

BEADS

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Bead Researchers

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Jeffrey M. Mitchem, SBR
Arkansas Archeological Survey
P.O. Box 241
Parkin, AR 72373-0241
U.S.A.

Books for review and manuscripts intended for the journal, as well as items for the newsletter (such as brief articles, announcements of recent publications and summaries of current research) should be addressed to:

Karlis Karklins, SBR Editor
Parks Canada - OSC
1600 Liverpool Court
Ottawa, Ontario K1A 0M5
Canada

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Cover. *Beadwork*: Young girl from Decs, in the Sárköz region of southern Hungary, wearing the typical, simple-style collar for her age group (photo: Robin Atkins).

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KARLIS KARKLINS, editor

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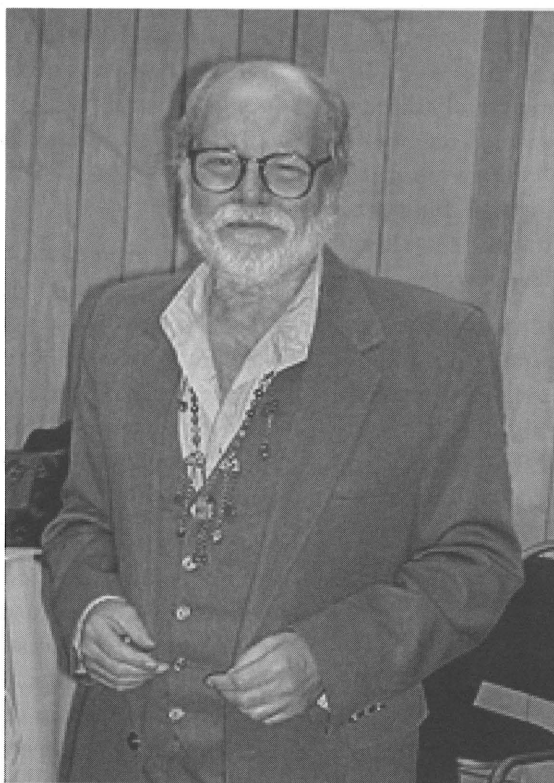
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INFORMATION FOR AUTHORS

1. Papers submitted for publication must be typed double-spaced, justified left, on 8-1/2 x 11 in. or 21.0 x 29.5 cm, white, non-erasable bond paper with 1 in. margins. Submissions should not exceed 40 pages including references cited. The hard copy should be accompanied by the text on a 3-1/2 disk in Word Perfect 8/9 or ASCII file.
2. Citations and references should follow the style of *American Antiquity* 48(2):429-442 (April 1983).
3. All manuscripts must be prepared with the following internal organization and specifications:
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9. Manuscripts will be judged on the accuracy of their content, appropriateness for an international audience, usefulness to other researchers, and consistency with the research and ethical goals of the Society.
10. Each author or set of co-authors will receive 4 complimentary copies of the journal. Book reviewers will receive one copy.

IN MEMORIAM
PETER FRANCIS, JR., 1945-2002



Peter Francis, Jr., at Bead Expo 2002 (courtesy of
Dee Mueller of Rings & Things).

The bead research community lost a principal member when Peter Francis, Jr., director of the Center for Bead Research in Lake Placid, New York, died December 7, 2002, while on a research trip to Ghana, West Africa. Pete was widely known and respected, and was responsible for significantly increasing people's awareness—on a worldwide scale—of beads and their place in human culture through his many publications, lectures, workshops, symposia, and internet website. He leaves a void that will be very hard, if not impossible, to fill.

Pete was born on August 6, 1945, in Kingman, Kansas, to Peter and Phyllis Francis. His father was an Episcopal priest who ran a boy's home. His mother taught English and journalism. After completing high school in Ellsworth, Kansas, Pete attended Park College (now Park University) near Kansas City where he obtained a good liberal arts education. Pete had long been interested in visiting England and his chance finally came during his junior year when he participated in a school-sponsored trip which took him and seven fellow classmates on a journey that led from

Glasgow to Damascus. He had a great time. The wanderlust bug bit him hard and he would never recuperate from its effects.

After college, Pete thought he might follow in his father's footsteps and entered the General Theological Seminary in New York City. It was soon apparent that this was not what he wanted to do but Pete continued on and graduated with an M.A. degree in theology. Coming from a small town in Kansas, life in the Big Apple was an adventure for Pete who actively partook of what it had to offer. He not only became a member of the Museum of Modern Art and went to concerts, gallery openings, and movies, but also taught an accredited course on the history of rock 'n' roll and became a member of a street gang for a while.

While life in New York was great fun, the wanderlust bug just wouldn't leave him alone and, in 1971, Pete decided that he would go to Iran where there were opportunities to teach English. After being certified legally blind by the Selective Service and illegible for the draft, Pete traveled around Europe for several months until he came upon Spain's beautiful Costa del Sol. He was so taken with one of the fishing villages he encountered that he took up residence there for a year while deciding whether he should become a painter or a writer. In the end, he decided that writing was what he did best.

Life on the Costa del Sol was good but it was time to move on. With backpack in tow he crossed the Strait of Gibraltar to Morocco where he taught English for the next three years. Here, as he put it, he experienced life in the Middle Ages. Finally it really was time to get to Iran and so he journeyed there by way of Italy, Greece, and Turkey.

For the next two and a half years, Pete taught in Isfahan and visited many of the ancient sites in the vicinity. It was here that his interest in beads crystalized. After purchasing some beads a colleague had collected locally, he began to research them, finding the archaeological reports in the library of the British Council the most informative. His research was productive and before he left Isfahan, he had lectured three different groups about beads.

Having become interested in archaeology, Pete cast about for a place where he might study this subject. The friend of a colleague provided the answer: Deccan College in Pune, India! Before heading there,

Pete visited Egypt for a few months. It was then back to Iran and eastward by bus. In Afghanistan, he observed beadmakers for the first time. That portion of the trip was a little tense as there was a war on at the time.

Arriving in India, Pete became enthralled with all its wonders and, as he put it himself, "fell in love with it." With some difficulty he enrolled in the archaeology course at Deccan College and was doing quite well working toward a doctorate degree when the Indian government informed him that it would not exchange his tourist visa for a student one. Much to his chagrin, he was forced to leave India (but he would return).

Pete then decided to return to the United States where his parents now lived in the scenic town of Lake Placid in New York's Adirondack Mountains. On his way, Pete traveled through Pakistan, Syria, Turkey, Greece, Italy (Venice), Czechoslovakia, Germany, and England, researching beads at just about every stop. He arrived home in July of 1979, after an absence of over eight years.

Shortly after his return, Pete established the Bead Research Bureau which a few years later became the Center for Bead Research and occupied the lower level of his parent's house. Simultaneously he began publishing the results of his research. These first few reports, published in the CBR's *The World of Beads Monograph Series*, were the vanguard of a long line of well-researched, well-written publications that have greatly increased our collective knowledge of beads and their users. That same year, noting his keen interest in beads, editor Robert Liu asked Pete to become Contributing Editor of his magazine, *Ornament*, a position he held for almost 20 years.

To facilitate communication among those interested in beads, Pete, with Jamey D. Allen and Elizabeth Harris, founded the Society of Bead Researchers in 1981. He served as the first editor of the Society's newsletter, *The Bead Forum*, and was also the first president. He also supported the newsletter and subsequent journal with a fairly steady stream of interesting articles and reviews.

Having spent many years in Third-World countries, Pete was very cognizant of the fact that students living there were greatly hampered by a lack of funds to travel and complete reports. He, therefore, initiated The Horace C. Beck Fund for Bead Research

in 1991, which provided a modest stipend to those enrolled in institutions of higher learning in the developing countries of Africa, Asia, and the Americas. Three grants have been awarded to date.

In the mid-1990s, Pete saw the potential for using the internet to further increase the flow of bead-related knowledge. In 1997, he launched <www.thebeadsite.com> which gradually grew from a few pages to a major operation with a chat line and on-line book store which featured a wide selection of bead publications.

Pete also presented popular workshops on bead identification to various groups and bead societies, many of which he helped to found. In the early days, he also led several bead tours to Southeast Asia.

Pete not only researched beads, but he also helped other individuals with their research and gladly identified beads and provided what information he could to both professionals and amateurs alike. His primary concern was that researchers got their facts right and stressed the human element in their reports. As Pete was fond of saying, "It's not about beads. It's about people." He also condemned the looting of archaeological sites for their beads and urged collectors and researchers to not purchase such looted material.

Over the years, Pete has traveled widely and conducted research at many institutions around the world. The most notable include the Smithsonian Institution (Washington, DC), Denver Museum of Natural History, University of Chicago, American Museum of Natural History (New York), University of Alaska (Fairbanks), Columbia University (New York), Metropolitan Museum of Art (New York), Awad Foundation (Egypt), Pondicherry Museum (India), and the Charles Beatty Museum (Ireland). He has also participated in or conducted several major research projects, among them the Integral Study of the Silk Roads: Roads of Dialogue (UNESCO), Arikamedu excavations, India (University of Pennsylvania and University of Madras), Berenike excavations, Egypt (University of Delaware/Leiden University), and the Seed Bead Project and the Middle Eastern Glass Bead Project (Center for Bead Research).

Pete has also participated in numerous conferences and workshops. Among them are the Archaeology-1980 Conference (Allahabad, 1980), Glass Trade Bead Conference (Rochester, 1982), First

International Bead Conference (Long Beach, 1985), Shell Bead Conference (Rochester, 1986), Seminar on Ancient Indian Glass (Pondicherry, 1986), and the Second International Bead Conference (Washington, 1990). His credits also include many lectures presented to various groups around the world including the University of Ghana, Oriental Ceramic Society, National Museum of the Philippines, Sarawak Museum, National Museum of Singapore, Pondicherry Historical Society, Asian Art Museum, and a myriad more. In addition, Pete has been director of the bead symposia held at the popular Bead Expos since 1992.

Many grants and fellowships have been awarded to Pete over the years. The first was the Dorothy Wetmore Gerrity Prize for Bead Research (1982). Then came a fellowship from the Alden B. Dow Foundation (1985), and grants from the Hagop Kevorkian Fund (1987) and the Bead Society, Los Angeles (1987). In 1987, he won the Kerr History Prize for his article "The Beads that did *Not* Buy Manhattan Island." Since then he has received grants from every North American bead society that has a grants program, as well as being awarded the Guido Award by the Bead Study Trust in England.

The bead world owes much to Peter Francis, Jr. He devoted most of his adult life to the study of beads and amassed a wealth of information on the subject. While he disseminated much of this through his numerous articles, books, lectures, and workshops, he sadly took a goodly part of it to the grave. What more would he have taught us if he hadn't been taken from our midst so soon? Much, I am sure. Many of us can, nonetheless, console ourselves with the knowledge that we had the opportunity to know him and to learn from him. And I also think he learned much from us. Goodbye, Pete. We will miss you.

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Karlis Karklins
 Parks Canada - OSC
 1600 Liverpool Court
 Ottawa, Ontario K1A 0M5
 Canada

BEADWORK OF HUNGARY AND TRANSYLVANIA

Robin Atkins

Beading is a cultural necessity in some rural villages of Hungary and Transylvania, where peasants have used embroidery and beads to lavishly embellish their costumes for hundreds of years. Remaining little changed over several centuries and almost oblivious to beads and beadwork in the rest of the world, the peasants of these villages have slowly evolved their own style of beadwork from thread embroidery and other embellishing methods. Based on field research, this article explores the cultural traditions, rich designs, and techniques of beadwork in four Hungarian villages — three in Transylvania (Romania) and one in southern Hungary.

INTRODUCTION

For more than a decade, I have been traveling to Eastern Europe, learning as much as possible about the technology of beadmaking and the customs of beadwork and bead stringing there. I have become particularly fascinated by Hungarian folk arts which in some areas include a continuous tradition of beadwork since the early 1800s.

The purpose of my first trip to Hungary and Transylvania in 1985 was to study Hungarian folk dance. The week-long course, held at the Kölcsey Ferenc Centrum in Debrecen, northern Hungary, included a trip to the Déry Múzeum where a specialist on Hungarian folk costumes gave a lecture and allowed us to see examples from the museum's collection. I was entirely smitten by the beauty and exquisite handwork (embroidery, bead embellishment, etc.) that characterized many of the clothes we saw. And in those moments, part of my heart was captured forever by the Hungarian culture and people. Since then I have returned 11 times with study and field research as a major objective.

Before discussing beadwork, however, it may help to have a little background information about Hungary and Transylvania, both located in Eastern Europe and both under Communist control from the end of WWII until the early 1990s.

Hungary, bordered by Austria, Slovenia, Slovakia, Romania, the Ukraine, Croatia, and Yugoslavia, is about the size of the state of Indiana, but has double the population of that state. Although the change, in 1990, to free democratic elections and a republican form of government has made some difference in the standard of living there, relatively few people own a car, computer, television, or have a telephone. Although Hungary has had an ongoing program of industrialization since WWII, about one third of its current population still lives in rural villages and towns (*The World Book Encyclopedia* 1998, Vol. 9:438-448).

Transylvania is a mountainous region in the western part of adjacent Romania. Saying "Transylvania" is a little like saying "western states" in the U.S.A. It means different things to different people and is not a recognized area of jurisdiction. It occupies an area of roughly 39,000 sq. mi. (slightly larger than Hungary), and has alternately been controlled by Romania and Hungary.

Because Transylvania is such a loosely defined area, there is no demographic information specific to it, but if we look at the whole of Romania, we get an idea of what Transylvania—which occupies about a third of the country—is like. Romania is 55% urban, 45% rural. During the Communist regime, 90% of the land was taken over by the government which required its former owners to work on collective farms. Recently much of that land has been restored to private

hands (*The World Book Encyclopedia* 1998, Vol. 16:416-427). As measured by private ownership of a car, telephone, and television, Romania has an even lower standard of living than Hungary (*The Dorling Kindersley World Reference Atlas* 1996:453).

Transylvania, primarily a rural area, is occupied by members of four different ethnic groups: Romanians, Hungarians, Gypsies, and Germans. Most of the villages are settled entirely by just one of these groups. Under Communist control from the late 1940s until the overthrow of President Ceausescu in 1989, all minority groups in Romania were restricted from any practices which reflected their ethnic nationality. During this period, the freedom to speak their native tongue in public, to conduct church services in their own language, and to name their children with anything but Romanian names was gradually curtailed. Rebels were severely punished. As we shall see, this had perhaps the reverse effect desired by the government, especially in the villages where the peasants went "underground," developing hidden or secret ways to express and affirm their ethnic identity.

Transylvania has always had a large Hungarian population. Because their roots go back to the early Magyar (Hungarian) tribes which prospered and expanded into the area during the 9th-11th centuries, the Hungarian ethnic minority in Transylvania has very close emotional ties to Hungary (Richardson 1998). Those living in Hungarian villages, and less so those in small towns, struggled and took great risks to maintain their Hungarian identity during the four decades of Communist rule.

Turning now to the subject of beads, one approach to the study of the origins of folk costume and adornment is to study the language. Interestingly enough, the Hungarian word for bead (*gyöngy*) is found in records dating back to the 9th century. You may be surprised to know that the words for coat, trousers, skirt, and stockings did not appear until the Middle Ages (Balassa and Ortutay 1974:315). Perhaps this early use of the word was prophetic, because the Hungarian people of both Hungary and Transylvania appear to love beads.

According to Terézia Baloghné Horváth (1996: pers. comm.), textile and jewelry curator at the

National Ethnographic Museum in Budapest, the gentry and ruling class followed closely the tastes and trends of the upper class in Western Europe. For example, during the late Victorian period, when upper-class ladies of England, France, and the United States were knitting bags with incredibly small beads, so were the upper-class ladies of Hungary. The museum collection, including beaded garments, shoes, small bags, and accessories made in the late 1800s and early 1900s, was the subject of a special exhibition a few years ago.

Although old beadwork of the upper class interests me, it does not hold the same fascination as the peasant beadwork, which is unique, long-standing, and ongoing. I have, therefore, concentrated my field research in the two Hungarian regions which have the most significant beading traditions: Kalotaszeg in Transylvania, and Sárköz in southern Hungary.

For the purposes of this article, it is perhaps important to clarify, that by "beadwork" I refer to jewelry and embellishments made primarily with seed beads, those small glass beads which are affordable by nearly all. I will not discuss work that is primarily strung (as opposed to woven or embroidered); e.g., necklaces of strung seed beads, either one or multiple strands.

BEADWORK OF KALOTASZEG

Peasants living today in the villages of Transylvania, whether of Romanian, Hungarian, German, or Gypsy origin, maintain many traditions of costume, folk arts, and social customs that originated between 100 and 400 or more years ago. In every village I visited, there is some history and current practice of beadwork, and the use of beads as a costume accessory. The preferred colors, techniques, and designs, as well as the parts of the clothing embellished with beads, vary from one region to another. There is also some variation from one village to another within specific regions. In all of Transylvania, however, there is no region that is more in love with seed beads than Kalotaszeg. I have, therefore, concentrated most of my field research and photography on this region.



Figure 1. Residents of Vista, Transylvania, in their everyday clothing, preparing food for a wedding feast (all photos by author).

The Kalotaszeg region includes 60 villages (29 of which have exclusively Hungarian populations) with a population of about 1,000 to 2,000 per village. I have made two extended visits to the Hungarian Kalotaszeg villages of Vista, Méra, and Máko, staying in village homes for about a week each time.

From talking with the village elders, looking at family photographs, and from the very limited written material about the Hungarian villages of Kalotaszeg, it is apparent their beadwork tradition dates to the mid 1800s. At first seed beads were used very sparingly to decorate women's aprons. But soon a taste for bead embellishment began to develop, to the point that most of their costumes are currently lavishly encrusted with beads.

Because bead embellishment replaced embroidery and lace decoration on costumes, it is interesting to know a bit about village and costume history. Here again a lack of written material makes research difficult. I was, however, able to find one book about the region, written and published in Hungary in the early 20th century (Dezső 1907). The paintings in this book suggest that the custom of embellishing clothing with beadwork began in the late 1800s. From drawings of grave markers and yard gates, which often have

dates carved in the wood, it is clear that some of the villages go back at least to 1755 (Dezső 1907). The gates so dated look much like the gates of today, and the names on the markers are Hungarian. This large and beautifully illustrated book provides valuable insight into and appreciation for the continuing traditions (for more than two and a half centuries) of folk costume and folk art in Kalotaszeg.

From the paintings and drawings mentioned above, it is clear that at one time the Kalotaszegi peasants wore their "costumes" daily to work in the fields, to tend their animals, and to cook their meals. Now, however, most of the villagers wear "normal clothes" for everyday work: plain, simple dresses or skirts for the women, and heavy trousers and work shirts for the men. Older folks may wear some elements of traditional dress on a daily basis, and most women still cover their heads with a scarf at all times, as is the tradition (Fig. 1). If you transplanted any of the adults into a metropolitan city, they could immediately be recognized as coming from a village. But not so with the children. From spring through fall, most wear shorts, tee-shirts, and tennis shoes, just like anywhere else. In fact, it is the children, with their knowledge of western ways, the occasional viewing of TV and



Figure 2. People of Vista, Transylvania, in Sunday garb.

movies, and their rapt attention to western rock music, who will probably break the traditions over the next generation or two. But now, visit the village church on any Sunday and one will see most of the people dressed in their traditional clothes, particularly the women and girls (Fig. 2).

The woman's costume of today is generally a full skirt of wool challis, pleated all the way down, sometimes smocked or embellished at the top, and trimmed along the bottom edge with wide (1-3 in.; 25-75 mm) machine-embroidered ribbons. The skirt, which opens at the front and ties at the waist, is worn over several underskirts which may be decorated with embroidery, crocheted lace, and/or ribbons. Over the skirt is an apron, which is highly embellished, mostly with bead embroidery and ribbon trim. The apron, skirt, and underskirts are all long, extending to just below the calf (Pl. IA).

There is considerable variation in the blouse, vest, and jacket, depending on the social status and age of the wearer, and the time of year. Younger women tend to wear a white or blue homespun blouse with very dense wool embroidery at the neck, cuffs, shoulders, and down the length of the sleeve. The neck is collarless with a slit down the front and ribbon ties. Over the blouse they often wear a sheepskin vest

solidly embroidered with wool or, in more recent times, a vest of heavy fabric solidly embroidered with seed beads in the same colors and designs as the older style (Pl. IB top and bottom). A boiled wool jacket, decorated with beads and trims, may be worn over the blouse in cold weather.

Young married women tend to wear a long-sleeved blouse of wool challis, trimmed at the neck, collar, and cuffs with ribbon and beads in a similar manner to the apron and skirt. Sometimes a vest, as described above, is worn over this type of blouse, but not always. Young married and unmarried women further adorn themselves with beaded tassels which hang from the center of the waist at the back to the length of the skirt (Pl. IC top), and another type of beaded tassel which hangs from the blouse closure at the neck and/or from the cuff ties (Fig. 3).

The fabric, ribbon, and bead colors depend primarily on the wearer's age. Young women wear bright colors; middle-aged women wear darker shades of the same colors; and old women or women in mourning wear very dark colors (indigo, black, or very dark green).

