bead Annual, pp. 16-18.)

To add to the festivities, the Museum/Gallery had children, senior citizens and local artists make what are most likely the biggest beads ever made to grace the entrance and foyer of the Museum. There was also a table full of colored macaroni and strings so that people could make their own souvenir necklaces.

If you get a chance -- go.

ELIZABETH JANE HARRIS

1914 - 1995

Elizabeth was one of my first and best bead friends. She followed me around the globe by letter, always willing to do something for me and advance the cause of bead research.

Many memorials have been written to her. Most have emphasized her generosity, one of her endearing traits. She constantly shared her time, her expertise and her collection with one goal in mind: to further the knowledge of beads.

Elizabeth was a doer. For years she was a major contributor to the Bead Society Newsletter, though usually anonymously. She was a staunch supporter of the Bead Museum and edited its Quarterly through its formative years. She took on any task for the Bead Society, including the demanding one of librarian. She was one of the first believers in the Society of Bead Researchers and its secretary for the early years. She was the only life-time honorary member of the Center. She produced many articles and letters for Ornament, and three books.

Many of her contributions were done quietly. She was selfless to novices and advanced collectors alike, unsparing in her hospitality and even magnanimous in her support of bead research.

She will be badly missed. The many lives she touched and field of bead research will be the poorer for her passing. Rest in Peace, at last.