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The MARGARETOLOGIST

Middle Eastern Glass Beads: A New Paradigm

Quick reference chart to Middle Eastern glass beads

Hellenistic World/Egypt	Mesopotamia/Syria/Levant
	2500 BC - Glass invented in Mesopotamia; beads virtually the only product
14th century BC - glass beadmaking at Tell el Amarna, Egypt	1500 BC - Whole repertoire of decorative techniques and maybe folding, (especially at Nuzi). Crude mosaic vessels
6th century BC - Greeks establish glasshouses in Black Sea colonies.	
3rd century BC – Rhodes making segmented beads, including gold-glass, and single-strip folded	
332 BC - Alexandria founded; it becomes the center for mosaic and gold-glass manufacture.	In time, work shifts to Tyre and Damascus. All beads were furnace-wound and continued to be so down to the present.
By the 1st century AD - Segmenting (including gold-glass), piercing (for mosaics), fusing (for mosaics) and folding are well established in Alexandria Agate glass also begins at this time, perhaps at Thebes	Syrians using mosaic canes for eye decorations on wound beads
By the 4th century AD - Double strip folding; piercing and folding	
640 AD - Arabs take Alexandria and the city goes into decline; focus shifts to Babylon/Fustat/Cairo	
7th century - mosaics, at least for eye bead decoration, and segmenting shifted to Fustat (Old Cairo; founded in 674; perhaps at Babylon before this).	
10th century - Fortified Cairo was founded in 968 and made the capital in 975. Fustat Fused Rod beads; torus folded beads (where made?) Technology transfers to Southeast Asia (Srivijaya, Sri Lanka), Viking lands and probably Spain.	Syrians making "big blob" bead decoration
1168 - Fustat destroyed. Egyptian glass beadmaking disappears.	1124 - Tyre captured by Venice; workers shift to Armanaz and Hebron
16th century - last of torus folded beads	1402 - Damascus captured by Timor; takes beadmakers to Samarkand.
17th century - last segmented and gold-glass beads (in Spain).	

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Through the Eye of a Needle

This is not the first time an issue has contrasted old with new. The focus of this issue is a problem that I have been wrestling with for more then twenty years. I became interested in beads while teaching English in Iran in the mid-1970s. Among those that fascinated me were Middle Eastern glass beads. Since they were so widespread and the region has been excavated for such a long time, I assumed that a lot would be known about these beads. I was wrong. They were as misunderstood as any bead.

In 1988 I embarked on a program to study them. I have rarely published anything on them; it is only now that I feel I have something to say. Popular works often discuss these beads, but they offer no real information on them. Archaeological reports slight beads more often than not.

What was required was first-hand research into the literature and scientifically excavated collections. The most critical element has been the excavation at Berenike, Egypt. The breakthrough came when I was just *thinking* earlier this year while in India. All the data I had gathered over the years began to fall into place. When I returned, I tested my hypothesis against what others have said and a coherent picture emerged.

As for the "new" side of this issue, you have been reading about The Bead Site for a few years. What is now new is the fuller integration of the site with our business and research. Page 12 outlines these changes. Our web presence brings the story of scientific, humanistic bead research to an ever-expanding global audience.

It also has many benefits for our members on-line. We shall begin a "hot news" email for *you only* to keep you up to date on breaking news, including Fakes and Frauds.

Credit card holders may now renew memberships and buy books. We have added The Bead Auction and the World Bead Chain. Even this page has changed. It is far more effective to have my lecture and research schedule on The Bead Site (*Events*) than have it be outdated here.

As the world continues to be integrated and tied together through the Internet, so shall we. There has never been an opportunity like this and we are going to take full advantage of it.

And, yes, this is the second issue in a row without a graphic of some sort on the cover. However, many people told me how useful a similar chart was on the last issue, so I thought I'd try it again.

- BEAD EXPO 2000 is March 22-27 in Santa Fe, NM.
- If you would like to write for The Bead Site, let me know.
- **Want to take a Bead Tour?** Where? When? We will tailor tours for you and small groups. Contact me.