Prior to the fall of the Communist regime in 1989, the minority people of Transylvania had to "go underground" to protect their ethnic identity and to



Figure 3. Young, confirmed (but unmarried) girl from Vista, with headdress and neck and sleeve tassels.

rebel against the government which forbade expressions of cultural identity among ethnic minority groups. One of the ways the peasants of Kalotaszeg did this was to use the colors of the Hungarian flag (red, white, and green) as the predominant colors of their costumes (fabrics, ribbons, and beads) and other decorative arts (painted furniture, linens, pottery, etc.). It was also common to embroider or bead a representation of the Hungarian crest somewhere on most costume pieces. The placement of the crest on the costume was either where it could not be seen (i.e., on the inside of a jacket or vest) or where it could be covered by another part of the costume, such as a scarf, or by the wearer's hands if a stranger entered the village (one who might report the "crime" to the Communist authorities) (Pl. IC bottom).

On my first trip, knowing that I would be going to Kalotaszeg, and hoping to work with women who bead, I gathered many beads from my personal collection to take as gifts. I thought the new Japanese seed beads would interest them, especially the iris and metallic colors, and the newer transparent gold luster colors (violet, peach, and olive). But when I gave these beads to the village women, I could tell at once by their facial expressions that this selection missed the mark. Later, when we knew each other better, they asked me to bring

them the all-important flag colors (opaque red, white, and green) and a few yellow, orange, and blue beads the next time I came. These basic opaque colors, plus black, represent an estimated 95% of the beads they use on their costumes.

Costumes are worn every Sunday, on religious holidays, and for special events like weddings, confirmation, baptisms, and funerals. Changes and additions are made to the basic costume described above to mark life transitions and identify social status or particular holidays. For example, confirmation (most people attend the Reformation Church, which is a reformed Calvinist Protestant church) is a very important event in a young girl's or boy's life. A girl, once she has been confirmed, wears a special headdress which she makes and embellishes with beads and bead embroidery or bead weaving. Social custom deems that only she may touch her *párta*, as it is called in Hungarian. She wears the *párta* whenever she is in full costume until she marries (Pl. ID).

There are several hair and headwear traditions that come into play during the week or more of marriage activities, culminating at midnight on the eve of the church wedding (as opposed to the civil ceremony which happens earlier). At that time the bride is



Figure 4. *Kati néni*, friend and teacher from Vista.

dressed in traditional married woman's clothes and presented to her husband. Only then is she considered really married (Pl. IIA). Her hair is now braided and wound in a coil on her head; a small embroidered and sometimes beaded cap is placed over the coil; a beaded band (either woven or embroidered with seed beads) 2-3 in. (50-75 mm) wide is placed over her forehead; and, finally, a large white scarf of fine netting, decorated with embroidered ribbons and beads, is placed over her head and tied under the chin (Pl. IIB).

One important wedding tradition (which Western women might envy) is that the groom's family is responsible for providing the bride (whom they now welcome into their family) with a minimum of three complete outfits, including beaded aprons, skirts, jackets, vests, headbands, hair covers, and scarves. All



Figure 5. *Kati néni* as she looked the day she was married at age 14.

of these are to be made with the greatest care and the best materials available.

The boys and men have similar costume variations. The most interesting costume piece (for those interested in beads) is the man's wedding hat (Pl. IIC top). A fedora-style hat of dark green wool felt is lavishly decorated with beads by the groom's mother or female relative. The crown of the hat is decorated on one side with a beaded plaque about 5 by 5 in. (125 mm) which itself is decorated with beaded flowers (on fine wire) that extend above the crown of the hat. A second beaded plaque, somewhat smaller, adorns the front of the crown. Men and boys may also wear beaded handkerchiefs and/or beaded brooches (Pl. IIC bottom) made for them by the women in their lives (wife, girlfriend, mother, sister) to decorate their



Figure 6. An elderly woman of Vista in her pretty room (*szép szoba*).

boiled-wool jackets or vests. It is said the purpose of wearing the beaded pin (over the heart) and the one on the front of the hat is so that the boy or man will keep the woman who made it for him in heart and mind at all times.

Even the costumes of very old women are embellished with beads. Black seed and bugle beads are embroidered on the collar and cuffs of a dark cotton satin blouse. The apron is moderately or heavily embellished with black beads. The black clothes of women in mourning are also decorated with black beads.

On my first trip to Kalotaszeg, I stayed in the village of Vista because a bead friend in Budapest happened to know a woman there who had an area-wide reputation for her beautiful beadwork. A sweet, generous woman of 72, I called her *Kati néni* (Auntie Kathy) just like all the other younger women in the village who come to her for advice on their beading projects (Figs. 4-5). I spent three wonderful days in her kitchen beading with her. Although I only speak a little Hungarian and she not one word of English, we managed to communicate well with signs, gestures, drawings, and "universal bead talk." *Kati néni* showed me at least 25 beaded aprons, vests, and blouses that she had made over the years for herself and her daughter. I photographed them, as well as the wedding

hat she had made for her son, her daughter's *párta*, and much more.

Every woman in the village has at least 10 complete costumes, often many more. Each woman keeps her costumes in a very special room in the house called the "pretty room" or *szép szoba* in Hungarian. In otherwise drab and somewhat primitive homes (they have electricity, but many still use outdoor plumbing and have no running hot water), the pretty room is a totally amazing experience. All the furniture is brightly painted with red flowers (accented by green leaves and small yellow, pink, and/or blue flowers) on a white background. The walls are covered with porcelain plates, each painted differently with predominately red flowers. A bed (for guests) is stacked high with covered pillows, lavishly embroidered, woven, or hand crocheted. Gaily painted cabinets hold her costume treasures, her wedding dowry of clothing. Guests take off their shoes before entering. Husbands stand proudly smiling at the door, rarely venturing beyond the threshold to this woman's domain (Fig. 6; Pl. IID top).

In addition to photographing much of *Kati néni's* beadwork, I worked with her to learn and practice some of the techniques they use. Most of the work in Vista is bead embroidery. They use a combination of

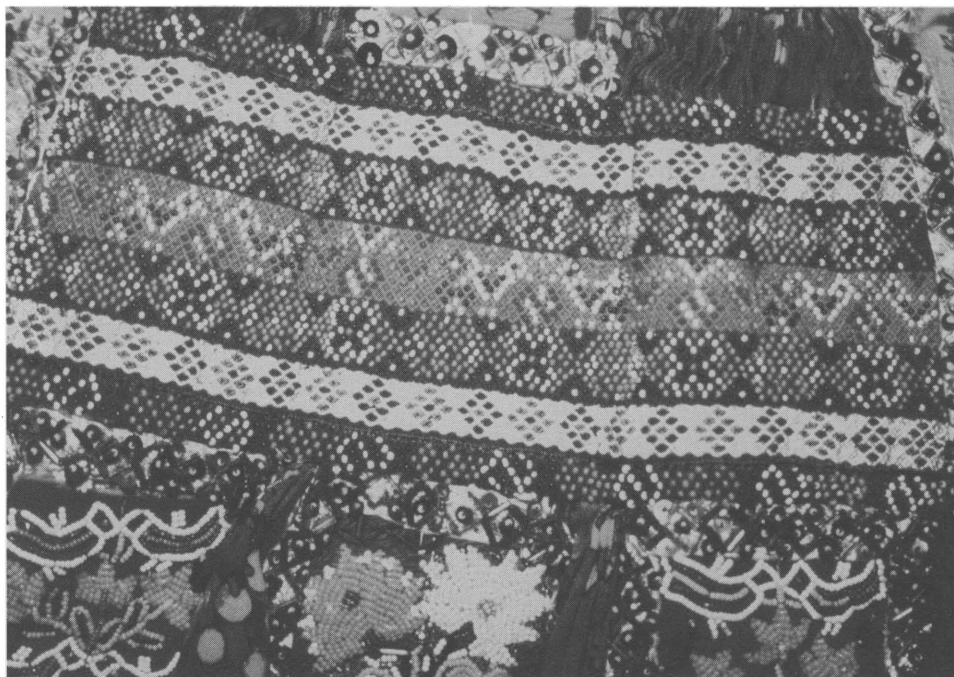


Figure 7. Netted apron girdle of Vista, showing some parts of the design made with seed beads and other parts made with thread knots.

back stitch and couching, and occasionally lazy stitch. *Kati néni* could see at once that I already knew how to do the stitches, so she began to teach me some of the typical motifs, such as birds, crosses, the letter S on its side (which signifies “eternal love”), and flowers. Red is almost always the predominant color, frequently on a white or black background. Green and yellow are also popular.

One technique of special note is their method of making beaded beads for neck and wrist tassels. A woodworker in the village first makes lathe-turned wooden beads about 1¼ in. (25 mm) in diameter and 2.0 in. (50 mm) in length. Then the top of an old wool sock, too worn to be mended again, is unraveled and the yarn used to cover the wooden bead. Finally, seed beads are sewn to the wool netting using normal bead embroidery stitches (Pl. IID bottom). For smaller beaded beads (wrist tassels and decorations for pins), a small branch is cut into ¾-in. (20 mm) lengths, and each length is wrapped with cloth scraps which are then embroidered with beads. An awl is subsequently used to punch a hole through the center of the wood core so the bead may be strung.

There is another technique which is not currently popular, but worth describing. The aprons always have a decorated horizontal panel (or “girdle”) and one, two, or three vertical panels. The girdle on some of the older aprons (late 1800s and early 1900s) was constructed by making a piece of tight netting, the “walls” of which were relatively thick. The netting was woven with a needle, the same way needle lace is made, using a heavy black or red thread with a silky sheen. The finished netting was appliquéd to a backing fabric and then embellished with French knots made with colored embroidery thread. A design was created by filling only certain of the holes with the knots. In later versions of this style of apron girdle, seed beads were sewn (using the seed or single stitch) in the holes of the netting where formerly there had been French knots. In some panels, there was a combination of knots and beads. A local woman explained that if a certain color of bead needed for the design was not available, the maker would substitute knots of the correctly colored thread (Fig. 7; Pl. IIIA top).

On the first trip, I also visited two other villages in the Kalotaszeg region, Méra and Máko. One woman



Figure 8. *Máko Kati néni* demonstrating her technique for making a woven panel with seed beads.

would introduce me to another. I would be invited into the pretty room of each to see and photograph their most prized embroidered linens, costumes, and beadwork. (I got so low on film, I sometimes had to fake the photography so as not to hurt anyone's feelings.) The costumes and beadwork of Méra were very similar to those of Vista. For example, in both villages, modern aprons were embellished using techniques of bead embroidery. But in Máko, a different technique predominates: beadweaving. Apron girdle panels, wedding hat plaques (Pl. IIIA bottom), and the back panels of the headdresses appeared to be formed of loom-woven beads, rather than bead embroidery as in the other two villages. Luckily, I eventually met *Máko Kati néni*, an elderly woman of Máko, who is reputed to be the best beader in her village. She showed me the technique she uses to

make these panels, which I now refer to as "false loom work" (Figs. 8-9).

False loom work looks exactly like loom woven beadwork. If you took it apart, you would think it was done on a loom. But it is not. The technique is fast (*Máko Kati néni* claims she knows about looms and her way is faster) and well-suited to the wide pieces (which are difficult on a loom because of limited needle length). A heavy cord the width of the finished work plus a couple of inches is tacked onto both ends of a board. The warp threads are cut double the length of the finished piece plus several inches and tied over the cord, dangling loose off the board. The weft thread is threaded through a beading needle and used double. One bead at a time is put on the weft thread, and the warp thread next to it is pulled through the doubled weft. The pattern emerges one bead at a time, which eliminates the problem in loom work of misloading the row. Watching *Máko Kati néni* work, I was amazed at how fast she was, even with her arthritic fingers and lack of good glasses.

As I visited pretty rooms, looking at 10 to 20 costumes at each stop, I began to see a pattern, the developmental history of bead lust in Kalotaszeg. Why there and not in the villages of the surrounding regions? Women in nearby regions string and wear many beads around their necks, but only in Kalotaszeg do they spend so many countless hours sewing beads on their clothes and accessories. Perhaps, looking at the older costumes, still kept lovingly in the pretty rooms, the clue is in their passion for embellishment, period. Before beads, they covered their aprons, blouses, skirts, and vests with hand embroidery. *Kati néni* said that when times were hard and they had no money to buy machine-embroidered ribbons (made in Slovakia), they simulated machine-made ribbons by hand embroidering intricate flower designs on satin fabrics. The amount of time and effort was not important, so long as they could embellish their clothing.

It may be that some beautiful young girl, upon seeing beads on a rare trip to a larger town, was inspired to use them to decorate her confirmation apron. Others, seeing her apron, copied her, and over the decades which followed, bead embellishment slowly took over and dominated all other methods of decoration. So attached are the Kalotaszegi

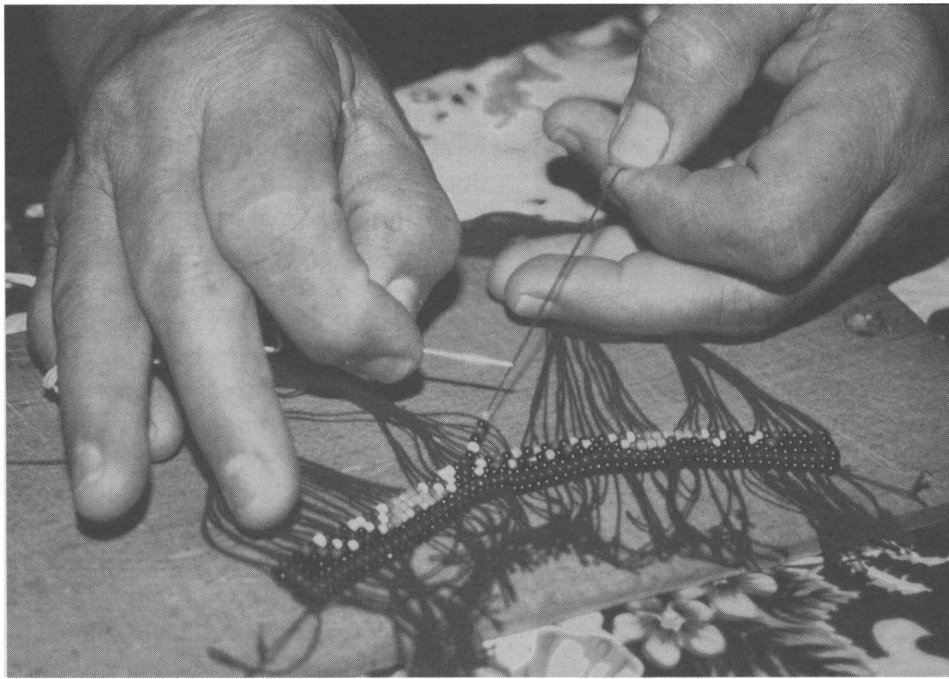


Figure 9. Close-up of *Máko Kati néni* demonstrating her technique.

inhabitants to their beaded costumes and accessories that they refuse to sell them at any price. When I asked *Kati néni* and others to help me find some examples to buy, they could only direct me to those who had poor-quality work or damaged pieces.

The following story illustrates just how strong the bead passion of the locals is. During the 45-year period of Communist control after WWII, the freedoms of peasants were greatly restricted, and the country as a whole was extremely poor. Ordinary citizens, including peasants, were not allowed to leave the country for any reason. In the towns, stores were nearly empty. Every day men and women stood in long lines to buy basics like bread and meat. Glass seed beads, ribbons, and other supplies used to decorate their costumes were not to be found or bought anywhere in Romania. So, the resourceful women of Kalotaszeg found their own solution.

When supplies were needed, they chose several brave young girls to make their way to Czechoslovakia (the present-day Czech Republic), where they bought as many beads and ribbons as they could carry back home. They traveled by foot and hitched rides with farmers, crossing the borders illegally at night (not on the roads, but across fields in unpopulated areas).

These trips were dangerous and long (sometimes taking several weeks), especially for young women. But it was they who had to go because if men or boys, or perhaps even older women, were caught crossing the border, extremely stiff punishment (perhaps death) would follow. Young girls seemed less likely to be noticed (caught), and more likely to be let off the hook if they were.

BEADWORK OF SÁRKÖZ

As in Transylvania, the peasants of rural villages in Hungary have also maintained some of their traditional costumes, folk arts, folklore, and social customs over many decades. The roots of their folklife can be traced back two or more centuries in some cases. There is much less current practice than in Transylvania, however.

In several regions of Hungary, there is evidence of a tradition of broad collars woven with seed beads and worn by women of all ages. The Ethnographic Museum in Budapest and several small-town historical museums have examples of these broad collars, dating to the mid and late 1800s. For the purposes of this



Figure 10. Wedding parade in Decs, in the Sárköz region of southern Hungary.



Figure 11. Closeup of the young unmarried women in the wedding parade.

article, however, I will only discuss the broad collars from the region of Sárköz because there it is still very much a living tradition for women to dress in costume

and wear their beaded collars on special occasions. This tradition has been more or less lost in other regions in recent decades.

Sárköz is a region in southern Hungary along the Danube River. Its rich land, plentiful water, and long growing season make this area ideal for double-crop farming. For this reason the local peasants are wealthy in comparison to those in other parts of Hungary. They have money for quality fabrics, trims, beads, and other decorations for their clothing. And perhaps more important, profitable farming means that the young people stay around to carry on the traditional way of life there.

The women of the region don't use seed beads to embellish their clothing. Rather, for more than 100 years, they have been making netted broad collar necklaces to wear with their costumes. Girls, from the age of two or three years, and women up to middle-age wear them.

I visited two of the villages in the region (Decs and Ócsény) on two different trips, attending a wedding festival each time. Every other summer, in celebration of their regional heritage, the village leaders organize this festival. A young girl (who wishes to have a very publicly celebrated wedding) is chosen to be married as part of the week-long festivities. Everyone wears their most beautiful costume and beaded collar. There are folk dances, exhibitions, a folk art market, and a big wedding parade (Figs. 10-11).

As one method of researching the costume traditions of Sárköz, I asked people to show me their old family photographs and old costumes (Fig. 12). Although each village has its own variations of the beaded collar, the style and manner of wearing them has remained constant over the past three generations.

Generally, children and young girls wear their beaded collars over the simple "jewel neckline" of their blouse (*see cover*). But as they get to marriageable age, or as young married women, they often wear a fabric "ruffle" over the necklace so that only the bottom one or two rows of it can be seen (Fig. 13; Pl. IIIB). The reason for the ruffle (as well as the lace-topped band on many of the broad collars) is because women were not allowed to show their necks in the previous century, and that rule apparently became a custom carried into modern times (Balogné Horváth 1983:22).

The broad collars of the region are made using a horizontal netting technique. Size 10° seed beads are



Figure 12. A wedding couple in Decs, 1950. Note that the woman's costume is very similar to that used in the present-day ceremony.

the most commonly used, though I have seen collars made with size 9° and 11° beads, as well as combinations thereof. The first row is either a string of beads about the size of the wearer's neck or, more commonly, a fabric band which is embroidered with seed and bugle beads, or occasionally, a flat peyote stitch band. Subsequent rows are worked horizontally, making loops of odd numbers of seed beads and sometimes bugle beads (generally five to nine for each loop in the first row). Threading back for the second row, each new loop is sewn through the center bead of the loop above it. Each subsequent row is made the same way, except that the number of beads per loop in each row is gradually increased so the collar will spread in a circle. The total number of rows depends on



Figure 13. Young bride from Decs wearing the typical-style collar, partially covered by a ruffle.

the wearer's age and size, but generally about eight or nine rows are made. The finished necklace is tied in the back with ribbons.

One interesting variation of this broad collar has "twisted" loops (Pl. IIIC top). It looks hard to make, but is actually not too difficult. When a loop in the current row is joined to the one above it, the needle is inserted into the bead in the reverse direction from that row's construction. Another variation, seen in the village of Őcsény, has double loops which intertwine with each other (Pls. IIIC bottom and IIID top).

The colors of the beads used for these collars depend on what is available, and the age and personal taste of the wearer. Necklaces worn by children and young women are generally brightly colored, with each row being a different color. Most have a row in

each of the Hungarian flag colors (red, white, and green). Sometimes a flower pattern is established at each loop intersection; sometimes larger (size 6") beads are used for the center bead of each loop (Pl. IIID bottom). Older women tend to wear darker-colored or black beads.

Although buying beads was never as difficult in Hungary as it was in Transylvania, the peasants didn't have bead stores the way we do. From the early 1900s until just recently, there was only one source of beads in the whole country. That was in Budapest at a sewing-trims and button shop. In all the visits I made to this shop, they never carried more than three colors of size 9" or 10" beads at one time. When those colors were sold out, the store would order some other colors. That means peasants from Sárköz would have to buy beads on every trip to Budapest (a day's journey, and very few had an automobile) and share with others in the village or region in order to accumulate the palette of colors needed for their broad collars.

CONCLUSION

Beadwork in Eastern Europe is a wide-open topic, ripe for research and documentation. Most of the countries have some rural populations that maintain at least part of their traditional folk arts, including bead-embellished costumes and beaded accessories. Yet, as these countries modernize and exposure to modern and western influences increases, the folk traditions are in danger of being lost.

Although museums are an important source of information about and house examples of these traditions, I have noticed that often their beadwork collections are very sterile. Techniques, social customs, and individual variations are lost in the dust of the storage boxes and shelves on which they are kept. Sometimes the recorded information is misleading or incorrect. For example, at the ethnographic museum in Gura Humorului, Romania, beadwork and costumes from the Hungarian village of Vista (well known to me) were simply and incorrectly identified as "Romanian costumes."

Fortunately, in the villages themselves, women recognized as accomplished beadworkers are teaching their techniques and designs to younger village women and sometimes field researchers from large urban centers

like Budapest. Visiting artists and researchers, in turn, are teaching others at folk-arts camps, in studios, and in homes. Through these efforts, many of the techniques are being kept alive along with the relevant cultural history. It is certainly one of my greatest lifetime pleasures to have studied and learned in the homes of village elders in the villages described above.

