

In the 1950s the government tried to start a glass bead and bangle center in Gudimallam, 3 kms (but a long walk) away. There is not even a trace of an industry now; perhaps the social system prevented any interfering government factory from being successfully launched.

Anyway, back at Papanaidupet, the workers who were paid \$.99 a day were forced to pay 9 cents of that to the furnace owner (120 rupees per month divided by two teams). The strike was settled when the four trading houses agreed to pay the monthly rent to the furnace owners.

I visited Papanaidupet during and after the strike; afterwards work was going at double speed. Tube drawing which usually ceases at dawn was continuing until noon. The bead village is back in business.

#### **15. CENTER FOR BEAD RESEARCH ESTABLISHED, by Peter Francis, Jr. (1985, 6:6-7)**

The Center for Bead Research has been established in Lake Placid, New York. It is designed to serve as a repository of information about beads of all kinds and is open to scholars interested in any aspect of bead research.

The resources of the Center are a library of over 3,000 references, a photographic collection of over 2,500 prints and slides from public and private collections around the world, and a study collection. At the core of the study collection are examples obtained from excavations or directly from beadmaking centers with known provenances which may serve as references for scholarly investigation.

The activities of the Center include a publication series, *Occasional Papers of the Center for Bead Research*. The first monograph in the series, "A Survey of Beads in Korea," has now been published and several others are being planned. In February 1986, the Center will sponsor a bead tour of India which will visit museum collections, archaeological sites of past beadmaking centers, and the modern centers of Cambay, Purdalpur, Firozabad, and Papanaidupet.

Among the ongoing projects of the Center are the building of a computerized data bank of the literature to facilitate access to this information and the review and monitoring of periodical series in history, archaeology, anthropology, and other relevant fields to identify material on beads. Over 80 such periodical series have now been completed and are being monitored; others are designated for review. In the future the Center hopes to hold seminars and workshops on various problems related to bead research and to sponsor other tours of important beadmaking and bead-using areas.

#### **16. A BIT MORE ON THE CORNERLESS CUBE, by Peter Francis, Jr. (1986, 8:8-10)**

The note by Peter Schienerl in *The Bead Forum* (7:8-9) about the green stone cornerless cubes used as amulets by Egyptians, Bedouins, and Palestinians brought to mind a similar bead encountered in Iran. Like those described by Schienerl, they are of a green stone, found individually, and show heavy wear; they may have been worn as amulets in Iran as well. Among beads in my collection from Egypt are two "imitations" of these beads. One is a deep green glass wound bead pressed into the cornerless cube shape; the other is a bloodstone, which appears to be modern Cambay in origin.

The green stone appears to be jasper. Like agate, jasper is a crypto- ("hidden") or micro- ("tiny") crystalline form of quartz. The crystalline form of quartz includes rock crystal, smoky quartz, and amethyst. Chalcedony, including agate and carnelian, has a fibrous microcrystalline structure, while jasper has a granular microcrystalline structure. Bloodstone is a combined form of the two with a chalcedonic green base and red jasper flecks through it. Bloodstone is currently mined at a few spots in Gujarat, India (Tankara near Morvi and in the Little Rann of Kutch). Bloodstone cornerless cubes are exported from Cambay today, often on strands mixed with other types of agate beads. The earlier beads, however, were not bloodstone but green jasper.

The only dated green jasper cornerless cubes I have noted are in the National Museum in Tehran, Iran, displayed with material from Susa from the Sassanian Period (A.D. 224-642). It is difficult to know how much trust can be put in these museum displays; Tehrani dealers bragged to me how they had sold the museum this or that necklace from such and such a site. I have written about this problem in Iranian museums before (Francis 1979:44).

In Iran cornerless cubes of green jasper, carnelian, quartz crystal, hematite, lapis lazuli, and pyrite are known. The pyrite is interesting, as one source for it is near Ratanpur (the source of most stones for the west India bead industry), and it can occur as natural cornerless cubes in its crystalline form.

As far as cornerless cubes in general are concerned, the earliest example that Beck (1928:17) noted was of blue glass from the Crimea in the 5th century B.C. While this date may be considered the beginning of general popularity of these beads, earlier examples are recorded. Two cornerless cubes, one of gold and the other of glazed steatite, were excavated from the upper levels at Mohenjodaro by Mackay (1938:516; LXXXII.5, CXXXIV.2). A lapis lazuli cornerless cube was found at Tall-i-Bakun, a

chalcolithic site in Fars, Iran, generally dated 4500 to 3500 B.C. (Langsdorf and McCowan 1972:84.17). At least one lapis lazuli cornerless cube was found in the Royal Grave of Queen Shub-ad of Ur, ca. 2500 B.C.; I know of no published references to it, but it is on display in the Archaeological Museum of the University of Pennsylvania.