From the Home Page at www.thebeadsite.com click on Galleries (left side) to see the color plates for *Margaretologist* 12(2).

Calendar

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The Margret Carey "Gotcha" Award goes to the person who spots the most errors per issue. One point for a typo, two for an error of fact. The award has been extended to The Bead Site.

Middle Eastern Glass Beads: A New Paradigm

In the Western world, nothing so dominates the vision of the historical past as the Roman Empire. This has been as true with beads as with any field. Not long ago, nearly any complex glass bead was routinely called "Roman," even chevrons and Venetian millefiores.

There have been some exceptions, but they are just as mindless. In some cases, "Phoenicia" plays this role (Francis 1985). Since I began publicly identifying many older beads as Early Islamic, some writers have taken to using that as the default origin for any beads that they have not really studied. None of this is very helpful.

Several years ago I began a project that in my mind has been labeled MEG-P, not for an old girlfriend, but Middle Eastern Glass (Beads) Problem. I first announced this as a "keystone project" in this journal in 1994 and have been working on it since.

The P for Problem turned into Project and has now become Paradigm. There may never have been an old paradigm (unless blindly labeling a bead "Roman" or whatever is a paradigm), but we now have one, at least a hypothesis about these beads.

What follows is a summary of what I have learned about these beads from the literature and by cataloging archaeological sites. The literature is referenced, but I do not reference sites I have catalogued: the Roman levels at Quseir al-Qadim (Egypt) and Aqaba (Jordan), Early Islamic levels at these two, Nishapur and Siraf (Iran) and Fustat (Egypt) as well as importing sites in South and Southeast Asia.

The most important site for this study is Berenike, Egypt, where excavations and my work on the beads continue. It was the major Red Sea port for India, Africa and Arabia from 275 BC to the sixth century AD, spanning the Hellenistic, Roman and Coptic periods in Egypt.

Beadmaking Centers

Glass was invented in Mesopotamia (modern Iraq), but when our period of study opens (*ca.* 350 BC) it was no longer a major center. Egypt was making glass beads and beadmaking was going on in Greek colonies, though perhaps not in the homeland. The third center of interest is the eastern coast of the Mediterranean, now occupied by Syria, Lebanon and Israel.

This region has been given many names. Phoenicia was the area of the city-states of Tyre, Sidon, Byblos, Arwad and Ugarit. The first two were glassmakers, and Tyre was a beadmaking center. "Phoenicia" is Greek meaning "red-dye people" and first appears in the Greek New Testament. For several reasons, I avoid it here.

Some refer to "the eastern industry" (Egypt being the western), but this is confusing. The Levant (*land of the rising sun*) is proper, but now seems old fashioned. The ancient name for the area (including Jordan) was *Syria* and I retain that. Remember: it is more extensive than the modern country bearing that name.

The Syrian industry was likely an outgrowth of the Mesopotamian. It continued the tradition of making glass beads by furnace-winding. We do not yet know how much furnace-winding was practiced in Egypt, but in the early levels at Berenike (3rd C BC to 2nd C AD; tabulated through 1998) there were only eight wound glass beads, compared to 34 glass beads of other types and 38 faience beads (n=106).

The Greek Connection: Rhodes

The Greeks are not thought of as major glass- or beadmakers. Because of their

expansion, beadmaking in Greek areas may not have been done by people of Greek descent. We know the Greeks established at least one glass house on the shores of the Black Sea, but information about it is still sketchy.

Beads were made on Rhodes. The easternmost Aegean island was not *politically* Greek; it always strove to preserve its freedom. Alexander the Great conquered it, but after he died the Rhodians reasserted their independence. However, it was *culturally* Greek and became the most wealthy and influential city of the Hellenistic world. [*Hellenistic* refers to Greek-speaking or inspired people, most often, and exclusively here, in the post-Alexandrian era, after 323 BC.] Rhodes coinage and maritime laws were widely adopted and it was (for 56 years) home to the Colossus, one of the Seven Wonders of the World (which did *not* straddle the harbor entrance as often depicted).

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The Hellenistic world was a major contributor to bead technology.