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Robin Atkins

837 Miller Road

Friday Harbor, Washington 98250

BRIEF BIOGRAPHY OF GIOVANNI GIACOMUZZI: ARTIST AND GLASSMAKER

Vincenzo Zanetti
Translated by Lucy Segatti

Giovanni Giacomuzzi (1817-1872) was the driving force behind the celebrated 19th-century Venetian beadmaking and glassworking firm of Fratelli Giacomuzzi fu Angelo, one of whose bead sample books is described in the accompanying report. This tribute by a learned contemporary summarizes Giacomuzzi's accomplishments and sheds light on the life of a much-honored master glassworker.

EDITOR'S INTRODUCTION

Originally published in the newspaper *La Voce di Murano* (The Voice of Murano) on 30 May 1872, this tribute to one of the outstanding beadmakers and glassworkers of 19th-century Venice was prepared by Vincenzo Zanetti, Director of the Museum of Arts and Industry of Murano. It was subsequently published in a slim monograph entitled *Cenni biografici di Giovanni Giacomuzzi: artista e fabbricatore vetrajo* in 1872, by Dalla Tip. Municipale di Gaetano Longo of Venice. A translation of this text is presented below.

While this biography duplicates some of the background material presented in the accompanying report on the Giacomuzzi bead book and folders, it provides additional insight on the man and his achievements, as well as the problems he encountered during his illustrious career. It brings out the human element in the Giacomuzzi collection and shows us once again that there is a story behind each and every bead.

My sincere thanks to the Biblioteca Nazionale Marciana in Venice and to Venetian glass authority

Astone Gasparetto for providing a copy of the Zanetti biography.

BIOGRAPHY OF GIOVANNI GIACOMUZZI

When in our March 15th issue we published the painful news of the death of Giovanni Giacomuzzi, son of Angelo Giacomuzzi and a brilliant, dedicated master of the art of glassmaking, we said that we would write about him at length in the future. We will now try to fulfil that promise.

First, we would like to say that these brief biographical notes that we are about to publish focus primarily on the man as an artist and manufacturer, rather than from a moral perspective. In two very eloquent, albeit very short, obituary notices, his most intimate friends have already spoken about him as a citizen and patriot, as a loyal friend and generous philanthropist, having all the qualities of a true gentleman.

In the hope that perhaps others will want to provide longer and more detailed information on this aspect, we will concentrate on Giovanni Giacomuzzi, the industrious, enlightened, and skilful master of the glassmaking industry. We will look at the artist and the glassmaker. As an artist, Giacomuzzi dedicated his life to the advancement and dignity of his art; as a glassmaker, he held a deep respect for the craft that he had cultivated over many years. This is the special tribute that we would now like to make to the memory of Giovanni Giacomuzzi; this is the flower that we tearfully place on his grave. And since presenting the

model of our best achievers and craftsmen who are worthy of our country's industry can only serve as a noble example to be emulated, we will consider ourselves honored if after reading this account, the masters of the arts and industry in our country will be inspired to follow in the footsteps of their accomplished countryman. That would be by far the best way for them to display their admiration and gratitude to a man who justifiably deserves both. As for ourselves, not only do we wish to express the respect and affection that tied us to him, but also give uncontested evidence that Giovanni Giacomuzzi was among the most distinguished and illuminated glassmakers who for many centuries earned and still bring fame, employment, and wealth to Venice and our Murano.

I

Giovanni Giacomuzzi was born in Venice in 1817. An artist from a young age, Giacomuzzi learned the family craft from his father Angelo who was among the first manufacturers, craftsmen, and merchants of lampworked beads. He did not learn his father's craft merely as a trade, however, for the purpose of purely material gain and nothing else. Rather, he undertook his craft with a passion to the point of idolizing it, always striving for the noble and useful purpose of not leaving it stationary, but of advancing it and making it the subject of growing admiration and honor both in his own country and abroad. Endowed with a sharp intelligence, an inventive mind, and good judgement, from an early age Giacomuzzi recognized that to achieve distinction, technical and practical knowledge of one's work was not enough. He rightfully considered it necessary to acquire training, but above all, the indispensable element for any artist was to be able to design and, especially, to embellish. The admirable progress made in his studies earned him no less than seven prizes from the Royal Academy of Fine Arts of Venice in only three [nonsequential] years: 1837-1838-1841. And while we are on the topic of training, let us mention that Giacomuzzi was not content to merely design, but also wanted to know the practical methods used in glassmaking, more than empirically. From a scientific perspective, he kept track of his work both by dictating reports and by scrupulously following all the experiments that he

tried over and over again, without ever tiring. No trouble, effort, sleep, or expense was spared in studying the elements of chemistry not only in books, but also by consulting the most reputable of chemists. And he did not stop there. His travels and visits to foreign factories expanded the boundaries of his knowledge.¹ If the painful events during his career as a glassmaker had not made him bitter and deeply deluded, and if life had not been taken away from him while he was still strong, we would have had many other even more stunning examples of his glassmaking talent. In any case, he has left us more than enough works to make him worthy of the first of Venetian industries.

As proof we will first recall the praise that greeted Giacomuzzi in his first field of undertaking, the making of lampworked beads, and we will salute him in his later endeavors of manufacturing enamel glass and glass beads, and producing inlaid works.

II

In 1838, Giovanni Giacomuzzi, together with his father Angelo, expanded their production by providing new luxury and fashion items not only to barbarian, but even to civilized nations. These included loose seed beads [*margarite*], foil and decorated beads, necklaces, and jewels. All of these were works of great elegance and refined taste which earned more praise because the glass coating that covered them made them inalterable. These works, together with sheets [of glass] with characters traced in *chiarooscuro* with the instantaneous fusion of glass cane, earned them a second silver medal from the Venetian Institute. Giacomuzzi did not stop there, however. The same institute awarded him another silver medal for his admirable beadwork productions, especially for his multicolored beads in difficult-to-produce tones. We have been able to observe and admire some of the test samples that Giacomuzzi worked on, and we have examined with special interest a number of necklaces in truly admirable shades of color. These precious specimens, which were tampered with and damaged during a return trip to Venice from an exhibit in New York,² and whose loss would constitute a tragedy, were supposed to have been deposited at the Murano Museum by Giacomuzzi along with other advances in his creations (Giacomuzzi's name often appears

beside other marvellous works at the museum). In so doing, Giacomuzzi would have followed what his colleague in art, Giovanni Battista Franchini, finally did at our persistent urging. Thus, the Murano collection, whose purpose is to conserve and reproduce the finest works of art in glass, would have become even more magnificent and would have allowed our local artists and industrialists, and even foreigners, to admire the work of Giacomuzzi as a glorious tribute to Venice and the fatherland, in the same way that the museum displays the superb work of Franchini and his unsurpassable son, Jacopo. We have not lost all hope yet, however, because we have asked the brothers of our distinguished industrialist, Giuseppe and Antonio (the former an extremely skilful maker of inlaid enamel mosaics, and the second a connoisseur of the art of small beads [*conterie*] who will pursue the road opened for him by his brother Giovanni), to collect Giacomuzzi's works and deposit them alongside those already at the Museum of Murano. These will add one more evergreen laurel branch around the forehead of this brilliant inventor of the yellow-gold glass bead.

But Giacomuzzi must also be recognized as a manufacturer of enamel for mosaics and a worker of inlaid glass enamels.

III

As we said earlier, it was not just respect and fondness that tied us to Giovanni Giacomuzzi. Irrefutable proof has led us to place him among the most distinguished and enlightened masters of the art of glassmaking, and undisputed proof exists to confirm our assertion. We will cite events and facts that cannot be denied by anyone.

In 1838, the same year that Giacomuzzi, as we just recalled, was awarded a prize for his work with lampworked beads, the [Venetian] Institute bestowed on him even greater recognition for a new kind of production which, for many years, was in very high demand here: the production of enamels for gold and silver mosaics. New colors, such as purple and scarlet, and other bright, softer and mistier colors, earned their innovative creator a gold medal. Obviously, Giacomuzzi had made many repeated attempts and painstaking experiments in order to achieve such a

splendid goal. Even the Institute and the Royal Academy of Fine Arts highly commended the noble and visionary efforts of Angelo and Giovanni Giacomuzzi who succeeded in fully satisfying the overwhelming ambition to offer new materials for the art of mosaics that were made in their factories and were more varied, more splendid, and more perfect [than before].³ Later, in 1846, Giacomuzzi was awarded a silver medal for other enamel works imitating the finest marbles [which he created] by combining various glass pastes of different colors, and making them into sheets to be smoothed and polished using a grindstone. The quality of the final product was so fine that it could have been mistaken for a work of nature. This successful and beautiful imitation was seen repeatedly in Giacomuzzi's work that we admired, convincing us once again of Giacomuzzi's steady unrelenting skill, and his enormous passion for and complete knowledge of his art. As a result, Giacomuzzi's name became ever more respected and honored. Nor did he rest on his accumulated laurels. On the contrary, these served to spur him on, inspiring his genius and giving meaning to his work.

IV

In producing such splendidly beautiful raw materials, Giovanni Giacomuzzi had another end in mind: to actually use these valued materials himself. Consequently, he was among the first and most skilled workers of inlaid enamel mosaics, applying this type of work to furniture, especially tables, with a success truly beyond praise. The good taste of the design, the arrangement of the colors, and especially the diligence and infallible precision of the work, made these works by Giacomuzzi invaluable. While we are on the subject, we should recall a very interesting fact in the history of glassmaking that honors Giovanni Giacomuzzi. Giacomuzzi himself invented a completely new type of work in the field of inlaid enamel mosaics, which he called *polimblemata*. This very special type of work was entirely different from any other method being used at the time. It consisted in arranging different pieces of glass shaped like prisms measuring half a foot in length with the different pieces arranged together to form a single whole, and combined in the most elegant designs. Multiple specimens could be had simply by sawing. This was a

massive mosaic which from one end to the other and through the whole thickness preserved the same pattern, and when cut into sections multiplied the design according to the number of sections into which it was divided.⁴ This results in an irreproachably precise work with the advantage of costing less because the simplified method requires less time.

The table that Giacomuzzi donated to the Museum of Murano, displaying a generosity equal to his skill, was made using the method just described and is outstanding proof of our claim. That table is one of six works made using the method invented by Giacomuzzi. In addition to the beauty of the inlaid work, the skill of the artist and the glassmaker are seen in the opaque and transparent enamels set all around the column and the base, which perfectly imitate natural precious stones. We will not mention all the other smaller works that were made using the same method, nor the larger, richer, and more colossal works that Giacomuzzi, who was always industrious and enamoured by the art, had envisioned and for which he had prepared designs worthy of the halls of princes and kings.⁵

Such glorious results are obtained by those who always treat art as art, who cultivate art with intelligence and passion, and sacrifice to art their minds, hearts, and hands. Apart from the material profits, which more often than not are reaped only by charlatans, such dedication earns the glassmaker or artist a respected name and everlasting fame, a recognition that masters and amateurs of our national industries never denied to Giovanni Giacomuzzi and, therefore, will not deny to those who will follow in his footsteps.

V

Giacomuzzi never relented in his glassmaking career. As an artist and maker of lampworked beads, a skilled creator of enamels and mosaics, he also approached the glass-bead industry with the same enthusiasm and with the same passion that he had displayed in other areas. Giacomuzzi knew and, in fact, often said that a glassmaker's most important accomplishment was to ensure respect for his own name, and he proved this with irrefutable arguments. Giacomuzzi always ensured the respected reputation

of his merchandise in foreign countries which awaited it impatiently and, therefore, we cannot be accused of exaggerating when we say that, by making glass beads, Giovanni Giacomuzzi helped to keep the name of Venice in high esteem. If we wish to know Giacomuzzi's achievements in glassmaking from a technical, scientific, and practical perspective, to present his vast knowledge in this area, we need only point to two very important facts—possibly the only ones in our times that have provided a truly new achievement in the field of glass beads: *ruby and carnelian beads [made] without gold*, and the *yellow-gold bead*.

This opens up a vast area which cannot be dealt with in this paper. With respect to the first of the above beads, however, Giacomuzzi produced successful examples, and would have continued to produce even better ones if he had been able to continue those repeated tests that wore him down by requiring that he spend most of his life in front of a fire exposed to the poisonous fumes emanating from the furnaces. After the goldless ruby and carnelian beads, the prototypes of which are on display at the Museum of Murano, Giacomuzzi manufactured the yellow-gold bead and the gold mother-of-pearl bead. For Giacomuzzi, this new discovery was a real triumph. In fact, we maintain without reservation that if Giacomuzzi had not achieved anything else in the glassmaking field, this bead, which imitates the most precious of metals, would have sufficed to earn respect, esteem, and fame everlasting for the name of Giovanni Giacomuzzi. This is confirmed when we consider the expense, efforts, deprivation, sleepless nights, and sacrifices that he endured in order to achieve that long-yearned-for goal and, especially, to turn this exquisite new product to so many rich, beautiful, and fascinating applications. If only he had been understood and supported in his noble intentions and grand ideals of uncovering new sources of work, wealth, and glory for our [Venetian] lagoon.⁶ Despite ill health, being exhausted by battles, and having distanced himself from production and trade, Giacomuzzi did not say that he no longer wanted anything to do with glassmaking. He showed his love for his craft and, in particular, for his beautiful gold bead, which he remade and perfected only a few months before his death. For this he had initiated new work and devised more fascinating applications. He studied how to

prepare for a more prosperous future, still inspired by his passion for the art since profit for him was always a last consideration, having sacrificed substantial sums of money. Finally, it goes without saying that Giacomuzzi was honored for the invention and different applications of the gold bead in both Venice and Rome. In Murano, he was awarded a prize superior to a gold medal. The newspaper *La Voce di Murano*, like many other reputable publications, recognized Giacomuzzi's discovery and the advancement it represented. The director of the Museum of Arts and Industry of Murano, where the beautiful bead is still today admired by foreigners, published a pamphlet in honor of Giacomuzzi, lavishing the praise he deserved. Consequently, we urge those interested in these new inventions and who support national arts and industry, to consult both that periodical, which for six years has been dealing exclusively with glassmaking, and the pamphlet.

VI

And so we conclude our brief biography. But can we claim to have fully described the artistic and working life of Giovanni Giacomuzzi? Certainly not. We have gathered together some of the main points, and even these were only described superficially. We have left out many less important details which would have been very interesting in a story about the art and life of a craft master. To fully emphasize the genius, industriousness, and intelligence of Giovanni Giacomuzzi, we should have mentioned all of his applications, innovations, and refinements.⁷ In addition to his passion for the art, we should have spoken about his love for his artists and workers, whose skills and activities he knew how to appreciate and reward, shunning the base and vile exploitation of their knowledge and labor. In addition, we should have spoken about his *Memorie* which he wrote himself on the different experiments he attempted and which we have read with the utmost interest.⁸ These included the experiments with ruby beads made without gold, and the manufacture of aventurine. In fact, with respect to the manufacture of aventurine, Giacomuzzi conducted 23 theoretical and practical experiments. With these tests, Giacomuzzi tried to make the unpredictable process for producing aventurine as certain as that for other enamels, and dedicated himself to understanding

the reasons why manufacturing one of the most beautiful and attractive of our glasses is so unpredictable. He only had two more chances to carry out tests but, in 1865, he was denied the possibility of continuing his experiments.⁹ These and many other facts would have warranted special mention if instead of this brief account, we had set out to write a detailed biography of this man whom death stole from his relatives, friends, country, art, and industry at the still-young age of 55 years.¹⁰

Like all men with a mind and heart capable of deep understanding and far-reaching, noble ideas, after so many sacrifices, so many sleepless nights, so much sweat, and deserving of so much merit, instead of encouragement and support, Giacomuzzi, who had dedicated his life to his art and his work, gathered bitterness, suffering, delusions, and disappointments during his career as a glassmaker. "I might be mistaken," Giacomuzzi wrote to us only a few months before his death, "but my conscience is clear of ever having tried to usurp anyone else's projects, nor have I claimed as my own other people's inventions, improvements, or refinements. Rather my own initiatives, and my attempts to improve the development of enamels in Venice, have become the property of others, who by copying my mosaic works and my products, finally claim *themselves to be the only real inventors, the only specialists, the only ones worthy of this art*. I will not name names because I do not want anyone to think that this grievance is the result of personal envy—that is not the case. I respect all those who have sacrificed themselves to the art and even those fortunate in their successes, who are able to enjoy the laurels and fortunes earned. But I cannot deny having suffered greatly in seeing myself stripped of that which through immense toil I had acquired by right and through my own creativity." Further on, with regard to his gold bead, he added, "Do you really think that if my *yellow color*, which you have described in the press with even too much esteem and insistence, had been made by someone else, and had been successfully accepted on the market, that the Giacomuzzi name would have survived? For shame! The laurels, the invention, the application, the honors, the profits would have all gone to that other person. It took a fool like me to waste so much money in a vain attempt to become more than just a good-for-nothing in my life." This is what Giacomuzzi wrote to us.

Justified complaints that tore his exasperated soul apart and that reveal an honest, hard-working man who had become embittered and deluded.

Such is the condition of men who have been endowed with great genius; they find themselves struggling against a thousand adversities that render life painful, rather than fulfilling. In the end, though, these men will always get the respect they deserve. They will always find those who sincerely and without ulterior motives can appreciate their intelligence, their undertakings, their work, and who will honor and respect them.

We too can claim to be among Giacomuzzi's devotees, among those who were not stingy with sincere praise, and who, within their limited means, championed his intelligence and skill. Nor did we wait to make our humble but candid tribute of respect and affection only after his death; we also did so while he was still alive, but listless and dejected. Thus, in these few notes, we have merely expressed what we have thought of Giovanni Giacomuzzi all along. We are certain that along with us, not only his friends, but any right-minded person and anyone who respects skill and hard work, anyone who truly loves our country and that which our country stands for and values, will recognize Giovanni Giacomuzzi as a man worthy of his country. We salute him as a distinguished artist, an enlightened and skilful industrialist, an untiring master of glassmaking. His name deserves to be associated with those of many other notables and, serving as a noble incentive for others to achieve distinction, it should be transmitted with respect and honor to posterity.

ENDNOTES

1. Giacomuzzi told us that while in Paris he managed to visit a large factory where hundreds of women and girls were employed making lampworked beads. He entered as a foreign visitor and was considered new to the type of work being done in that factory. Imagine the amazement and marvel of the workers when they watched Giacomuzzi, who they assumed to be ignorant of their craft and whom they were trying to teach, sit at one of the benches and create a beautiful bead! Certainly, Giacomuzzi could have taught the Parisian workers that craft, which had one day been exclusive to Venice.
2. Giacomuzzi's creations won awards at the exhibit, which was held in 1854.
3. See extracts of the *Proceedings of the Awards Ceremonies of the Royal Institute of Letters, Sciences, and Arts of Venice and of Milan*.
4. From Giacomuzzi's work, one could deduce, if not completely, at least in part, the enormous difficulties endured by Jacopo Franchini, who wanted, in a supreme effort of art that might never be tried again, to make a portrait run the length of an enamel cane worked using an oil lamp, so that when the cane was divided into countless sections, the portrait was multiplied to infinity. History and the fatherland are duty-bound to never forget such industrious sons.
5. Giovanni's brother Giuseppe, who we mentioned earlier, was his skilled assistant in working on mosaics.
6. Giacomuzzi had conceived and even drafted a program to establish a factory in Venice similar to those in foreign countries, where women and girls could work at the art of embroidery and trimming, using the gold bead he invented. As well as offering a purely Venetian novelty, this work could have evolved rapidly. While supported by some of the most noble Venetian ladies, Giacomuzzi did not have the satisfaction of seeing such an institution become reality.
7. One year before he died, when Giacomuzzi remade the gold bead, he also made brilliant mother-of-pearl beads in gold, silver, ruby, green, and blue. We had asked him to send us samples of the last colors to place beside the others on display at our Civic Museum. Even the gold-colored glass thread, which for its quality and lower price undermined that of Paris, was the work of Giacomuzzi.
8. While a highly educated and enlightened artisan, Giovanni Giacomuzzi was a man without pride or conceit. Having read his report on ruby beads made without gold, we asked him if we could have it published in *La Voce di Murano*. He agreed to our request and sent it to us, but then asked for it back to make some corrections and additions. If we could get the report back, we would be very pleased to publish it. It would be another example justifying the praise with which we have tried to honor Giacomuzzi in these biographical notes.

9. These are his exact words, taken from the above mentioned report. He sent a summary of the report to us in a letter dated last June 3, when we were working on a historical paper on artificial aventurine, which we hope to publish as soon as possible.
10. Not only was Giacomuzzi worthy of his country as an artist and industrialist, but also as a merchant, as is shown, without citing other facts, in two of his publications and an unpublished paper. His book entitled *Prezzi-Correnti* [Market Prices], which he had printed in 1854, is truly a masterpiece in its field. This book underlines Giacomuzzi's practical knowledge and positive ideas, especially on making beads at the lamp. His knowledge is brought to light with such precise ideas and such rational calculations from a commercial perspective, that no one has been able to do likewise. In addressing his publication to Mr. Domenico Bussolin, Giacomuzzi was right in stating that his work was completely original and, as he later wrote again to Bussolin, he was sincere in saying that *his collection of prices had the merit of organizing the confused heap of multiple products that had been created subsequently by chance or on a whim*. Consequently, Giacomuzzi's *Prezzi-Correnti* proved to be very useful, because it included, as Giacomuzzi himself pointed out in the above quotation, all the most commonly used products of that important branch of industry—seed beads, necklaces, lampworked beads—which in itself represents a value of over four and one half million lire of exports for Venice and provides steady employment for thousands of workers in its many different stages.