After the Harappan examples, cornerless cubes in India appeared in carnelian and quartz crystal between 400 and 300 B.C. at Taxila in modern Pakistan, Tilaurakot and Vasaili in the Gangetic Valley, and Peddamaru in the south (Andhra Pradesh state). Quartz crystal, agate, shell, red jasper, shale (!), glass, and faience cornerless cubes were found at Taxila, Bagor (Rajasthan), Achchhatra and Kosambi (the Gangetic Valley), Nevasa and Navadatoli (in the Deccan), and at Peddabunkur (Andhra Pradesh) throughout the Early Historic Period.

The cornerless cube shape is amuletic at least in modern Gujarat, India. Small silver cornerless cube beads are strung with black glass beads on a chain and worn by both men and women for good luck. They are relatively expensive (10 or 12 times the minimum daily wage for a man) and are often the only form of jewelry that men wear. The Todas of the Nilgris Hills (Karnataka state) wore large (probably hollow) silver cornerless cube beads at the beginning of the century; I believe there is a picture of a couple wearing them in Thurston and Rangachari (1909).

## References Cited

### Beck, Horace C.

1928 *Classification and Nomenclature of Beads and Pendants*.  
1975 reprint. Liberty Cap Books, York, Pennsylvania.

### Francis, Peter, Jr.

1979 Bead Report I: Iran, Part 1 A. *Ornament* 4(1):44-46.

### Langsdorf, Alexander and Donald E. McCowan

1942 *Tall-i-Bakun*. University of Chicago Press, Chicago.

### Mackay, E.J.H.

1938 *Further Excavations at Mohenjo-Daro*. Manager of Publications, Delhi.

### Thurston, E. and K. Rangachari

1909 *Castes and Tribes of Southern India*. 7 vols. Government Press, Madras.

## 17. MULBERRIES AND TWISTED SQUARES: SOME QUESTIONS, by Peter Francis, Jr. (1987, 11:8-12)

Although much has been learned about glass trade bead origins in the last decade, large gaps remain, and I wish to draw attention to one. Here I link two well known bead types, though whether they share a common origin is not possible to say yet. Both are known by various names in the literature. One is called a mulberry or raspberry bead (Kidd WII; Beck XXV.A.3.b; Roundtable 469), while the other is called a twisted square, a pentagon bead, or a faceted "five sided" bead (Kidd WII; Beck XIX.A.4; Roundtable 225). Since I believe we should give priority in nomenclature to the earliest name for a bead (Francis 1980), as is common in scientific fields, I refer to these as mulberries and twisted squares.

I group them together for several reasons. Both are wound beads further manipulated into shape (exactly how the mulberry beads were made is being studied; I would appreciate suggestions). Both are made of translucent glass, and all mulberry colors are found in the larger group of twisted squares (Kidd and Kidd 1970:85), to which may be added a deep gold-red. Their distributions in America are very similar, and the few analyses made suggest the glass is similar (Karklins 1983:123, 125).

At first these beads were thought to be ancient; Beck (1928:17, 27) listed them both as "Egypt, Roman Period." Although a strand of twisted squares is displayed in the Cairo Museum, to my knowledge neither type has been excavated from any ancient site, although different mulberry beads may have been (Eisen 1930:37-38). Both types are found in Indonesia (van der Sleen 1975:99-101), and I have examples bought in Iran; the twisted square is known in Egypt, Turkey (Fenstermaker 1985), Sarawak (Beck 1930:127), West Africa (Connah 1975: bead category 29), etc. Two mulberries excavated by Jean Aigner of the University of Alaska, Fairbanks, at Reese Bay, Unalaska Island, were brought by Russians between ca. 1759 to 1806 (Francis n.d.). Judging from this scanty data, both types are probably widely distributed.

In the contiguous U.S., they are found mostly along the Mississippi up to the Great Lakes, as well as Mississippi tributaries and along the Alabama River (Brain 1979:127-130). They are also found in the Northeast, as on Seneca sites (Wray 1983:45). Chronologically, Quimby (1966:86) noted their abundance in his Middle Historic Period (1670-1760). Brain's citations for five types of twisted squares (types WIIA1-5; WIIA6-8 are different) all have terminal dates between 1825 and 1833. Their *terminus a quo* are between "about" 1650 and 1700 (Brain 1979:110-111).