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In 1967, a resident of the city of Rhodes digging for a foundation found the ruins of an ancient glassmaker's house containing scrap glass and some 10,000 beads. This is the only known glass factory of its age. Precise dating was difficult, but the pottery and coins were Hellenistic, third or early second century BC. (Weinberg 1969)

There were furnace-wound beads: round, crumb, melon and stratified eyes and pendants (heads, dolphins, birds and vases). There were small (down to 2 mm in diameter), drawn, short cylinders, similar to seed beads. Mosaic "bull's eye" canes were used for eye beads and there were also mosaic beads.

The outstanding beads were *segmented*, made by constricting a tube along its length and cutting the resulting bulges apart. One type was especially complex. It was made from two glass tubes, the thinner one covered with gold foil and slipped inside the wider one before segmenting and cutting. These are *gold-glass beads* (about a half dozen other names have been proposed for them). Neither plain nor gold-glass segmented beads are known earlier.

There were also *single-strip folded beads* made by heating a small plaque or piece of glass and bending it around a wire, fusing the opposite ends where they met. Except for a reported use at 14th C BC Nuzi, Iraq (Vandiver 1983:242) no earlier folded beads are known. The method may have been used at Nuzi (only for spacers) and then forgotten. Nuzi glass is in such poor condition that it is difficult to confirm this.

Alexandria, Egypt

The other important Hellenistic city was Alexandria. Founded by the young general in 323 BC, the successor Ptolemaic dynasty built it into the greatest port and most beautiful metropolis of the Mediterranean. It housed one of the other Seven Wonders, the Pharos (lighthouse) as well as the world's largest library, Alexander's mausoleum, two obelisks (*Cleopatra's needles*, now in New York and London) and other magnificent buildings. It was a center for Jewish, Egyptian and Greek intellectual society and the place where the Bible was translated into Greek (the *Septuagent*).

Alexandria was also a glass beadmaker. Since the last century, attempts to excavate the ancient city have been made, but it is very difficult because the modern city (al-Iskandaria) is atop the ancient one. Only rarely have excavations been carried out. At the First International Congress for the Study of the History of Glass, Gladys Weinberg asked Donald Harden whether we really knew Alexandrian glass. His answer: a succinct "No." (Harden 1959:59)

There is, however, literary evidence. In *Geographia*, Strabo (*ca.* 58 BC to 24 AD)

wrote, "I have heard at Alexandria from the glass-workers that there was in Aegypt a kind of vitreous earth without which many-coloured and costly designs could not be executed..." (Jones 1941:273). The word translated as many-coloured was πολυχρωμα or "polychrome." This may or may not refer to mosaic glass, but the addition of "and costly" suggests it.

Harden (1967) puts the earliest mosaic glass production at ca. 1450 BC in Mesopotamia, in the form of vessels, not beads. He further assumed that glassworkers brought the technique to Alexandria shortly after its founding:

> The mosaic principle was in use from time to time since the 15th century B.C. for making vessels in Mesopotamia, and we may be sure, from this, that it was from Mesopotamia that the Alexandrians derived this method of manufacture; but it seems, curiously, to have died out then in Mesopotamia itself.... That this development at Alexandria had happened by the end of the 3rd century BC at latest is certain.... Thereafter the production of mosaic vessels in Alexandria flourished.
> (Harden 1969:62-3).

Thebes, Egypt has also been suggested as a producer of mosaic glass. The anonymous author of the *Periplus of the Erythrean Sea*, (mid-first century AD) tells us that goods exported to Adulis (modern Zula, Eritrea) included "millefiori glass of the kind produced in Diospolis." (Casson 1989:53) Diospolis, *City of Gods*, was the Greek name for Thebes.