Let us look at Giacomuzzi's other two works in chronological order. First, the *Memoria* (unpublished) which he presented in May 1854 to the Chamber of Commerce in Venice, with the full title: "*Sulla necessità di riformare e di estendere maggiormente l'esercizio dell' arte vetraria in*

Venezia con ispeciale riguardo all' industria delle conterie ecc. e sui mezzi di conseguire tale riforma" [On the Need to Reform and Greatly Expand the Practice of the Art of Glassmaking in Venice, Especially the Bead Industry, etc., and on the Means to Achieve Reform]. In this paper, Giacomuzzi proved himself an enlightened man. His history of the art of glassmaking was very scholarly and, from an economic and commercial point of view, presented some valuable fundamental truths predicting, unfortunately, that which in part actually happened, and will continue to happen if events surrounding Venice's premiere industry continue to follow their current course.

Finally, Giacomuzzi's other work is "*Progetto di un' associazione delle fabbriche di conterie in Venezia per migliorare le condizioni attuali di questa patria industria*" [A Plan for an Association of Beadmakers in Venice to Improve the Current Conditions of this National Industry]. By publishing this paper in November 1861, Giacomuzzi once again revealed the noble sentiments that inspired him and the lofty and valuable ideas that he nurtured in order to promote and strengthen the benefits, prestige, and dignity of his art.

Vincenzo Zanetti
Director (1872)
Museum of Arts and Industry of
Murano
Murano (Venice), Italy

Lucy Segatti
Department of Canadian Heritage
Translation Operations Branch
Multilingual Translation Directorate
Romance and General Multilingual
15 Eddy Street
Hull, Quebec K1A 0M5
Canada

THE GIACOMUZZI BEAD SAMPLE BOOK AND FOLDERS

Karlis Karklins

The sample book described herein displays the wound glass beads produced during the third quarter of the 19th century by an acclaimed Venetian firm, that of the Giacomuzzi brothers. The book vividly shows what sorts of beads were being marketed by a single firm at this time, and provides much useful information concerning bead sizing systems. Although not marked with the producers name, the folders that accompany the book are of like date and at least one is likely a product of the Giacomuzzis.

INTRODUCTION

Archaeologists, ethnologists, collectors, and others interested in beads often seek to identify the age and place of manufacture of the specimens in their collections. Although much work has been done over the years to facilitate this task, there is still much to be learned. This is especially true of the 19th and early 20th centuries, a time when many bead styles cease to be made, a number of earlier types are revived, and numerous new styles and manufacturing techniques make their debut. As tightly dated bead samples of an identified manufacturer are ideal sources of data for this period, it was of great interest to learn of the Giacomuzzi sample book and two accompanying folders (Fig. 1) which had been found at a garage sale in Scottsdale, Arizona, in the early 1980s by Charles and Gloria Arquette, and are now in the possession of The Bead Museum in Glendale, Arizona (Karklins 1984:5-7).

The Giacomuzzi collection is important for a number of reasons:

1. It is one of only a handful of recorded sample collections that are of 19th-century origin; only the Levin Catalogue (Karklins 1985c), Venetian

Bead Book (Karklins 1985a), and Frost Collection (Johnson 1977; Liu 1983) are comparable.

2. The manufacturer and his place of business are identified; it is not known who produced the Venetian Bead Book, and Levin and the Frosts were bead dealers, not manufacturers.
3. The Giacomuzzi book can be relatively tightly dated; the book's label, coupled with historical documentation, reveals that it was almost certainly produced between 1852 and 1868.
4. The collection reveals how beads were sized by a major Venetian producer in the 19th century; this will be very useful to those attempting to determine size populations in archaeological collections, as discussed by Ross (1990).

The beads displayed in the Giacomuzzi collection are described on the following pages using an expanded version (Karklins 1985b) of the taxonomic system devised by Kenneth and Martha Kidd (1970). Varieties that do not appear in the Kidds' lists are marked by an asterisk (*); two asterisks (**) denote a previously unrecorded type. Complex bead shapes are identified using Beck (1928).

Color names are those provided in the *Color Harmony Manual* (Container Corporation of America 1958). Diaphaneity is described using the terms opaque (op.), translucent (tsl.), and transparent (tsp.). Opaque beads are impenetrable to light except on the thinnest edges. Specimens that are translucent transmit light but diffuse it so that an object (such as a pin in the perforation) viewed through them is indistinct. A pin in the perforation of a transparent bead is clearly visible.

When listing bead sizes, those which are numerical (e.g., Size 2) are those designated and used by the Giacomuzzis. Those denoted by letters (e.g., Size a)

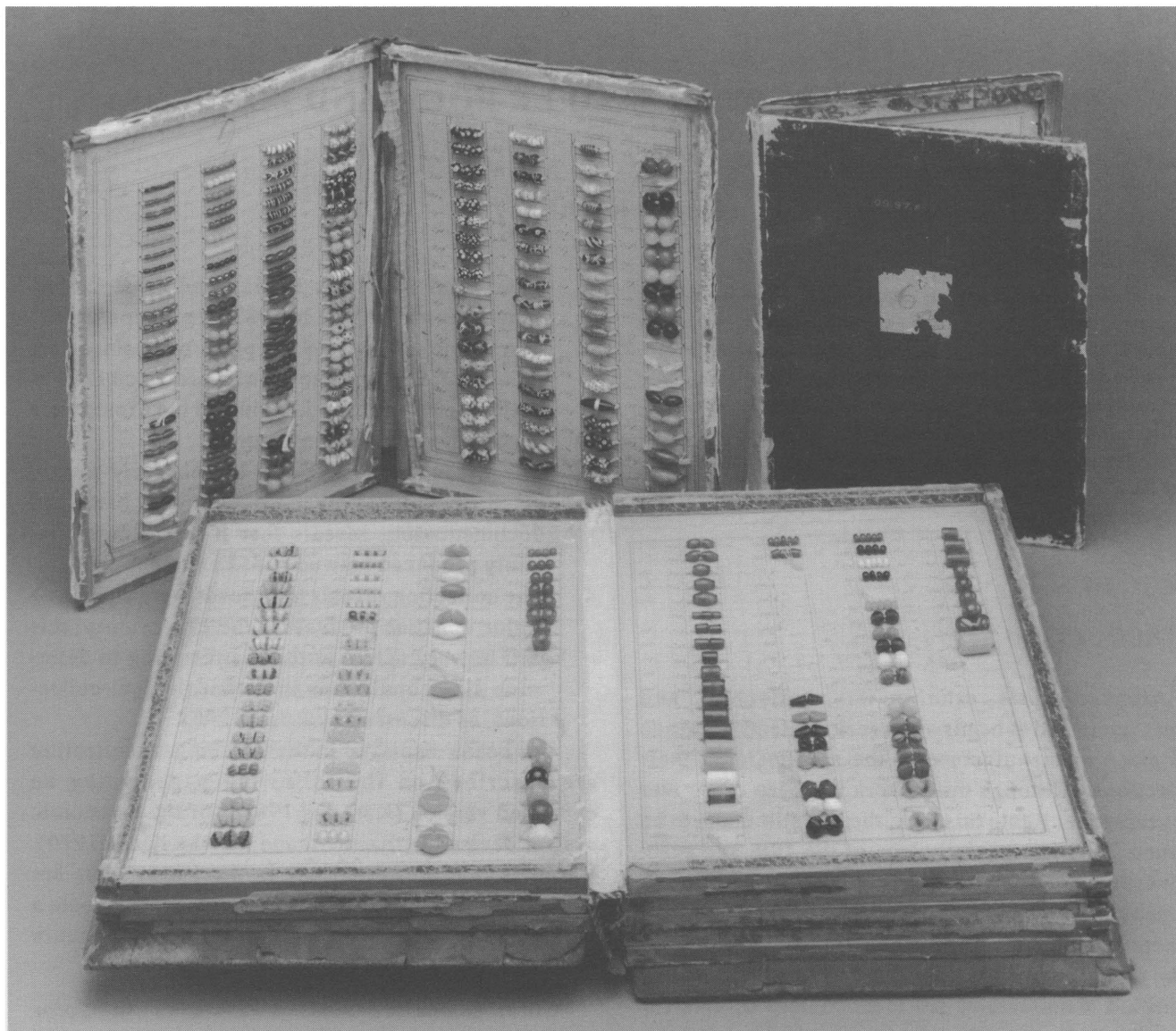


Figure 1. The Giacomuzzi bead book and folders (photo: Christopher Marchetti).

are relative sizes designated by the author. Size ranges for the various varieties are followed by the average values in parentheses.

THE GIACOMUZZIS' MAJOR ACHIEVEMENTS

The Giacomuzzi brothers—Giovanni and Giuseppe—came from a family of glassmakers that specialized in beads. During a visit to Venice by Francis I of Austria, their father, Angelo, produced a bead in the presence of the emperor which bore the inscription *Viva Francesco I* in a laurel wreath

(Morazzoni 1953:67-68). In 1838, Angelo achieved international fame for his decorated beads. When exhibited in New York in 1854, they “delighted the many elegant bourgeois who, with a few dollars, could wear necklaces, bracelets, and diadems in the latest fashion, causing the envy of matronly ladies who were still wearing the old jewels of the Empire and Restoration” (Morazzoni 1953:59).

Giovanni Giacomuzzi was well-known for his achievements as well. Born in 1817, he was the inventor of gold mother-of-pearl which was proclaimed the “jewel and queen of all the other beads” and “shone with a very special light” (Morazzoni

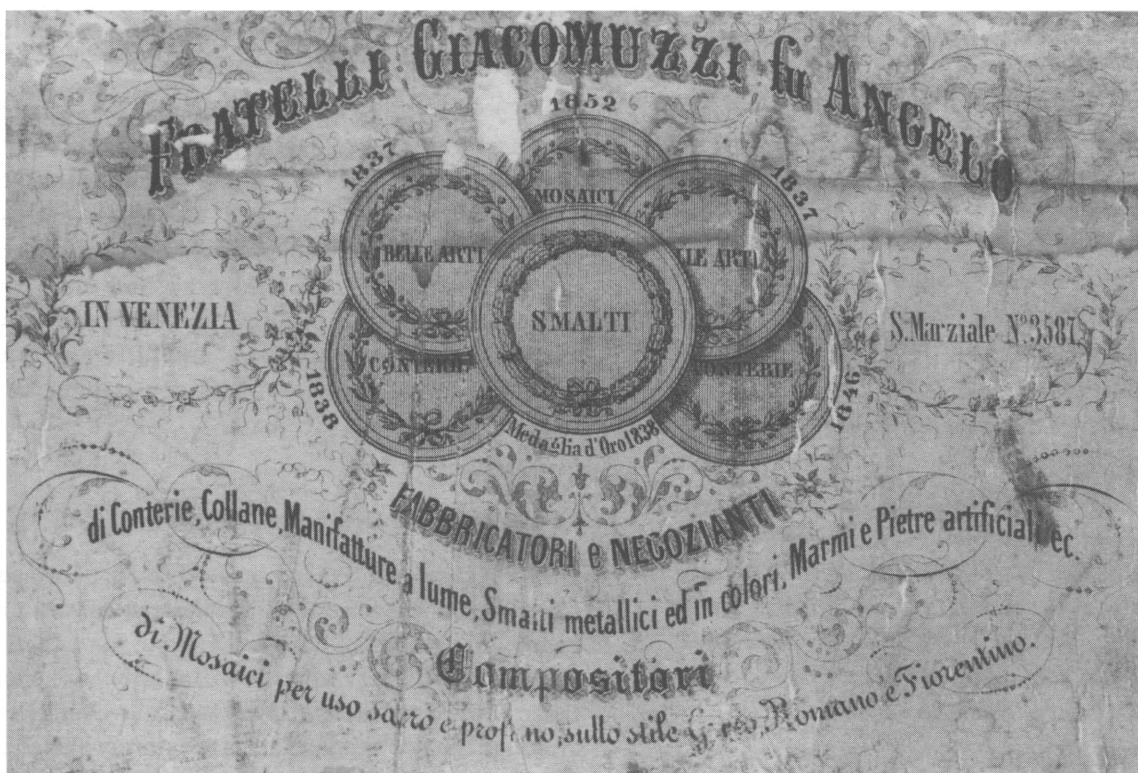


Figure 2. The label on the cover of the Giacomuzzi bead book (photo: Christopher Marchetti).

1953:58-59). This material found a new application in beadwork and received much acclaim in the adornment of altars and churches where it replaced gold embroidery. One of the most memorable examples is the Treviso theater where 2,268 kg (5,000 lbs.) of gold mother-of-pearl beads were sewn onto 70 m² of velvet (Morazzoni 1953:58).

Giovanni subsequently devised a method to mold crushed imitation mother-of-pearl and apply it to fabric with mastic to create tapestries, decorative furnishings, and book covers. This material was shown at the Rome Exposition to great enthusiasm, as well as at the Murano Glass Exhibition of 1869, where it won a badge of honor which was considered superior to a gold medal and was only conferred upon outstanding artists (Morazzoni 1953:58).

Giovanni had also received a silver medal from the Royal Institute of Science, Letters, and Arts of Venice in 1868 for developing a “transparent yellow-gold bead” using an oxide of uranium as the coloring agent.

Surpassing all previous attempts to create a yellow-colored bead, it gave the illusion of a “transmutation from glass to gold” (Morazzoni 1953:58, 74).

Giovanni’s other achievements include *poliemblemata*, a type of mosaic composed of glass “prisms” arranged in various patterns. Developed in 1852, this product was very well received and, sawn into sheets, served as a decorative surface for furniture (Morazzoni 1953:61). Giovanni also produced a ruby glass without the use of gold as the colorant, an imitation carnelian, and a brilliant mother-of-pearl in silver, ruby, green, and blue glass (Morazzoni 1953:58).

It is not known when the Giacomuzzi brothers went out of business, but it seems to have been before June 30, 1898. On this day, 17 Venetian glass-beadmakers united to form the *Società Veneziana per la industria delle Conterie* and the Giacomuzzis were not among them (Pasquato 1953:77).

THE GIACOMUZZI SAMPLE BOOK

The principal component of the Giacomuzzi collection is the sample book which measures 46.0 cm in length, 31.5 cm in width, and 12.2 cm in thickness. The book's wooden covers enclose eight tray-like cardboard pages edged with narrow wooden slats. These prevent the beads from being crushed when the book is closed. The cover is cased in green cloth, while the slats are covered with marbled blue and brown paper.

In the center of the front cover is a fancy paper label (Fig. 2) which reads:

FRATELLI GIACOMUZZI fu ANGELO, in VENEZIA, S. Marziale No. 3587. FABRICATORI e NEGOZIANI di Conterie, Collane, Manifatture alume, Smalti metallici ed in colori, Marmi e Pietre artificiali ec. Compositori di Mosaici per uso sacro e profano, sullo stile Greco, Romano e Fiorentino.

This announces that the Giacomuzzi Brothers, sons of the late Angelo Giacomuzzi, were fabricators and dealers of small glass beads, necklaces, lampworked beads, enamel in colors and metallic hues, artificial marble and stones, etc. They also produced mosaics in the Greek, Roman, and Florentine styles for both sacred and secular use.

The label also depicts several medals awarded to the company for its products: 1837 (for *Belle Arti*: fine arts), 1838 (for *Conterie*: small glass beads), 1838 (a gold medal for enamels), 1846 (for small glass beads), and 1852 (for mosaics).

The number "09.97.B." in red paint appears at the top of the front cover. The top of the first page bears the legend *FABBRICA PREMIATA DEI FRALLI*. The top of the second page has a narrow strip of paper pasted over it but probably originally bore the name *GIACOMUZZI*. Thus the full heading would have read: "The award-winning factory of the Giacomuzzi Brothers."

Each page of the book is divided into four pairs of vertical columns with black-ink lines. The right-hand column exhibits bead samples mounted on cotton string, while the one to the left provides the catalogue number (brown ink) and, for some beads, a numerical size code (red ink), and another number of unknown function (black ink). The latter is provided in brackets

after the appropriate variety description in the inventory that follows.

The book originally contained 638 sequentially numbered samples (Pls. IV-VI), though only 359 remain today. All of these are of wound manufacture; that is, they were produced by winding different colored filaments of viscid glass about a rotating metal mandrel until the desired size and shape were achieved. While still in a plastic state on the mandrel, the bead could be manipulated into different forms by using paddles or tongs, or rolling or clamping the bead in different molds.

The Sample Book's Bead Inventory

1-13. WIIm and WIIp; monochrome short square barrel beads and long square truncated convex bicone beads (Beck's [1928] types IX.B.1.b. and IX.D.1.f., respectively). These square-sectioned beads generally taper toward either end from a slight central ridge, although the two smallest sizes are simply oblate beads that have been pressed while viscid to give them a squared outline. While two shapes are technically present, the catalogue reveals that the WIIm specimens are simply short versions of the WIIp beads. There are five varieties of several sizes:

1-2. WIIm*; short square barrel; tsp. ruby; sizes 1-2 [110].

3-10. WIIp*; long square truncated convex bicone; tsp. ruby; sizes 3-10 [nos. 3-6: 110].

11. WIIp*; long square truncated convex bicone; tsp. teal green; size 4 [114].

12. WIIp*; long square truncated convex bicone; tsp. light gray; size 4 [109].

13. WIIp*; long square truncated convex bicone; op. black; size 4 [112].

Ten size groups are represented:

Size 1)	Diameter:	3.1-3.8 mm	(3.4 mm)
	Length:	1.8-2.7 mm	(2.2 mm)
Size 2)	Diameter:	3.0-3.6 mm	(3.3 mm)
	Length:	2.3-2.6 mm	(2.5 mm)
Size 3)	Diameter:	3.8-4.0 mm	(3.9 mm)
	Length:	4.7-6.2 mm	(5.4 mm)
Size 4)	Diameter:	4.1-5.0 mm	(4.5 mm)
	Length:	6.6-8.2 mm	(7.6 mm)
Size 5)	Diameter:	5.0-6.1 mm	(5.7 mm)

	Length:	6.2-7.4 mm	(6.9 mm)
Size 6)	Diameter:	4.9-5.3 mm	(5.1 mm)
	Length:	8.7-9.5 mm	(9.1 mm)
Size 7)	Diameter:	5.8-6.2 mm	(6.0 mm)
	Length:	9.9-10.5 mm	(10.2 mm)
Size 8)	Diameter:	7.2 mm	(7.2 mm)
	Length:	11.8 mm	(11.8 mm)
Size 9)	Diameter:	8.4 mm	(8.4 mm)
	Length:	13.8 mm	(13.8 mm)
Size 10)	Diameter:	8.8 mm	(8.8 mm)
	Length:	14.9 mm	(14.9 mm)

14-20. Missing, but was available in sizes 0-6 [109].

21-40. W1b and WIIIa; round beads with undecorated single and double-layered bodies; 7 varieties remain:

21-31. W1b*; tsl. oyster white (cracked); sizes 0-10 [nos. 21-27: 55].

32. Missing; size 6 [55].

33. W1b*; op. bright navy and bright Dutch blue swirled together; size 5 [55].

34. Missing; size 5 [55].

35. W1b*; op. black; size 4 [58].

36. Missing; size 4 [57].

37. W1b16; tsp. bright navy; size 5 [60].

38. W1b2; op. white; size 4 [57].

39. WIIIa*; tsp. ruby on op. white; size 6 [62].

40. W1b*; op. mustard gold; size 6 [55].

The eleven sizes have the following metric values:

Size 0)	Diameter:	3.6-3.8 mm	(3.7 mm)
	Length:	3.6-4.2 mm	(3.9 mm)
Size 1)	Diameter:	4.0-4.2 mm	(4.0)
	Length:	4.3-4.8 mm	(4.6 mm)
Size 2)	Diameter:	4.4-4.7 mm	(4.5 mm)
	Length:	5.1-6.0 mm	(5.5 mm)
Size 3)	Diameter:	5.6-5.8 mm	(5.7 mm)
	Length:	6.1-6.8 mm	(6.5 mm)
Size 4)	Diameter:	6.6-7.1 mm	(6.8 mm)
	Length:	7.0-7.5 mm	(7.2 mm)
Size 5)	Diameter:	7.0-7.7 mm	(7.3 mm)
	Length:	7.1-7.8 mm	(7.4 mm)
Size 6)	Diameter:	7.1-7.8 mm	(7.4 mm)
	Length:	7.4-9.4 mm	(8.0 mm)
Size 7)	Diameter:	8.6 mm	(8.6 mm)
	Length:	10.2 mm	(10.2 mm)

Size 8)	Diameter:	10.7 mm	(10.7 mm)
	Length:	10.0 mm	(10.0 mm)
Size 9)	Diameter:	10.9 mm	(10.9 mm)
	Length:	11.6 mm	(11.6 mm)
Size 10)	Diameter:	11.9 mm	(11.9 mm)
	Length:	11.6 mm	(11.6 mm)

41-51. Missing, but was available in sizes 0-10 [nos. 41-47: 55].