The word Casson translated as "millefiori glass" is μορρινης, or "myrrhine," which has a long, complex history of people trying to figure out what it was. Pliny said it first came to Rome (from India) in Pompey's time and that an ex-consul was so fond of his myrrhine drinking cup that he would gnaw at the rim. Even so damaged, it was still valuable. Competition heated up for the material and finally Nero beat everyone out by paying a million gold *sesterces* for one. Tongue firmly in cheek, Pliny remarked, "That one who was acclaimed as a victorious general and as Father of his Country should have paid so much in order to drink is a detail that we must formally record." (Eichholz 1962:177-81)

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Alexandria made mosaic glass and perhaps Thebes made agate-glass

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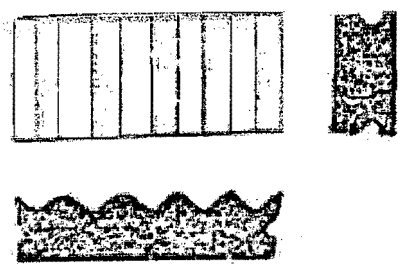
While some question whether Thebes made glass or just sold it, (Trowbridge 1928:231, 436), Casson (1989:111-2) is probably right that the *Periplus* is not talking about real myrrhine but an imitation, as it was an expensive import for Rome and not an export. As he says, the consensus is growing that myrrhine was fluorspar/fluorite (how else would the ex-consul manage to damage it with his teeth?). In that case, the imitation is not millefiori but what I call *agate-glass*, combined opaque white with translucent dark blue and/or amber-colored glass. This was popular for a long time and we have no other hints where it may have been made.

To return to Alexandria, the other glass for which it was famous was gold-glass, as vessels and beads. The only excavation to uncover beadmaking evidence was the Polish campaign of the 1970s. In addition to wasters of segmented and gold-glass beads, stone blocks with rows of grooves on top were found. Along these grooves a warm glass tube was rolled to segment it. (Rodziewicz 1984: 241-3, pl. 72)



Stone mold for segmenting beads, top and two side views. Rodziewicz 1984:pl. 72.364.

Various means of making segmented beads had been proposed (Francis 1989:28). Edward Hill, an English glassmaker, was closest to the mark. He said to me, "If I were to make beads this way I would try to do it efficiently by constructing a wooden frame strung with wires it to crimp the tube." (1988, pers. comm, paraphrased). This is conceptually the same as the stone molds found in Alexandria.

Mosaic glass beads were made using several techniques. They all began as mosaic canes, which were cut up and formed into beads. Short pieces were *fused* together side-on to display the design. Complex canes were heated and *pierced*. Sometimes the glass was so long it was *pierced-and-folded* up the wire. Others were *single-strip folded*, and still others made by joining two pieces around a wire and fusing the ends *(double-strip folding)*. All these methods have been documented at the Hellenistic levels of Berenike except (to date) piercing and double-strip folding. They may turn up in future. All are found in the Roman levels.

Berenike also shows us that mosaic canes were formed into beads in different ways. The most common cane had a white core with blue stripes. It was made into beads by piercing, single-strip and double-strip folding. A cane with eyes and "lashes" (lines along the cane that radiate when the cane is flattened) was treated in several ways as well. We shall probably find more examples of these in future campaigns.

This variety of beadmaking methods suggest that glassmakers were not always (perhaps never) beadmakers. Canes made in glass factories could be sold to smaller installations to be turned into beads, each beadmaker using his own technique.

It is notable that there are no wound beads decorated with canes in Europe until the first century AD (Venclová 1983:12; confirmed at Berenike). Apparently Egypt didn't sell them to Syria earlier than that. Stratified eye beads, which do not use such canes and are more time-consuming to produce, quickly declined in popularity after the introduction of cane eyes,

In conclusion, the Hellenistic period was one of great innovation in glass beadmaking. Many new techniques were perfected in its first centuries. Alexandria was the leader, with other centers at Rhodes and perhaps Thebes. The techniques evolved were used for a long time, as we shall see. Concurrently, in Syria, particularly at Tyre (Chéhab 1979, 1986), the old method of furnace-winding continued.

The Islamic Period

The Prophet Mohammed died in 632 AD. Within a century his followers were established from Spain to Sind (in Pakistan). The wealth of Egypt and its proximity to Arabia made it an early target. Alexandria was taken in 640. It was not only a religious and political conquest, but a cultural and linguistic one as well. Egypt remains the heart of the Arab world stretching from Morocco to Iraq. It is the financial and cultural capital of Islam.

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Beadmaking continued in Egypt under the Muslims

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It also retained its position as the "gateway to the East" for the Islamic world, as it had for the Roman. Additionally, it kept its position as glass- and beadmaker, though at a different city.

The Muslims shunned pagan Alexandria, no doubt offended by the public and private human sculpture (at least some of it nude), graven idols in their eyes. The year after taking Alexandria they founded Fustat (*the tent*), next to the Roman stronghold of Babylon (*the colored door*), begun by people from the original Babylon during the Persian occupation. Fustat was a tent city, without ramparts, and quickly grew

into a commercial and industrial hub. Next to Fustat, fortified El-Khira (*the victorious*; Cairo) was built in 968, becoming the capital seven years later.

Fustat was famed as a glassmaker. Nassiri Khosrou, a Persian (mid 11th century) wrote, "They [at Fustat] also make a transparent and very pure glass which resembles an emerald which they sell by weight." (Schefer 1970:151-2). I have not checked the original, so am not sure what he wrote. Glass coin weights were common at this time. Through the 10th century 90% were translucent deep green (Kolbas 1983: 95-6). Khosrou may have been writing of *weights* rather than selling glass *by* weight.

Beadmaking is recorded in the papers of the Cairo Geniza (a deposit Jews used for outdated records containing the name of God). Jewish, Coptic and Muslim glassmakers were active and some made beads (Goitein 1961: 171, 187; 1963; 1973a). Archaeologically, Fustat has yielded evidence of mosaic cane working and the production of various segmented beads.

An interesting example of cooperation is documented between Jewish and Muslim glassworkers, who lived together in a quarter assigned to them, often forming partnerships. Some Jewish workers asked the great 12th century Rabbi, Maimonides, if they could let their Muslim co-workers use their tools on the Sabbath. It was permitted, in which case everything was shared and Friday's profits went to the Jews alone, while Saturday's went only to the Muslims (Goitein 1973b:24).

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Syria, too still made glass beads

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The Syrian industry remained active. Around 985 al-Muqaddasi wrote a commercial geography of the Muslim world. His remarks on Tyre's exports are often cited and the translations differ widely.

Miquel (1963:219) translated the passage as "*le sucre, la verroterie, les verres incrustes et les objects fabriques*" That is, "sugar, *verroterie*, encrusted [painted?] glasses or tumblers and [other] manufactured objects". *La verroterie* is French meaning "small glass trinkets," usually including beads. Engle (1973:21), quoting (or misquoting) Lamm, reported, "glass jewelry in the form of beads and bracelets," and "vessels of wheel-cut glass" in place of "encrusted glass."

Only Chéhab (1979:428) reproduced the passage in Arabic and affixed an English translation published in Leiden in 1877. It reads, "From Tyre come sugar, glass beads, and glass vessels both cut and blown." This is much more faithful to the Arabic original, except that the word for "beads" (derived from a verb meaning *to pierce*) is not modified by "glass." This can, however, be inferred.

Damascus must also have been a glass beadmaker, but the evidence for that is less direct. It does not arrive until after the city lost the industry and is discussed below.

Innovation and Emigration

The ninth-tenth century was a period of innovation for the Islamic bead industry. Two new beads appear, and though one was short-lived the other outlasted most of the other beads so far discussed. There was also an emigration of beadmakers to the far corners of the Earth.

One new bead is the *Fustat Fused Rod Bead* (Pindar-Wilson and Scanlon 1987: 71). It looks like a barrel bead with combed decorations, however, it was made by bundling an even number of spirally decorated canes around a clay or clay-coated mandrel. The canes usually have a translucent green core with opaque white, red, yellow and blue stripes. By alternating their orientation they make a chevron pattern around the bead. Sometimes they are further decorated with mosaic eyes.

Scanlon (1988, pers. comm.) believes that they were made for a short time around 900 AD. Yet they are widespread. One from China is in the Seligman collection in the British Museum and they are prized in Mauritania as *morfia* (Delarozière 1994: 81-2). A similar bead, with triangular rather than round elements, was also made; its origin has not been pinpointed (Spaer 1993; Francis 1993a).