52-60. WII*; round ribbed beads with monochrome bodies. These were apparently rolled in a ribbed trough mold while still on the mandrel to impart a series of ribs or rounded ridges that encircle the bead perpendicular to the perforation. There were 9 varieties:

52. WII**; op. mustard gold; size 4 [55].

53. Missing; size 5 [55].

54. WII**; tsl. citron; size 4 [57].

55. WII**; op. black; size 5 [58].

56. WII**; tsp. ruby; size 5 [56].

57. WII**; tsp. teal green; size 5 [60].

58. WII**; op. white; size 5 [57].

59. Missing; size 5 [57].

60. WII**; op. bright navy and op. bright Dutch blue swirled together; size 5 [55].

The two sizes have the following measurements:

Size 4)	Diameter:	6.8-7.6 mm	(7.2 mm)
	Length:	6.3-7.3 mm	(6.8 mm)
Size 5)	Diameter:	6.8-8.3 mm	(7.7 mm)
	Length:	6.3-8.1 mm	(7.4 mm)

61-80. W1c and WIIIa; oval (olive-pit shaped) beads with undecorated single and double-layered bodies; 8 varieties:

61-71. W1c*; tsl. oyster white (cracked glass); sizes 0-10 [nos. 61-67: 109].

72. W1c*; op. cerulean blue; size 6 [55].

73. W1c*; tsp. very pale bright navy; size 6 [55].

74. WIIIa*; tsp. ruby on op. white; size 6 [56].

75-76. Missing; size 6 [57].

77. W1c1; op. white; size 6 [57].

78. W1c*; tsp. teal green; size 6 [60].

79. W1c*; op. sunlight yellow; size 6 [5?].

80. WIc*; op. black; size 6 [60].

The 11 size groups have the following measurements:

Size 0)	Diameter:	3.3-3.6 mm	(3.5 mm)
	Length:	4.6-5.0 mm	(4.8 mm)
Size 1)	Diameter:	3.4-3.6 mm	(3.6 mm)
	Length:	4.5-5.5 mm	(5.1 mm)
Size 2)	Diameter:	4.0-4.2 mm	(4.1 mm)
	Length:	5.9-6.4 mm	(6.1 mm)
Size 3)	Diameter:	4.6-4.8 mm	(4.7 mm)
	Length:	7.9-8.6 mm	(8.2 mm)
Size 4)	Diameter:	4.7-5.0 mm	(4.8 mm)
	Length:	7.9-8.7 mm	(8.3 mm)
Size 5)	Diameter:	5.6 mm	(5.6 mm)
	Length:	9.6 mm	(9.6 mm)
Size 6)	Diameter:	5.4-6.0 mm	(5.7 mm)
	Length:	9.4-11.6 mm	(10.5 mm)
Size 7)	Diameter:	6.0-6.1 mm	(6.1 mm)
	Length:	11.6-12.5 mm	(12.0 mm)
Size 8)	Diameter:	6.8 mm	(6.8 mm)
	Length:	13.4 mm	(13.4 mm)
Size 9)	Diameter:	7.5 mm	(7.5 mm)
	Length:	14.0 mm	(14.0 mm)
Size 10)	Diameter:	7.9 mm	(7.9 mm)
	Length:	15.0 mm	(15.0 mm)

81-92. WIIa; glass beads of simple shapes that are covered with a layer of copper-colored enamel; 2 varieties of several sizes:

81-87. WIIa*; round; sizes 0-6 [59].

The 7 size groups have the following measurements:

Size 0)	Diameter:	3.5-4.0 mm	(3.7 mm)
	Length:	2.8-3.4 mm	(3.0 mm)
Size 1)	Diameter:	4.0-4.8 mm	(4.3 mm)
	Length:	2.8-3.6 mm	(3.2 mm)
Size 2)	Diameter:	4.5-4.9 mm	(4.7 mm)
	Length:	4.2-4.5 mm	(4.4 mm)
Size 3)	Diameter:	5.0-5.1 mm	(5.0 mm)
	Length:	4.8-5.6 mm	(5.1 mm)
Size 4)	Diameter:	5.5-6.1 mm	(5.8 mm)
	Length:	5.4-5.5 mm	(5.5 mm)
Size 5)	Diameter:	6.2-7.0 mm	(6.6 mm)
	Length:	6.2-6.6 mm	(6.4 mm)
Size 6)	Diameter:	6.7-6.9 mm	(6.8 mm)
	Length:	6.6-7.4 mm	(7.0 mm)

88-92. WIIa*; oval (olive-pit shaped); sizes 1-5 [113].

The 5 size groups have the following measurements:

Size 1)	Diameter:	3.4-3.8 mm	(3.6 mm)
	Length:	5.5-5.8 mm	(5.6 mm)
Size 2)	Diameter:	3.6-4.0 mm	(3.8 mm)
	Length:	5.4-6.1 mm	(5.8 mm)
Size 3)	Diameter:	4.5-5.0 mm	(4.8 mm)
	Length:	7.8-8.3 mm	(8.0 mm)
Size 4)	Diameter:	5.2-5.6 mm	(5.4 mm)
	Length:	7.6-8.1 mm	(7.8 mm)
Size 5)	Diameter:	5.7-6.0 mm	(5.8 mm)
	Length:	10.1-10.3 mm	(10.2 mm)

93-100. WIIe; glass beads of complex shapes that are covered with a layer of copper-colored enamel; 3 varieties of several sizes:

93-98. WIIe*; round ribbed; sizes 1-6 [59].

The various sizes have the following metric values:

Size 1)	Diameter:	4.1-4.8 mm	(4.6 mm)
	Length:	4.2 mm	(4.2 mm)
Size 2)	Diameter:	4.8-5.1 mm	(4.9 mm)
	Length:	4.7-4.9 mm	(4.8 mm)
Size 3)	Diameter:	5.8-6.0 mm	(5.8 mm)
	Length:	5.6-5.8 mm	(5.7 mm)
Size 4)	Diameter:	6.4-6.8 mm	(6.6 mm)
	Length:	6.3-6.6 mm	(6.4 mm)
Size 5)	Diameter:	6.8-7.7 mm	(7.2 mm)
	Length:	7.3-7.7 mm	(7.5 mm)
Size 6)	Diameter:	7.8-8.4 mm	(8.2 mm)
	Length:	8.6-8.7 mm	(8.6 mm)

99. WIIe*; standard square barrel bead (Beck's type IX.C.1.b.); size 5.

Size 5)	Diameter:	5.9-6.6 mm	(6.2 mm)
	Length:	8.8 mm	(8.8 mm)

100. WIIe*; oval spiral-ribbed (these exhibit rounded ribs that spiral around the bead); size 4.

Size 4)	Diameter:	5.1-5.5 mm	(5.3 mm)
	Length:	6.9-7.7 mm	(7.3 mm)

101-105. WIb; round beads with monochrome bodies; one variety of five sizes:

101-105. WIb*; tsp. ruby; sizes 1-5 [119].

Size 1)	Diameter:	3.4-3.7 mm	(3.5 mm)
	Length:	3.2-4.0 mm	(3.6 mm)
Size 2)	Diameter:	3.8-4.0 mm	(4.0 mm)
	Length:	4.0-4.7 mm	(4.4 mm)
Size 3)	Diameter:	4.2-4.3 mm	(4.2 mm)
	Length:	4.8-5.0 mm	(4.9 mm)
Size 4)	Diameter:	5.2-5.6 mm	(5.4 mm)
	Length:	6.5 mm	(6.5 mm)
Size 5)	Diameter:	5.7-6.1 mm	(6.0 mm)
	Length:	6.4-6.6 mm	(6.6 mm)

106-109. WIc; oval beads with monochrome bodies; 4 varieties:

106. WIb*; op. cerulean blue; no size listed.

107. Missing; no size listed.

108. WIb*; tsp. teal green; two of the specimens are conjoined, their ends having touched during manufacture; no size listed.

109. WIb*; tsp. ruby; no size listed.

One size group is represented:

Size a)	Diameter:	4.1-4.7 mm	(4.4 mm)
	Length:	5.2-6.1 mm	(5.6 mm)

110-115. Missing, but available in sizes 1-6 [57].

116-125. WId and WIIfa; doughnut-shaped beads with single and double-layered bodies; 5 varieties:

116. WId*; op. cerulean blue; size 1 [55].

117-118. Missing; sizes 3 and 4 [55].

119. WId*; op. light gold; size 4 [57].

120. WId*; tsp. teal green; size 4 [60].

121. WId*; tsp. light gray (clear); size 4 [55].

122-124. Missing; sizes 1, 3 and 5 [57].

125. WIIfa*; tsp. ruby on op. white; size 6 [63].

The three existing sizes have the following measurements:

Size 1)	Diameter:	4.0-4.8 mm	(4.4 mm)
	Length:	1.5-2.2 mm	(1.8 mm)
Size 4)	Diameter:	5.2-7.4 mm	(6.4 mm)
	Length:	2.2-3.6 mm	(3.4 mm)
Size 6)	Diameter:	7.5-7.8 mm	(7.6 mm)
	Length:	3.8-3.9 mm	(3.8 mm)

126-133. WIc; oval beads with polychrome bodies; 8 varieties:

126. WIc*; tsl. oyster white center; tsp. ruby ends; size 6 [72].

127. WIc*; tsp. turquoise green center; tsl. oyster white ends; size 6 [71].

128. WIc*; one end is tsl. oyster white; the other is op. cerulean blue; size 5 [64].

129. WIc*; tsl. oyster white center; one end is op. cerulean blue; the other is tsp. ruby; size 6.

130. WIc*; tsl. oyster white and tsp. ruby swirled together; size 6 [65].

131. WIc*; center composed of tsl. oyster white and op. apple green swirled together; the ends are tsp. ruby; size 5 [68].

132. WIc*; op. cerulean blue center bordered by tsl. oyster white; the ends are tsp. ruby; size 6 [73].

133. WIc*; center composed of op. black, op. cerulean blue, and op. apple green swirled together; the ends are tsl. oyster white; size 5 [67].

The two sizes have the following values:

Size 5)	Diameter:	4.8-5.2 mm	(5.0 mm)
	Length:	8.4-10.1 mm	(9.3 mm)
Size 6)	Diameter:	5.0-5.6 mm	(5.3 mm)
	Length:	8.2-9.4 mm	(8.9 mm)

134-136. WII*; standard square truncated convex bicone beads (Beck's type IX.C.1.f.) with monochrome and polychrome bodies. The surfaces of the pressed facets are slightly concave parallel to the perforation. There are 3 varieties:

134. WII*; tsp. ruby; no size listed.

135. WII*; tsp. light gray (clear) center; tsp. ruby at one end and op. dark palm green at the other; no size listed [314].

136. WII*; center composed of tsl. oyster white and op. apple green swirled together; the ends are tsp. ruby; no size listed.

The beads represent a single size group:

Size a)	Diameter:	5.5-7.6 mm	(6.3 mm)
	Length:	6.4-7.6 mm	(6.8 mm)

137. WI*; short barrel bead (Beck's type I.B.1.b.) with a monochrome body and flat ends; 1 variety:

137. WI*; op. light gold; size 5 [76].

Size 5)	Diameter:	5.6-6.0 mm	(5.8 mm)
	Length:	2.7-2.8 mm	(2.8 mm)

138-150. Missing [no. 138: 78; nos. 141-146: 57].

151-160. Wlb*; round beads with polychrome bodies; 9 varieties:

151. Wlb*; one end is tsl. oyster white; the other is tsp. ruby; size 5 [64].

152. Wlb*; tsl. oyster white and op. cerulean blue swirled together; size 5 [65].

153. Missing; size 5 [71].

154. Wlb*; tsl. oyster white center; tsp. ruby ends; size 5 [72].

155. Wlb*; the center is tsl. oyster white; one end is op. black; the other is op. cerulean blue; size 5.

156. Wlb*; tsp. ruby swirled on tsl. oyster white, with an op. black band around the middle; size 5 [67].

157. Wlb*; tsp. turquoise green center bordered by tsl. oyster white; the ends are tsp. ruby; size 5 [73].

158. Wlb*; tsp. turquoise green, tsl. oyster white and tsp. ruby swirled together; size 5 [66].

159. Wlb*; tsp. turquoise green, tsl. oyster white, tsp. ruby and op. black swirled together; size 6.

160. Wlb*; tsl. oyster white exhibiting tsp. bright navy and tsp. ruby blotches; size 5 [75].

The two represented sizes have the following metric values:

Size 5)	Diameter:	6.6-8.8 mm	(7.6 mm)
	Length:	6.6-8.5 mm	(7.6 mm)
Size 6)	Diameter:	7.4-8.0 mm	(7.8 mm)
	Length:	7.6 mm	(7.6 mm)

161-169. WII**; round ribbed beads with decorated bodies. These were apparently rolled in a ribbed mold while still on the mandrel to impart a series of ribs or rounded ridges that encircle the bead perpendicular to the perforation. There are 9 varieties:

161. WII**; op. white and op. black swirled together; size 5 [65].

162. WII**; tsl. oyster white center and op. cerulean blue ends; size 5 [74].

163. WII**; op. black, op. light gold and op. cerulean blue swirled together at the center; tsp. ruby ends; size 5.

164. WII**; tsp. ruby and tsl. oyster white swirled together, with an op. cerulean blue band around the middle; size 5 [?].

165. WII**; op. white center encircled by an op. black band; op. light gold ends; size 5 [75?].

166. WII**; one end is tsl. oyster white; the other is tsp. pale bright navy; size 5 [64].

167. WII**; tsl. oyster white center; one end is tsp. ruby while the other is op. light gold; size 5.

168. WII**; tsl. oyster white body encircled by a tsp. teal green band; size 5 [75?].

169. WII**; op. black body decorated with op. white splotches; size 5 [75].

Size 5)	Diameter:	7.1-8.6 mm	(8.0 mm)
	Length:	7.0-8.7 mm	(7.9 mm)

170-180. WIIe*; melon beads with eight ribs and polychrome bodies; 11 varieties:

170. WIIe*; one end is tsl. oyster white, the other is tsp. ruby; size 4 [64].

171. WIIe*; swirled op. light gold and tsp. ruby body encircled by an op. cerulean blue band; size 4 [67].

172. WIIe*; op. white and op. ruby swirled together; size 4 [65].

173. WIIe*; tsl. oyster white body encircled by an op. cerulean blue band; size 4 [?].

174. WIIe*; swirled op. cerulean blue and op. white body; op. black ends; size 4 [68].

175. WIIe*; op. cerulean blue center bordered by tsl. oyster white; tsp. ruby ends; size 5 [7?].

176. WIIe*; op. dark palm green body; one end is op. light gold, the other is op. copen blue; size 4.

177. WIIe*; tsl. oyster white body with op. light gold ends; size 5 [72].

178. WIIe*; tsl. oyster white body decorated with tsp. ruby and tsp. bright navy splotches; size 5 [75].

179. WIIe*; tsl. oyster white with a tsp. ruby band about the middle; size 6 [71].

180. WIIe*; swirled tsl. oyster white and tsp. deep ruby body with an op. ruby band about the middle; one end is op. cerulean blue, the other is op. copen blue; size 6.

The three sizes have the following metric values:

Size 4)	Diameter:	6.0-7.8 mm	(7.2 mm)
	Length:	5.6-7.6 mm	(6.6 mm)

Size 5)	Diameter:	6.8-8.3 mm	(7.4 mm)
	Length:	6.6-7.4 mm	(7.1 mm)
Size 6)	Diameter:	9.1-9.6 mm	(9.3 mm)
	Length:	8.2-9.0 mm	(8.5 mm)

181-185. WId and WII*; doughnut-shaped and round ribbed monochrome beads strung in patterns; 5 groups:

181(a). WId*; doughnut-shaped; tsp. light gray (colorless) [size b][338].

181(b). WId*; doughnut-shaped; tsp. ruby [size b][338].

182(a). WId*; doughnut-shaped; tsp. light gray (colorless) [size a][337].

182(b). WII**; round ribbed; tsp. ruby [size a][337].

183(a). WId*; doughnut-shaped; tsl. oyster white [size b][338].

183(b). WId*; doughnut-shaped; op. cerulean blue [size b][338].

184(a). WId*; doughnut-shaped; tsp. teal green [size a][337].

184(b). WII**; round ribbed; tsl. citron [size a][337].

185(a). WId*; doughnut-shaped; tsp. ruby [size a][337].

185(b). WII**; round ribbed; tsl. oyster white [size a][337].

The different shapes have the following sizes:

Doughnut-shaped

Size a)	Diameter:	3.1-3.5 mm	(3.3 mm)
	Length:	1.1-1.6 mm	(1.4 mm)
Size b)	Diameter:	3.7-4.2 mm	(3.9 mm)
	Length:	1.4-2.2 mm	(1.8 mm)

Round ribbed

Size a)	Diameter:	3.7-4.1 mm	(3.9 mm)
	Length:	3.6-4.2 mm	(3.9 mm)

186-188. WIIIf and WIIIg; colorless beads of various forms that are decorated internally with a colored band at the core; 2 varieties:

186. WIIIf*; round; tsp. teal green band; size 5 [69].

187. Missing; size 5 [57].

188. WIIIg*; round spiral-ribbed; tsp. ruby; size 6.

Round

Size 5)	Diameter:	7.1-7.2 mm	(7.2 mm)
	Length:	7.2-7.6 mm	(7.4 mm)

Round spiral-ribbed

Size 6)	Diameter:	6.6-6.8 mm	(6.6 mm)
	Length:	6.8 mm	(6.8 mm)

189-192. WIIe and WII*; beads of several forms having tsp. light gray (colorless) bodies with colored ends; 4 varieties:

189. WIIe*; melon; op. light gold ends; size 6.

190. WIIe*; melon; tsp. turquoise green ends; size 6.

191. WII**; round knobbed; tsp. ruby ends; size 6.

192. WIIe*; melon; op. white ends; size 5.

Melon

Size 5)	Diameter:	7.0-7.4 mm	(7.2 mm)
	Length:	5.8-6.6 mm	(6.2 mm)
Size 6)	Diameter:	7.1-8.0 mm	(7.6 mm)
	Length:	6.7-7.2 mm	(6.9 mm)

Round knobbed

Size 6)	Diameter:	6.7-7.5 mm	(7.1 mm)
	Length:	7.5-7.6 mm	(7.6 mm)

193-200. WIIIg; colorless beads of several forms that are decorated internally with a colored band at the core; 6 varieties:

193. WIIIg*; round knobbed; tsp. turquoise green band; size 5.

194. WIIIg*; round knobbed; op. light gold band; size 5(?).

195. Missing; size 5 [74].

196. WIIIg*; round knobbed; op. light gold band; size 4 [74].

197. WIIIg*; round knobbed; tsp. ruby band; size 4 [74].

198. Missing; size 4 [74].

199. WIIIg*; round faceted (these have square-sectioned bodies with four pentagonal facets about either end and four diamond-shaped facets encircling the middle); tsp. ruby band.

200. WIIIg*; round facettèd; op. white band.

Round knobbed

Size 4)	Diameter:	6.2-6.8 mm	(6.5 mm)
	Length:	7.0-7.6 mm	(7.3 mm)
Size 5)	Diameter:	6.8-8.6 mm	(7.7 mm)
	Length:	7.5-8.2 mm	(7.9 mm)

Round facettèd

Size a)	Diameter:	7.1-7.9 mm	(7.4 mm)
	Length:	6.5-7.1 mm	(6.8 mm)

201-211. WIc; oval (olive-pit shaped) beads with monochrome bodies and flat ends; 7 varieties remain:

201. WIc*; op. cerulean blue [size a][32].

202. WIc*; op. amber [size a][324?].

203. WIc1; op. white [size a].

204. WIc*; op. dark palm green [size b][324].

205. Missing [324].

206. WIc*; op. cerulean blue [size b][91].

207. WIc1; op. white [size c][92].

208-210. Missing [nos. 208-209: 93; no. 210: 91].

211. WIc*; op. mustard gold [size c][93].

Three sizes appear to be represented:

Size a)	Diameter:	8.4-8.8 mm	(8.6 mm)
	Length:	17.6-18.2 mm	(18.0 mm)
Size b)	Diameter:	9.4-9.5 mm	(9.4 mm)
	Length:	19.4-20.4 mm	(19.9 mm)
Size c)	Diameter:	10.5 mm	(10.5 mm)
	Length:	21.2-22.1 mm	(21.6 mm)

212-216. Missing [nos. 212-214, 216: 92; no. 215: 94].

217-220. WI*; short barrel beads (Beck's type I.B.1.b.) with monochrome bodies; 2 varieties remain:

217. Missing.

218. WI**; op. mustard gold.

219. Missing.

220. WI**; op. dark mustard gold

One size group is represented:

Size a)	Diameter:	19.6-20.5 mm	(20.0 mm)
	Length:	8.5 mm	(8.5 mm)

221-228. WIIIIa; round beads with double-layered bodies; 1 variety:

221-228. WIIIIa*; tsp. ruby on op. white [12?, 127, 135, 136, 137, 138, 142, 143, respectively].

Eight size groups are represented:

Size a)	Diameter:	5.2-5.7 mm	(5.5 mm)
	Length:	5.5-5.8 mm	(5.6 mm)
Size b)	Diameter:	6.9-7.0 mm	(7.0 mm)
	Length:	6.8-7.2 mm	(7.0 mm)
Size c)	Diameter:	8.1-8.3 mm	(8.2 mm)
	Length:	8.6-8.8 mm	(8.7 mm)
Size d)	Diameter:	9.4-9.6 mm	(9.5 mm)
	Length:	8.9-9.2 mm	(9.0 mm)
Size e)	Diameter:	10.5-10.6 mm	(10.6 mm)
	Length:	10.2-11.2 mm	(10.7 mm)
Size f)	Diameter:	11.6-11.7 mm	(11.6 mm)
	Length:	10.6-11.0 mm	(10.8 mm)
Size g)	Diameter:	13.0 mm	(13.0 mm)
	Length:	12.7 mm	(12.7 mm)
Size h)	Diameter:	14.0 mm	(14.0 mm)
	Length:	13.8 mm	(13.8 mm)

229-234. Missing [no. 229: 143; nos. 230-234: 94].

235-240. WIIb; round beads with monochrome bodies and flat ends; 7 varieties:

235. WIIb*; op. mustard gold [size a][96].

236. WIIb*; op. cerulean blue [size a][94].

237. WIIb*; op. black [size b][96].

238. WIIb*; op. amber [size b][99].

239. WIIb*; op. dark palm green [size b][99].

240. WIIb2; op. white [size b][97].

Two sizes seem to be represented:

Size a)	Diameter:	13.0-13.8 mm	(13.4 mm)
	Length:	13.5-14.7 mm	(14.1 mm)
Size b)	Diameter:	15.0-17.0 mm	(16.0 mm)
	Length:	15.2-16.8 mm	(16.0 mm)

241-245. WIIIIa; oval (olive-pit shaped) beads with double-layered bodies; 1 variety:

241-245. WIIIIa*; tsp. ruby on op. white [no. 241: 127; no. 243: 136; no. 244: 137; no. 245: 138].

There are five size groups:

Size a)	Diameter:	6.5-6.8 mm	(6.7 mm)
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	Length:	10.7-11.4 mm	(11.0 mm)
Size b)	Diameter:	7.5-7.6 mm	(7.6 mm)
	Length:	13.0-13.6 mm	(13.3 mm)
Size c)	Diameter:	8.2 mm	(8.2 mm)
	Length:	13.8 mm	(13.8 mm)
Size d)	Diameter:	8.8 mm	(8.8 mm)
	Length:	16.1 mm	(16.1 mm)
Size e)	Diameter:	9.4 mm	(9.4 mm)
	Length:	18.8 mm	(18.8 mm)

246-254. WIIa; cylindrical beads with double-layered bodies and unaltered (unflattened) ends; 1 variety:

246-254. WIIa*; tsp. ruby on op. white [no. 247: 127; no. 248: 135; no. 249: 137; no. 250: 138; no. 251: 140; no. 252: 143; no. 253: 144; no. 254: 145].

The nine size groups have the following metric values:

Size a)	Diameter:	4.7-5.5 mm	(5.0 mm)
	Length:	6.9-7.6 mm	(7.2 mm)
Size b)	Diameter:	6.2 mm	(6.2 mm)
	Length:	9.5-9.6 mm	(9.5 mm)
Size c)	Diameter:	6.8-7.2 mm	(7.0 mm)
	Length:	10.8-11.5 mm	(11.2 mm)
Size d)	Diameter:	7.8 mm	(7.8 mm)
	Length:	12.7 mm	(12.7 mm)
Size e)	Diameter:	9.1 mm	(9.1 mm)
	Length:	15.0 mm	(15.0 mm)
Size f)	Diameter:	9.4 mm	(9.4 mm)
	Length:	17.0 mm	(17.0 mm)
Size g)	Diameter:	10.8 mm	(10.8 mm)
	Length:	18.9 mm	(18.9 mm)
Size h)	Diameter:	12.2 mm	(12.2 mm)
	Length:	18.0 mm	(18.0 mm)
Size i)	Diameter:	12.5 mm	(12.5 mm)
	Length:	20.0 mm	(20.0 mm)

255-260. WIa; cylindrical beads with monochrome and polychrome bodies, and unaltered (unflattened) ends; 5 varieties:

255. WIa*; op. olive yellow [316].

256. WIa*; op. mustard gold [316].

257. WIa3; op. white.

258. WIa*; op. bright navy and op. cerulean blue swirled together.

259. WIa*; op. light gold.

260. Missing [316].

One size group is represented:

Size a)	Diameter:	9.5-10.8 mm	(10.1 mm)
	Length:	19.0-19.9 mm	(19.6 mm)

261-262. WIIa; beads with simple shapes and double-layered bodies; 2 varieties:

261. WIIa*; oblate; tsp. ruby on op. white [131].

Size a)	Diameter:	6.4-7.4 mm	(6.8 mm)
	Length:	4.0-5.0 mm	(4.5 mm)

262. WIIa*; cylindrical; tsp. ruby on op. white [131].

Size a)	Diameter:	5.6-6.0 mm	(5.8 mm)
	Length:	7.3-8.5 mm	(7.9 mm)

263-271. Missing.

272-280. WIIh, WII*, and WIIe; beads with complex forms, and monochrome or polychrome bodies; 8 varieties:

272. WIIh*; flattened teardrop (teardrop-shaped bead pressed flat); tsp. ruby [369].

273. WIIh*; flattened teardrop; op. cerulean blue [369].

274. WIIh*; flattened teardrop; tsp. teal green [369].

Size a)	Width:	7.7-8.8 mm	(8.3 mm)
	Thickness:	5.3-6.4 mm	(5.8 mm)
	Length:	10.2-12.5 mm	(11.9 mm)

275. WII**; round spiral ribbed; op. black.

276. WII**; round spiral ribbed; op. mustard gold.

Size a)	Diameter:	9.5-11.1 mm	(10.5 mm)
	Length:	8.8-9.7 mm	(9.4 mm)

277. Missing.

278. WIIe*; round faceted (these have square-sectioned bodies with four pentagonal facets about either end and four diamond-shaped facets encircling the middle); tsp. ruby on op. white.

279. WII*; round faceted; op. white.

280. WII*; round faceted; op. black.

Size a)	Diameter:	9.7-11.0 mm	(10.5 mm)
	Length:	10.6-12.0 mm	(11.2 mm)

281-286. WIb; oblate beads with monochrome bodies; 5 varieties:

281. WIb*; tsp. ruby.

282. W1b*; tsp. teal green.

283. W1b2; op. white.

284. W1b*; op. black.

285. Missing.

286. W1b*; op. mustard gold.

Size a)	Diameter:	6.0-7.5 mm	(6.7 mm)
	Length:	4.0-6.0 mm	(4.8 mm)

287-300. WII*, WIIIE, and WIIIG; round ribbed beads with monochrome and polychrome bodies (WII*), double-layered bodies (WIIIE), and internal decorative bands (WIIIG); 13 varieties:

287. WII**; tsp. ruby [94].

288. WII**; op. apple green [94].

289. WII**; tsp. rose wine.

290. WII**; op. white [94].

291. WII**; op. bright navy and op. cerulean blue swirled together [94].

292. WII**; tsl. oyster white [94].

293. WII**; op. light gold [94].

294. WII**; op. bright blue [94].

295. WIIIE*; op. copper enamel.

296. WII**; tsp. very pale bright navy [94].

297. WIIIE*; tsp. ruby on op. white [94].

298. WIIIG*; tsp. light gray (colorless) body with an op. bright navy band at the core.

299. Missing.

300. WIIIG*; tsp. light gray (colorless) body with a tsp. ruby band at the core.

One size group appears to be represented:

Size a)	Diameter:	8.8-11.8 mm	(10.4 mm)
	Length:	9.2-11.5 mm	(10.4 mm)

301-308. WIIIA; beads with simple shapes and double-layered bodies; 3 varieties:

301-303. WIIIA*; cylindrical; tsp. ruby on op. light gold [137, 140, 143, respectively].

Three size groups are represented:

Size a)	Diameter:	8.6 mm	(8.6 mm)
	Length:	12.5 mm	(12.5 mm)
Size b)	Diameter:	10.0 mm	(10.0 mm)
	Length:	16.5 mm	(16.5 mm)

Size c)	Diameter:	10.6 mm	(10.6 mm)
	Length:	18.8 mm	(18.8 mm)

304-307. WIIIA*; round; tsp. ruby on op. light gold [138, 148, 143, 145, respectively].

There are four size groups:

Size a)	Diameter:	11.2 mm	(11.2 mm)
	Length:	11.0 mm	(11.0 mm)

Size b)	Diameter:	12.6 mm	(12.6 mm)
	Length:	12.9 mm	(12.9 mm)

Size c)	Diameter:	13.2 mm	(13.2 mm)
	Length:	13.4 mm	(13.4 mm)

Size d)	Diameter:	14.6 mm	(14.6 mm)
	Length:	14.8 mm	(14.8 mm)

308. WIIIA*; oblate; tsp. ruby on op. light gold.

Size a)	Diameter:	14.9-15.2 mm	(15.1 mm)
	Length:	7.9-8.3 mm	(8.1 mm)

309. WIA; cylindrical beads with monochrome bodies and unaltered (flattened) ends; 1 variety:

309. WIA*; op. olive yellow [147].

Size a)	Diameter:	14.6 mm	(14.6 mm)
	Length:	23.1 mm	(23.1 mm)

310-318. Missing [nos. 310, 316, 317: 148].

319-321. WIIIC; flattened teardrop beads decorated with floral wreaths encircling the middle; 3 varieties:

319. WIIIC*; tsp. teal green body; op. white wreath.

320. WIIIC*; tsp. ruby body; op. white wreath.

321. WIIIC*; op. white body; tsp. ruby wreath.

Size a)	Width:	7.8-8.5 mm	(8.1 mm)
	Thickness:	5.6-6.1 mm	(5.9 mm)
	Length:	10.4-11.4 mm	(10.9 mm)

322-324. WIIIB; monochrome cylindrical beads with stripes encircling the middle and the ends; 3 varieties:

322. WIIIB*; op. black body; op. light gold stripe around the middle, and op. white stripes around the ends [size a].

323. WIIIB*; tsp. ruby body; op. light gold stripe around the middle, and op. white stripes around the ends [size a].

324. WIIIB*; op. black body; op. light gold stripe around the middle, and op. white stripes around the ends [size b].

Size a)	Diameter:	5.1-5.5 mm	(5.3 mm)
	Length:	8.4-9.2 mm	(8.8 mm)
Size b)	Diameter:	6.2-6.4 mm	(6.4 mm)
	Length:	9.7-10.7 mm	(10.2 mm)

325-332. WIIb; round monochrome beads with a combed floral wreath about the equator; 8 varieties:

325. WIIb*; tsp. ruby body; op. white wreath.

326. WIIb*; op. white body; tsp. ruby wreath.

327. WIIb*; tsp. bright navy body; op. light gold wreath.

328. WIIb*; op. white body; tsp. bright turquoise wreath.

329. WIIb*; tsp. ruby body; op. light gold wreath.

330. WIIb*; op. black body; op. white wreath.

331. WIIb*; op. white body; op. tsp. bright navy wreath.

332. WIIb*; tsp. bright navy body; op. white wreath.

Size a)	Diameter:	8.8-9.8 mm	(9.3 mm)
	Length:	7.9-9.8 mm	(8.7 mm)

333-338. WIIb; oval (olive-pit shaped) beads decorated with combed feather designs; 6 varieties:

333-338. WIIb*; tsp. ruby body decorated with tsp. bright navy on op. white combed designs; the decoration increases in length from no. 333 where only the middle portion of the bead is adorned to no. 338 on which the entire surface is covered.

Two sizes based on length appear to be represented:

Size a)	Diameter:	8.1-9.0 mm	(8.5 mm)
	Length:	20.2-23.1 mm	(22.4 mm)
Size b)	Diameter:	9.1 mm	(9.1 mm)
	Length:	26.8 mm	(26.8 mm)

339-340. WIIb; oval (olive-pit shaped) beads with monochrome bodies decorated with floral wreaths about the middle; 2 varieties:

339. WIIb*; op. white body; op. bright navy wreath.

340. WIIb*; op. white body; tsp. scarlet wreath.

Size a)	Diameter:	6.1-6.4 mm	(6.2 mm)
	Length:	9.8-10.5 mm	(10.1 mm)

341-346. WIIb; round beads with monochrome bodies decorated with various inlaid designs; 6 varieties:

341, 343. WIIb*; op. black body decorated with a 2x4 grid composed of intersecting op. light gold stripes with a tsp. ruby on op. white eye in the center of each square [sizes a, c].

342. WIIb*; op. dark palm green body decorated with a 2x4 grid composed of intersecting op. light gold stripes with a tsp. ruby on op. white eye in the center of each square [size b].

344. WIIb*; tsl. light gray body decorated with 6 eyes of tsp. ruby on op. white around the equator, and 6 eyes of tsp. bright navy on op. white around either end [size c].

345. WIIb*; op. black body decorated with an op. white ring and 6 dots around either end [size c].

346. WIIb*; op. white body decorated with a spiral tsp. ruby stripe [size c].

Size a)	Diameter:	8.2 mm	(8.2 mm)
	Length:	8.4-8.6 mm	(8.5 mm)
Size b)	Diameter:	8.9-9.3 mm	(9.1 mm)
	Length:	8.7-9.2 mm	(9.0 mm)
Size c)	Diameter:	9.4-10.3 mm	(9.7 mm)
	Length:	8.8-9.9 mm	(9.5 mm)

347-351. WIIb; round black beads decorated with "eyes;" 5 size varieties:

347. WIIb*; 3 tsp. ruby on op. white eyes [size a].

348. WIIb*; 2 tsp. ruby on op. white eyes, and 4 tsp. bright navy on op. white eyes [size a].

349. WIIb*; 3 tsp. ruby on op. white eyes, and 6 tsp. bright navy on op. white eyes [size b].

350. WIIb*; 4 tsp. ruby on op. white eyes, and 8 tsp. bright navy on op. white eyes [size c].

351. WIIb*; 5 tsp. ruby on op. white eyes, and 10 tsp. bright navy on op. white eyes [size d].

Four size groups appear to be represented:

Size a)	Diameter:	8.3-8.6 mm	(8.4 mm)
	Length:	7.1-7.8 mm	(7.6 mm)
Size b)	Diameter:	9.2-9.3 mm	(9.2 mm)
	Length:	8.3-8.8 mm	(8.6 mm)
Size c)	Diameter:	9.7-10.0 mm	(9.8 mm)
	Length:	9.1-9.2 mm	(9.1 mm)

Size d) Diameter: 9.8-10.4 mm (10.1 mm)
Length: 9.5-9.9 mm (9.7 mm)

352-358. Missing.

359-377. WIIb; oval (olive-pit shaped) beads with monochrome bodies decorated with various designs; 20 varieties:

359. WIIb*; op. light gold body decorated with op. black dots and a wavy op. white stripe about the middle, and an aventurine stripe around either end [size a].

360. WIIb*; tsp. ruby body decorated with 3 eyes composed of an op. white dot in an op. mustard gold loop encircling the middle, and an op. mustard gold stripe around either end [size a].

361. WIIb*; op. black body decorated with an op. white band about the middle [size a].

362. WIIb*; tsp. ruby body decorated with a spiral stripe of op. white and tsp. bright navy twisted together [size b].

363. WIIb*; tsl. light gray body decorated with tsp. scarlet, op. cerulean blue, and tsp. bright navy flowers encircling the middle [size b].

364. WIIb*; op. white body decorated with op. black on tsp. bright turquoise eyes [size b].

365. WIIb*; op. black body decorated with an op. robin's egg blue band about the middle, and 3 op. mustard gold dots around either end [size b].

366. WIIb*; op. white body decorated with op. light gold on op. black eyes [size b].

367. WIIb*; op. white body decorated with 4 tsp. bright navy wreaths set parallel to the perforation [size b].

368. WIIb*; tsp. ruby body decorated with 4 op. mustard gold wreaths set parallel to the perforation [size b].

369. WIIb*; op. white body decorated with 4 tsp. ruby wreaths set parallel to the perforation [size b].

370. WIIb*; tsp. teal green body decorated with 4 op. white wreaths set parallel to the perforation [size b].

371. WIIb*; op. white body decorated with 2 tsp. ruby and 2 tsp. bright navy wreaths set parallel to the perforation [size b].

372. WIIb*; op. light gold body decorated with 2 tsp. ruby and 2 tsp. bright navy wreaths set parallel to the perforation [size c].

373. WIIb*; op. white body decorated with 2 tsp. ruby, 1 tsp. dark jade green, and 1 tsp. bright navy wreath set parallel to the perforation [size c].

374. WIIb*; op. black body decorated with a spiral stripe of op. white/op. cerulean blue/op. white/tsp. scarlet/op. white [size c].

375. WIIb*; op. black body decorated with a spiral stripe of tsp. scarlet on op. white, and a spiral stripe of op. white and tsp. bright navy twisted together [size c].

376. WIIb*; op. black body decorated with a spiral stripe of tsp. scarlet on op. white, and a spiral series of op. mustard gold dots [size c].

377. WIIb*; op. white body decorated with a spiral tsp. scarlet stripe, and a spiral stripe of op. white and tsp. bright navy twisted together [size c].

Three size groups appear to be represented:

Size a)	Diameter:	7.1-7.5 mm	(7.3 mm)
	Length:	11.2-11.8 mm	(11.6 mm)
Size b)	Diameter:	7.8-9.7 mm	(8.6 mm)
	Length:	15.8-18.8 mm	(17.1 mm)
Size c)	Diameter:	9.3-10.6 mm	(9.8 mm)
	Length:	19.2-21.5 mm	(20.1 mm)

378-380. WIIb and WIIh; cylindrical single-layered and double-layered beads decorated with various designs; 3 varieties:

378. WIIh*; tsp. ruby on op. white body decorated with op. white dots [size c].

379. WIIb*; tsl. light gray body decorated with 4 op. white, op. light gold, and op. cerulean blue flowers set parallel to the perforation [size a].

380. WIIb*; op. black body decorated with a series of op. white and tsp. ruby flowers encircling the middle [size b].

Two size groups appear to be represented:

Size a)	Diameter:	6.4 mm	(6.4 mm)
	Length:	11.4 mm	(11.4 mm)
Size b)	Diameter:	8.8 mm	(8.8 mm)
	Length:	12.4 mm	(12.4 mm)
Size c)	Diameter:	10.2 mm	(10.2 mm)
	Length:	18.8 mm	(18.8 mm)



Plate IA. Beadwork: Typical costume of young married women in Vista, Transylvania, dressed for church (all photos by author).

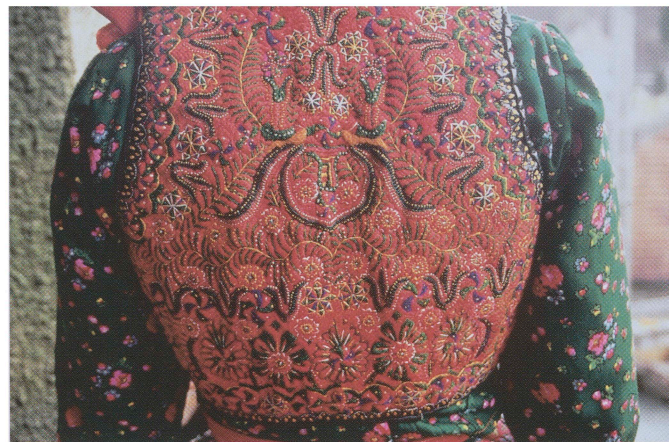


Plate IB. Beadwork: **Top:** Old-style Kalotaszeg vest with wool-yarn embroidery on sheep's skin. **Bottom:** New-style vest with bead embroidery on heavy cotton fabric.

Plate IC. Beadwork: **Top:** Detail of beaded tassels at the back of a woman's skirt, Vista. **Bottom:** Apron girdle panel from Máko, showing the Hungarian crest.



Plate ID. Beadwork: Young, confirmed (but unmarried) girl from Vista, dressed for church.



Plate IIA. *Beadwork:* Wedding scarf being placed on the head of a young bride in Vista, Transylvania.

Plate IIC. *Beadwork:* **Top:** Hats typically worn by young men of Vista for weddings. **Bottom:** Brooches made by women and girls of Kalotaszeg as tokens of affection.



Plate IIB. *Beadwork:* Young bride of Vista dressed according to tradition.

Plate IID. *Beadwork:* **Top:** An elderly woman of Vista in her pretty room (*szép szoba*). **Bottom:** Stages in the production of beaded beads for neck tassels, Vista.





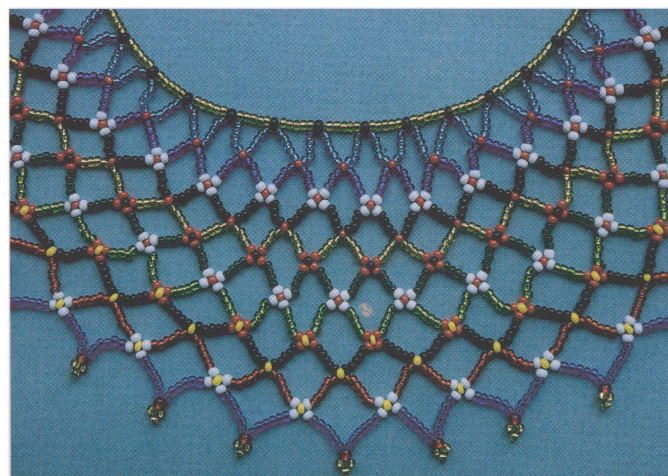
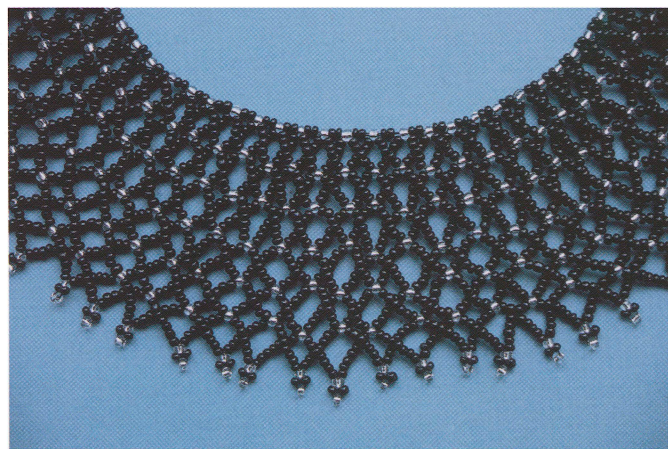
Plate IIIA. Beadwork: **Top:** Netted apron girdle of Vista, decorated with seed beads and thread knots. **Bottom:** A young, confirmed girl's headdress (*párta*) with a woven panel, Máko.