The other bead was named *torus-folded* by Albert Summerfield (1982 pers. comm.). A torus is a ring or donut-shaped object. A glass one was lowered around a round bead and folded up and down onto the bead, producing a continually looped pattern. We do not know where they were made, but Egypt is their most likely origin.

Even more far ranging than the introduction of new beads was the apparent migration of beadmakers. They went to three, maybe four, corners of the known world, certainly to Southeast Asia, the Viking region and Spain and perhaps to East Africa.

I qualified this as an "apparent" migration because it is always possible that people went to Egypt from these areas, learned beadmaking there and returned home with knowledge and raw materials.

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Beadmakers went to the ends of the Earth

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However, as we identify more regions where this happened, note that different beads are involved, remember the secrecy that usually surrounds glass- and beadmaking and see that this happened about the same time, the hypothesis of emigration is strengthened. This was also a period of expansion for Islam, moving for the first time into the Punjab (India), Southeast Asia and West Africa. It will be interesting to see if other crafts were concurrently exported; thus far I have found none.

In Southeast Asia at this time beads were made by techniques foreign to the region: single-strip folded and pierced-and-folded beads at Vijaya (Palembang, Sumatra); two types of fused mosaic eye beads at Sungi Mas (Malaysia); *false gold-glass* (an amber exterior and whitish interior) and wound stratified eye beads at Takua Pa, Thailand; and striped *folded-and-segmented* beads at Mantai (Sri Lanka). Except for Mantai, all these places were in the Srivijayan kingdom; Sri Lanka was often an ally. Only the "Takua Pa Eye Bead" was made by a non-Hellenistic technique. The folded-and-segmented beads of Mantai are thus far unique, but combine two of these special techniques (Francis 1993b).

Far away in Scandinavia, the modest Viking industry was given a boost. At Ribe (Denmark) and Hedeby (Germany) sophisticated glass beads were made, including checker mosaics at Ribe. The assumption is that their makers came from the Middle East (Bencard *et al.* 1979, Bencard 1983, Jensen 1991). In the Viking colony of Staraja Ladoga (Russia), beads were made with Middle Eastern glass and tubes were imported for segmented beads to sell to the then-barbarous Finns (L'Vova 1970; Rajabinin and Galibin 1996).

Another place to which these beadmakers went was Spain. The evidence is circumstantial, but strong. The excavation of St. Catherines, GA by David Hurst Thomas of the American Museum of Natural History uncovered clear segmented beads, some with traces of red inside. There were even a couple of fragmentary gold-glass beads.

I am still working on this site. We plan by next year to have a volume out on the beads (with Lori Pendleton, Thomas' wife). Of the 57,000 found, most are plain Venetian drawn ones, typical of the 17th century. However, there are quite some that can only be Spanish, including these.

Spain was mostly Muslim from 811 to 1492. It is not a stretch to imagine that a beadmaker migrated there, possibly in the ninth-tenth century. In order to remain, his descendants would have embraced Christianity (at least publicly). They became the last segmented and gold-glass beadmakers in the world.

In East African torus-folded beads appear around the tenth century. The largest and latest (15th / 16th C) group of them is in Kilwa, Tanzania. I cannot work out how many were found, but it was reported to be "a substantial number" (Chittick 1974:466-8). The manufacturing method proposed in the report is superseded by Summerfield's "torus-folded" concept.

We cannot be sure that makers of torus-folded beads went to East Africa. The beads don't seem to show up before the 15th century in East Africa, so maybe they were imports.

Furthermore, we do not know when either the Spanish beadmakers or the makers of torus-folded beads left Egypt. While the ninth-tenth century is possible in light of Southeast Asia and the Viking region, they could have left at some other time as well.

The Syrians produced one characteristic glass decoration at this time. They made vessels of opaque glass with trailed designs and large, raised spots I can only call "blobs." They also used this decoration on beads (Francis 1988:79).