Plate IIIC. Beadwork: **Top:** Typical collar from Decs with a single twist on each loop, and a beaded band decorated with bead embroidery and a small ruffle. **Bottom:** Decs collar with a double twist on each loop, and a band woven with peyote stitch.



Plate IIIB. Beadwork: Young, confirmed girl from Decs, in southern Hungary, wearing the typical-style collar for her age group.

Plate IIID. Beadwork: **Top:** Older woman's collar from Ólcsény, Hungary, with interwoven double loops in each row. **Bottom:** Young girl's collar, simple style, from Decs, with larger beads forming flower patterns at the loop intersections.



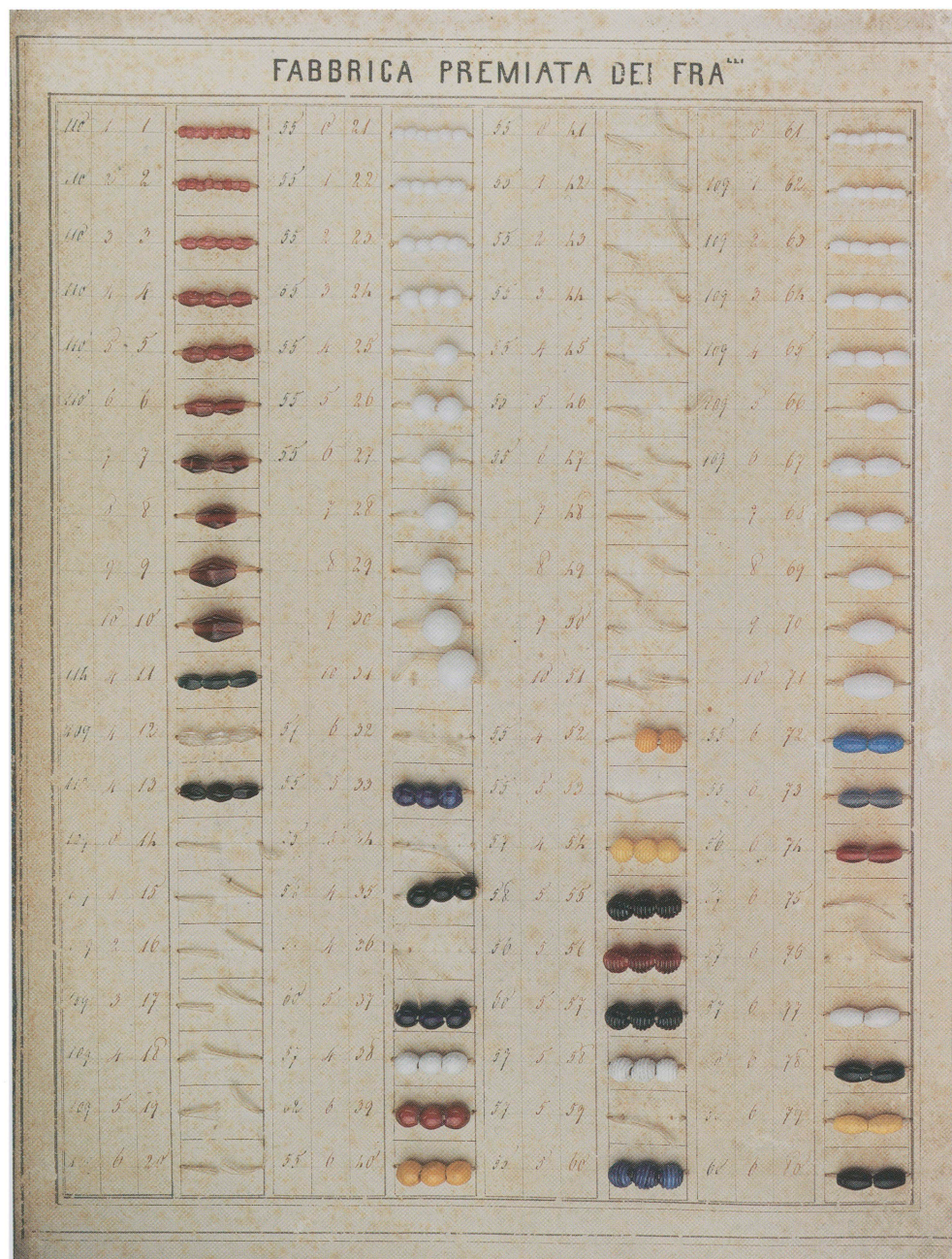


Plate IVA. *Giacomuzzi*: Bead book, page 1 (all Giacomuzzi photos by Christopher Marchetti).

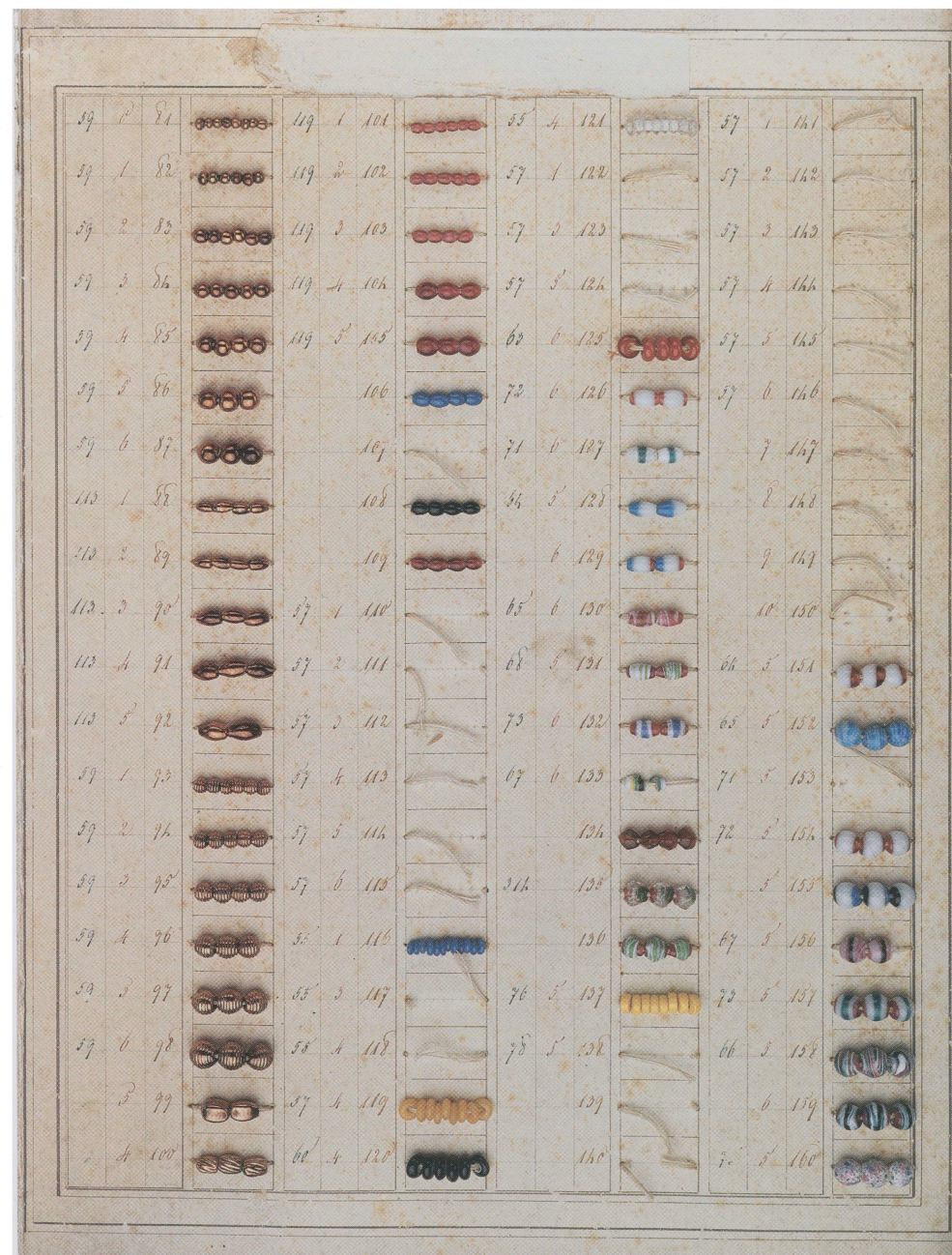


Plate IVB. *Giacomuzzi*: Bead book, page 2.

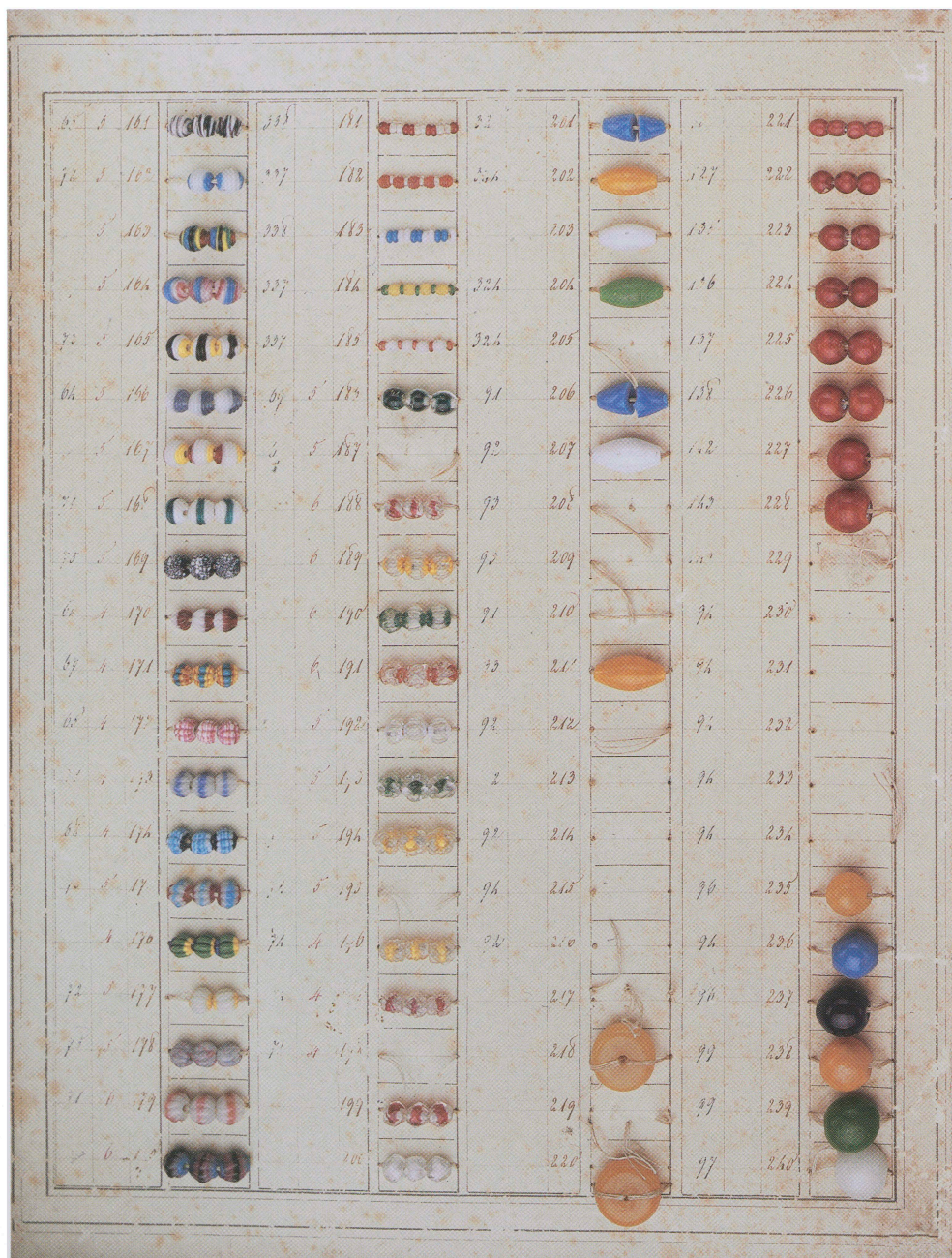


Plate VA. Giacomuzzi: Bead book, page 3.

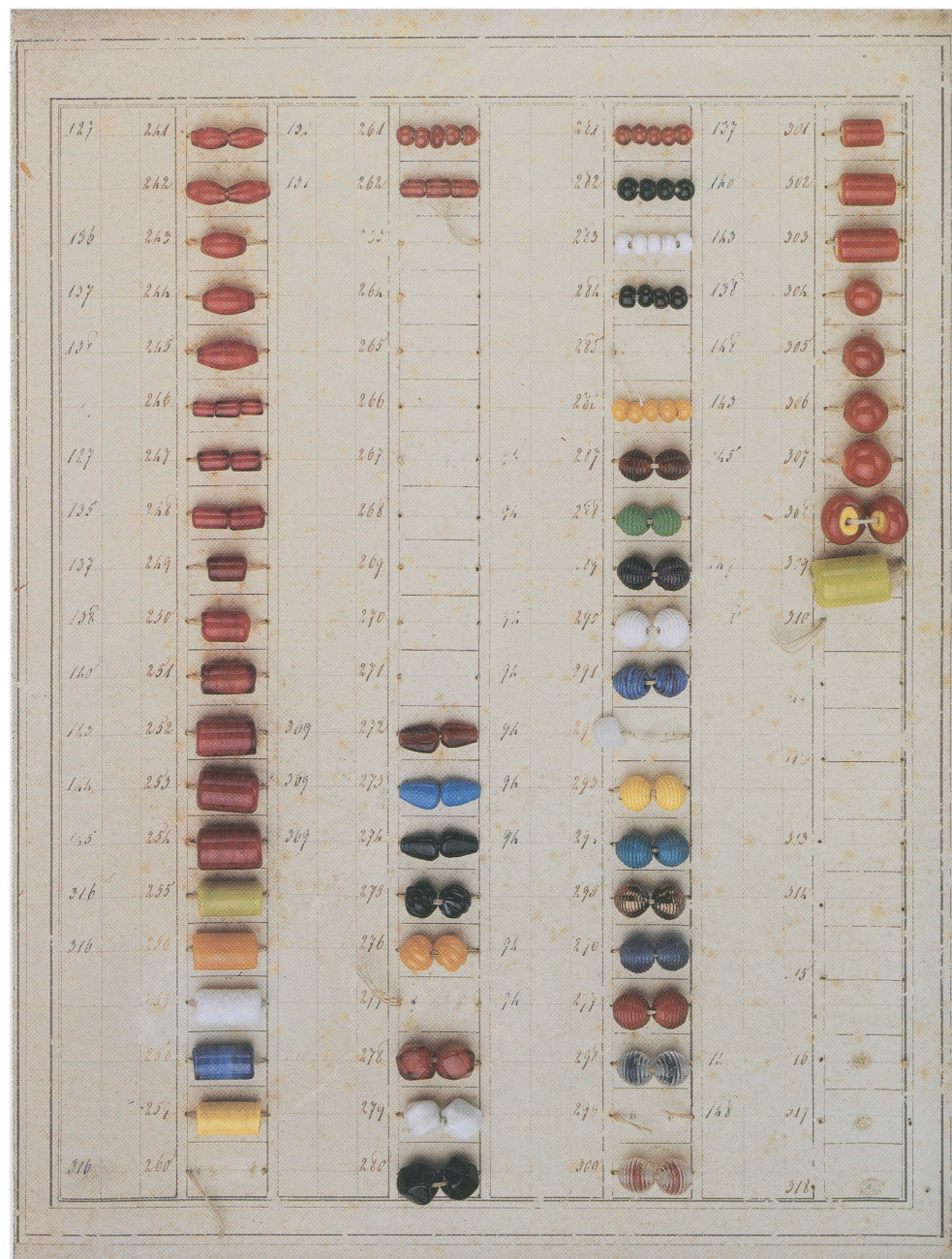


Plate VB. Giacomuzzi: Bead book, page 4.



Plate VIA. Giacomuzzi: Bead book, page 5.

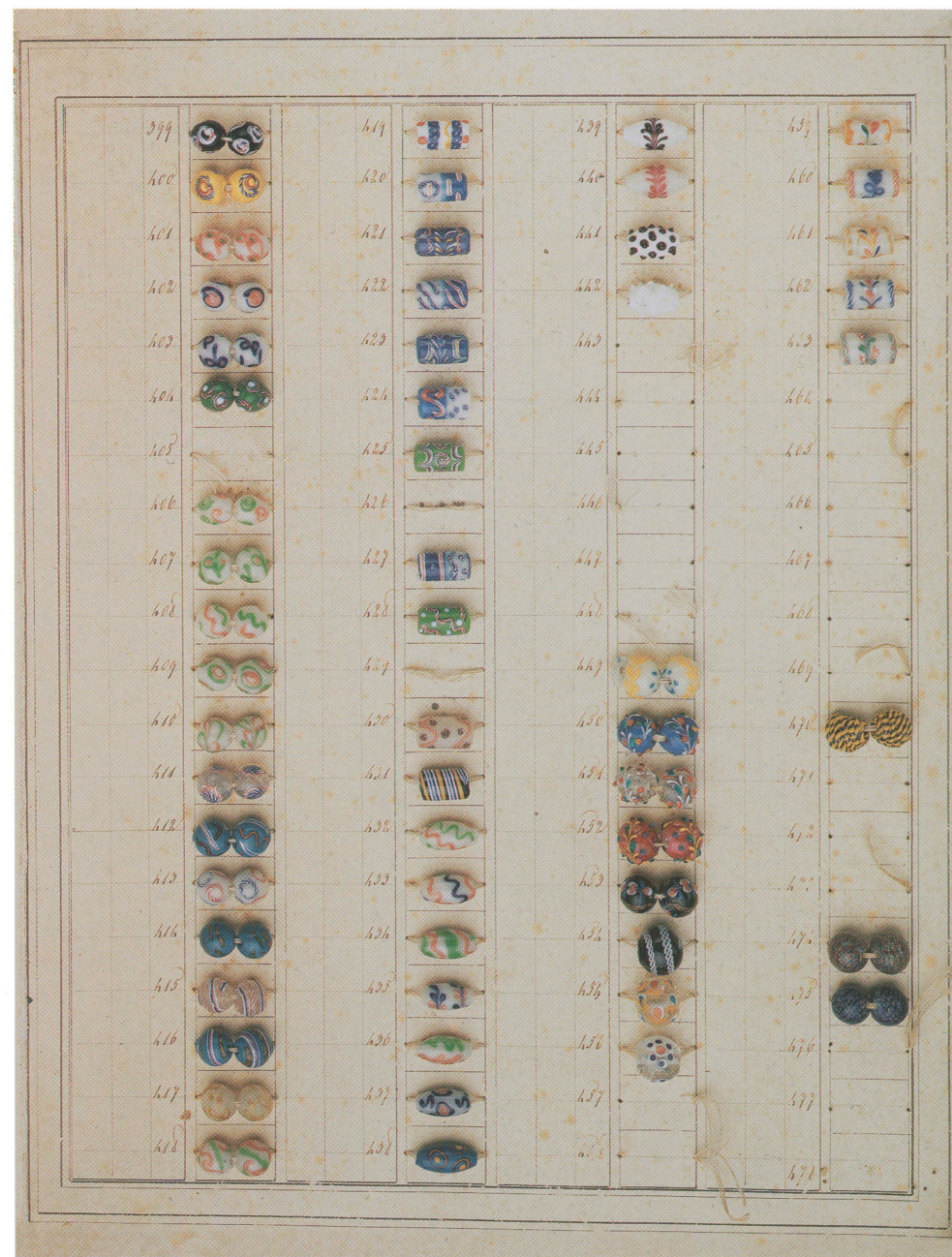


Plate VIB. Giacomuzzi: Bead book, page 6.