The End Times

Western Europe was hemmed in to the north by the Vikings, to the east by the Slavs and Byzantium, to the south by the Muslims and to the west by the Atlantic Ocean. As long as it was isolated it did not prosper, leading to a period popularly called "the Dark Ages." Something had to give, and the first form it took was religious: the ill-conceived and ill-fated campaigns known as the Crusades.

Crusaders succeeded in capturing cities and holding them for periods lasting a few weeks to centuries. Of interest to our story are the taking of Tyre in 1124 (ironically by Venice) and the burning of Fustat in 1168. Damascus was attacked several times, but never taken by the Christians.

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The Crusades destroyed most of the industry

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If there were Muslim beadmakers in Tyre they may have left when the Crusaders came. Two reports from the 1160s mention Jewish glassmakers, though not beadmakers (Benjamin of Tudelo 1983:79; Engle 1974:35). Perhaps even they left after the series of intense earthquakes in 1170 (William 1905:488).

The Crusaders destroyed Fustat indirectly. As they approached, Vizir Shawar had 20,000 vessels of naphtha poured into its center. On 22 November 1168 it was lit. The fire burned for 54 days and smoldered for months (Scanlon 1965:7-8). Glassworking continued, but beadmaking was dead. Ibn Douqmak saw glasshouses at Fustat around 1400 (Clerget 1934:270) and Scanlon (1981;60-1) excavated some. By the time Napoleon arrived, four unsophisticated factories were making prosaic items, such as lamp chimneys and bottles (France 1829: Vol. 18:397).

Damascus met a different fate, not at the hands of the Crusaders but by the iron fist of Timur (Tamerlane). In 1402 he force-marched artisans to his capital, Samarkand. Of the three lists of these artisans I have, only Clavijo, who visited Samarkand from 1403-06, mentioned glassworkers (Nesbitt 1879:651). A bead- making shop from this time has been excavated (Besborodov and Zadneprovsky 1965:129).

The Survivors

While we can put the end of the Middle Eastern glass bead industry just before

1200 AD, it did not disappear entirely. There were survivors, and beads continued to be made, but never again was the Middle East the great beadmaking power it had once been. I have discussed this in detail elsewhere (especially Francis 1990). Here I shall only summarize what is known.

The beadmakers of Damascus, after being in Samarkand for some time, went to Bukhara and probably also Tashkent (all three are in Uzbekistan). Samarkand declined and was nearly abandoned by the early 18th century. There is still some beadmaking around Tashkent today. A beadmaking family left Bukhara (probably along with the Emir in 1920) to settle in Heart, Afghanistan. I visited them a few weeks before the communist takeover of that country (1978). If they came through all the fighting (Heart was fiercely contested), they probably have moved again, likely across the nearby border to Iran.

From Tyre, beadmakers went to two places. One they renamed Armanaz (Syria), after the suburb of Tyre they had abandoned. The industry has been in decline all this century and when I visited in 1979 neither of the two glass shops were making beads or bangles, though older workers recalled their fathers doing so (Francis 1990:20).

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There are still a few survivors

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The other new home was Hebron (then in Palestine). While some have suggested that it is an ancient glass center, there is no evidence for that, despite substantial documentation due to its importance to three major religions (ibid.: 20-1). Pindar-Wilson (1964:25) agrees with this assessment. Beadmaking spread from Hebron to western Turkey and, ironically, back to Cairo in this century (Francis 1990:22-3).

We don't know what happened to the beadmakers of Fustat. Perhaps they were so traumatized at loosing their homes and factories that they just gave up. Maybe the loss of markets demoralized them. Perhaps this is the time when some moved to Spain and to wherever torus-folded beads were being made. This remains a mystery.

CONCLUSION

The Middle Eastern Glass Bead Industry was one of a handful of bead industries with a truly global reach. For centuries its products were sold throughout the known world and it was from there that glassmakers spread astonishingly far.

Yet, until this study, very little had been known about its inner workings. This is still offered as a hypothesis, subject to testing and refinement as are any. However, for the first time we have an outline history of this key industry and something on which to build future work.

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