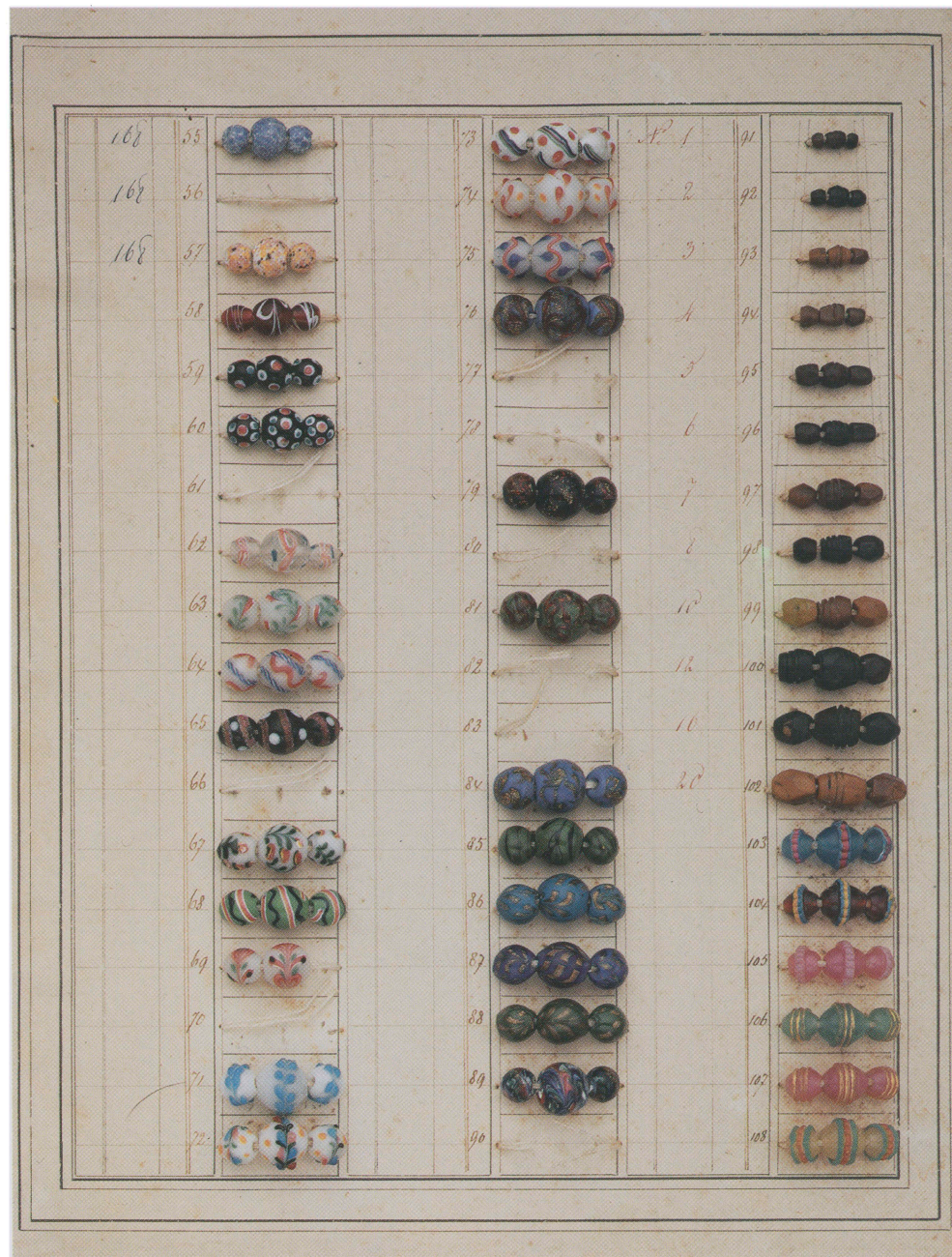


Plate VIIA. Giacomuzzi: Folder F, page 1.

Plate VIIB. Giacomuzzi: Folder F, page 2.



Plate VIIIA. Giacomuzzi: Folder E, page 1.



Plate VIIIB. Giacomuzzi: Folder E, page 2.

381-418. WIIb and WIIh; round beads with monochrome and polychrome bodies decorated with various designs; 37 varieties:

381. WIIb*; tsl. light gray body decorated with an op. white, tsp. ruby, tsp. bright navy, and tsp. bright turquoise wreath about the middle.

382. WIIb*; op. bright navy body decorated with 3 "eye" clusters, each composed of 5 op. light gold on op. white eyes encircling a tsp. ruby on op. white eye.

383. WIIb*; op. white body decorated with 4 wreaths set parallel to the perforation, each of a different color: tsp. ruby, op. mustard gold, tsp. turquoise green, and tsp. bright navy.

384. WIIb*; op. white body decorated with 2 tsp. ruby and 2 tsp. bright navy wreaths set parallel to the perforation.

385. WIIb*; op. white body decorated with 4 tsp. bright navy wreaths set parallel to the perforation.

386. WIIb*; op. cerulean blue body decorated with 15 dots of op. white and tsp. scarlet swirled together.

387. WIIb*; op. black body decorated with 6 op. white bull's-eyes.

388. WIIb*; tsl. light gray body decorated with tsp. ruby on op. cerulean blue on op. white eyes.

389. WIIb*; tsl. light gray body decorated with tsp. ruby on op. white eyes and op. cerulean blue on op. white eyes.

390. WIIb*; tsp. ruby body decorated with op. cerulean blue on op. white eyes.

391. WIIb*; op. white body decorated with swirled op. white and tsp. bright navy dots.

392. WIIb*; op. dark palm green body decorated with swirled op. white and tsp. bright navy dots.

393. WIIb*; tsp. ruby body decorated with swirled op. white dots.

394. WIIb*; op. white body decorated with op. mustard gold on op. black eyes.

395. WIIh*; tsp. ruby on op. white body decorated with 4 tsp. bright navy on op. white wreaths set parallel to the perforation.

396. WIIb*; tsl. light gray body decorated with 3 op. cerulean blue dots and a wavy stripe composed of

op. white and tsp. bright navy filaments twisted together about the equator.

397. WIIb*; op. black body decorated with 4 tsp. ruby on op. white and op. mustard gold "double-stemmed" flowers.

398. WIIb*; op. white body decorated with a tsp. bright navy on tsp. rose wine wreath about the equator.

399. WIIb*; op. black body decorated with 6 op. white and tsp. scarlet swirls.

400. WIIb*; op. light gold body decorated with 3 loops of op. white and op. black filaments twisted together, encircling a tsp. scarlet on op. white loop.

401. WIIb*; tsl. light gray body decorated with 3 tsp. scarlet on op. white and tsp. teal green floral elements.

402. WIIb*; tsl. light gray body decorated with 3 tsp. bright navy loops enclosing tsp. scarlet on op. white squiggles.

403. WIIb*; tsl. light gray body decorated with 4 tsp. scarlet on op. white and tsp. bright navy floral designs.

404. WIIb*; op. dark palm green body decorated with 6 op. white dots encircled by swirled op. white and tsp. scarlet loops.

405. Missing.

406. WIIb*; tsl. light gray body decorated with 3 tsp. scarlet on op. white squiggles and 3 tsp. bright green squiggles.

407. WIIb*; tsl. light gray body decorated with 3 tsp. scarlet on op. white and tsp. bright green floral designs.

408. WIIb*; tsl. light gray body decorated with 2 tsp. scarlet on op. white and 2 tsp. bright green diagonal wavy stripes.

409. WIIb*; tsl. light gray body decorated with 6 op. white and tsp. scarlet loops set within tsp. bright green loops.

410. WIIb*; tsl. light gray body decorated with a tsp. scarlet on op. white and tsp. bright green wreath about the equator.

411. WIIb*; tsp. light gray (clear) body decorated with 3 loops of twisted op. white and tsp. scarlet threads set within twisted op. white and op. bright navy loops.

412. WIIb*; op. bright blue body decorated with 3 straight diagonals composed of thin tsp. scarlet and tsp. bright blue threads on an op. white band, and 3 diagonal wavy stripes of tsp. scarlet on op. white.

413. WIIb*; tsl. light gray body decorated with 3 loops of entwined op. white and tsp. scarlet, and 3 loops of entwined op. white and tsp. bright navy.

414. WIIb*; op. bright blue body decorated with aventurine dashes.

415. WIIb*; tsl. light gray body decorated with a spiral stripe of tsp. scarlet and tsp. bright navy threads on op. white, and another spiral of op. white and tsp. scarlet threads twisted together.

416. WIIb*; op. bright blue body decorated with a spiral stripe of tsp. scarlet and tsp. bright navy threads on op. white, and another spiral of aventurine.

417. WIIb*; tsl. light gray body decorated with 3 aventurine floral designs.

418. WIIb*; tsl. light gray body decorated with 3 pairs of tsp. scarlet on op. white squiggles, and 3 tsp. bright green diagonal stripes.

All but nos. 397-398 represent size group a:

Size a)	Diameter:	9.3-11.7 mm	(10.5 mm)
	Length:	8.6-11.8 mm	(10.6 mm)
Size b)	Diameter:	13.2-13.9 mm	(13.6 mm)
	Length:	12.8-13.6 mm	(13.2 mm)

419-431. WIIb; cylindrical beads with monochrome and polychrome bodies decorated with various designs; 16 varieties were originally present:

419. WIIb*; op. white body decorated with 4 tsp. ruby dots adjacent to 2 op. bright navy "coils" in clear glass around either end, and a wavy op. light gold stripe around the middle.

420. WIIb*; two-tone body (one end is tsl. light gray, the other is op. deep blue) decorated with tsp. scarlet on op. white dashes, and loops of op. white and tsp. bright navy threads twisted together.

421. WIIb*; op. deep blue body decorated with an op. white and op. light gold wreath about the middle, and swirled op. white and tsp. scarlet crescents around the ends.

422. WIIb*; two-tone body (one end is tsl. light gray, the other is op. deep blue) decorated with diagonal dashes of tsp. scarlet on op. white, and

diagonals composed of op. white and tsp. bright navy threads twisted together.

423. WIIb*; op. deep blue body decorated with an op. white wreath around the middle, and 4 tsp. scarlet, op. light gold, and tsp. bright blue on op. white crescents around either end.

424. WIIb*; two-tone body (one end is tsl. light gray, the other is op. deep blue) decorated with several dots of op. white and op. bright navy swirled together, and tsp. scarlet on op. white squiggles.

425. WIIb*; op. grass green body decorated with 5 loops of entwined op. white and tsp. scarlet threads enclosing dots of the same colors about the middle, and tsp. scarlet on op. white crescents around the ends.

426. Missing.

427. WIIb*; two-tone body (one end is tsl. light gray, the other is op. deep blue) decorated with op. white and op. bright navy swirls, tsp. scarlet on op. white bands, and wavy and straight bands of entwined op. white and op. bright navy threads.

428. WIIb*; op. grass green body decorated with 4 diagonal wavy lines of entwined op. white and tsp. scarlet threads, and 4 diagonal rows of op. white dots.

429. Missing.

430. WIIb*; tsl. light gray body decorated with dots of tsl. light gray and tsl. dark rose brown swirled together, and wavy stripes of entwined op. white and tsp. scarlet threads around the ends.

431. WIIb*; op. black body decorated with a spiral stripe of op. light gold, and another of 2 thin tsp. bright navy lines on op. white.

One size appears to be represented:

Size a)	Diameter:	8.6-9.8 mm	(9.0 mm)
	Length:	15.2-17.5 mm	(16.1 mm)

432-438. WIIb; oval (olive-pit-shaped) beads with monochrome bodies decorated with various designs; 7 varieties:

432. WIIb*; tsl. light gray body decorated with 2 tsp. scarlet on op. white and 2 tsp. bright green wavy diagonals.

433. WIIb*; tsl. light gray body decorated with 2 tsp. scarlet on op. white and 2 op. bright navy wavy diagonals.

434. WIIb*; tsl. light gray body decorated with a wavy spiral stripe of tsp. scarlet on op. white, and a broad undulating spiral of op. bright green.

435. WIIb*; tsl. light gray body decorated with a tsp. scarlet and tsp. bright navy wreath about either end.

436. WIIb*; tsl. light gray body decorated with 2 tsp. scarlet on op. white and 2 tsp. bright green wreaths set parallel to the perforation.

437. WIIb*; tsl. light gray body decorated about the middle with 4 tsp. scarlet on op. white squiggles inside op. bright navy loops, and 4 tsp. bright navy squiggles around either end.

438. WIIb*; op. bright blue body decorated with tsp. scarlet on op. white loops with an op. light gold dot in the center of each.

One size group is represented:

Size a) Diameter: 8.0-8.8 mm (8.5 mm)
Length: 16.2-19.2 mm (17.6 mm)

439-452. WIIId and WIIi; monochrome and polychrome-bodied beads of various shapes decorated with overlaid designs; 14 varieties were originally present:

439. WIIId*; oval (olive-pit-shaped); op. white body decorated with a raised tsl. rose wine wreath about the middle.

440. WIIId*; oval (olive-pit-shaped); tsl. light gray body decorated with a raised tsp. ruby wreath about the middle.

Size a) Diameter: 9.4-10.0 mm (9.7 mm)
Length: 19.3-19.6 mm (19.5 mm)

441. WIIId*; oval knobbed; op. white body decorated with raised tsl. rose wine knobs.

442. WIIId*; oval knobbed; op. white body decorated with raised tsl. light blue (opalescent) knobs.

Size a) Diameter: 9.1-9.3 mm (9.2 mm)
Length: 15.8-16.0 mm (15.9 mm)

443-448. Missing.

449. WIIId*; round; tsl. light gray body decorated with a raised tsp. light gold wreath about the equator, and 5-6 op. bright blue dots about either end.

450. WIIId*; round; op. cerulean blue body decorated with raised op. white, tsp. scarlet, and tsp. turquoise green wreaths, and op. mustard gold knobs.

451. WIIId*; round; tsp. light gray (clear) body decorated with raised op. white, tsp. scarlet, and tsp. turquoise green wreaths, and tsp. scarlet on op. white knobs.

452. WIIi*; round; tsp. ruby on op. white body decorated with a raised wreath of op. light gold, tsp. scarlet, and tsp. turquoise green about the equator, and op. cerulean blue knobs around either end.

Size a) Diameter: 11.3-12.6 mm (12.0 mm)
Length: 11.2-12.4 mm (11.7 mm)

453-456. WIIb; round monochrome-bodied beads decorated with various designs; 4 varieties:

453. WIIb*; op. black body decorated with 3 tsp. scarlet on op. white and op. cerulean blue floral designs, and 3 double aventurine stripes set parallel to the perforation [size a].

454. WIIb*; op. black body decorated with a spiral op. white lattice [size b].

455. WIIb*; tsp. light gray (clear) body decorated with op. light gold and tsp. scarlet on op. white blossoms about the middle, and op. light gold and op. cerulean blue on op. white blossoms around either end [size b].

456. WIIb*; tsp. light gray (clear) body decorated with 3 blossoms composed of 6 op. bright navy on op. white eyes encircling a tsp. scarlet on op. white eye [size b].

Size a) Diameter: 11.6-12.6 mm (12.1 mm)
Length: 10.8-11.2 mm (11.0 mm)

Size b) Diameter: 13.5-14.7 mm (14.2 mm)
Length: 13.6-13.7 mm (13.6 mm)

457-458. Missing.

459-463. WIIb; cylindrical monochrome-bodied beads decorated with floral wreaths and end bands; 5 varieties:

459. WIIb*; tsl. light gray body decorated with an aventurine, and tsp. scarlet and op. dark palm green on op. white floral wreath about the middle, and an op. amber band with adjoining dots about either end [size a].



Figure 3. Round "raised spiral" beads (no. 470) in the Giacomuzzi bead book (photo: Christopher Marchetti).

460. WIIb*; tsl. light gray body decorated with a tsp. bright navy wreath about the middle, and a band of entwined op. white and tsp. scarlet threads about either end [size b].

461. WIIb*; tsl. light gray body decorated with a tsp. scarlet and tsp. bright navy on op. white and op. amber floral wreath about the middle, and an aventurine band about either end [size b].

462. WIIb*; tsl. light gray body decorated with a tsp. scarlet on op. white and tsp. bright navy on op. white floral wreath encircling the middle, and a band of entwined op. white and op. bright navy threads about either end [size b].

463. WIIb*; tsl. light gray body decorated with a tsp. bright green and swirled op. white/tsp. scarlet floral wreath about the middle, and end bands of entwined tsp. scarlet and tsp. bright green threads [size b].

Size a)	Diameter:	7.9 mm	(7.9 mm)
	Length:	13.9 mm	(13.9 mm)
Size b)	Diameter:	8.8-9.6 mm	(9.1 mm)
	Length:	14.7-16.8 mm	(15.6 mm)

464-469. Missing.

470. WIIId; round "raised spiral" beads made by spirally winding a multi-colored glass cane or rod around a plain core; 1 variety: (Fig. 3).

470. WIIId*; a rod of entwined op. black and op. light gold threads wound around an op. black core (Fig. 3).

Size a)	Diameter:	11.4-12.3 mm	(11.8 mm)
	Length:	12.0-12.3 mm	(12.2 mm)

471-473. Missing.

474-475. WIIa; round multi-layered beads made by spirally winding a polychrome cane or rod about a glass core and then smoothing the surface; 2 varieties:

474. WIIa*; the rod consists of entwined tsp. scarlet and tsp. turquoise green threads in tsp. light gray (clear) glass with a fine aventurine line running down the center; tsl. oyster white core.

475. WIIa*; the rod consists of entwined tsp. bright navy threads in tsp. light gray (clear) glass with a fine aventurine line running down the center; tsl. oyster white core.

Size a)	Diameter:	11.2-12.4 mm	(12.0 mm)
	Length:	10.0-12.0 mm	(11.0 mm)

476-578. Missing.

579-582. WI*; oval "raised spiral" beads made by spirally winding a solid polychrome cane or rod composed of spiral glass fibers into an oval form; the interior is hollow (no core); 4 varieties remain (Fig. 4):

579. WI*; op. satin-sheen ruby and op. white rod [size a].

580. WI*; op. satin-sheen white wrapped with a spiral thread of tsp. turquoise green [size a].

581. WI*; op. satin-sheen white wrapped with a spiral thread of op. bright navy [size b].

582. WI*; op. satin-sheen white, op. ruby, and op. copen blue twisted together [size b].

Size a)	Diameter:	5.6-6.3 mm	(6.0 mm)
	Length:	11.2-12.3 mm	(11.9 mm)
Size b)	Diameter:	7.8-8.2 mm	(8.0 mm)
	Length:	16.2-17.4 mm	(16.8 mm)

583-638. Missing.

BEAD FOLDER "F"

Like the pages in the sample book, Folder F consists of a large sheet of cardboard bent in the

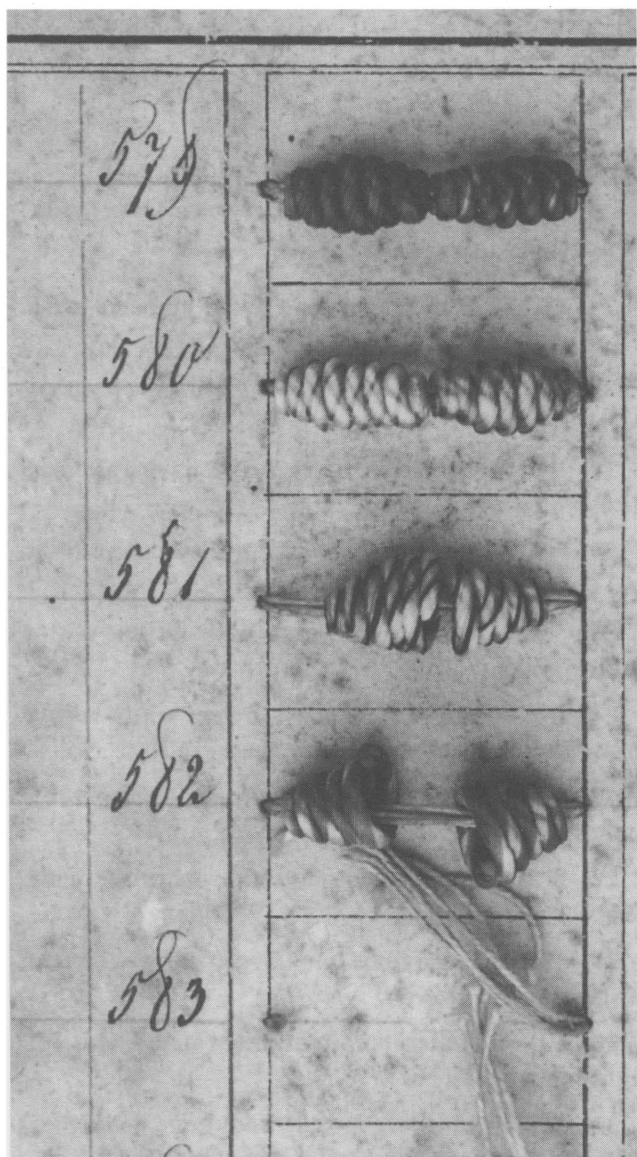


Figure 4. Oval “raised spiral” beads (nos. 579-582) in the Giacomuzzi bead book (photo: Christopher Marchetti).

middle to form two tray-like pages edged on three sides with narrow wooden slats. The latter are covered with marbled blue and brown paper. When closed, the folder measures 35.5 cm in length, 26.5 cm in width, and 2.6 cm in thickness. The covers, formed by the back of the cardboard sheet, are clad in textured blue paper. The number “09.97.F.” is painted in red at the top of the front cover, the number “6” is pencilled in blue on a paper label in the cover’s center, and the number “7/2” appears on an oval yellow sticker at the bottom.

Each page is divided into three pairs of columns with black-ink lines. The right-hand column in each pair displays the beads mounted on cotton string, while the one to the left provides catalogue numbers in brown ink and numbers of an unknown nature in black ink (the latter are provided in brackets in the descriptions that follow). In addition, numerals in red ink indicate the relative price per ounce (*Oncie*) for bead nos. 1-15, and the size categories for nos. 91-102.

The bead samples are sequentially numbered from 1 to 108 (Pl. VII). Of the 88 that remain, most are of wound glass. However, nos. 91-102 are composed of a light to dark brown substance that is probably a hard resin. Except for no. 10, each variety is shown in two sizes.

Folder “F” Bead Inventory

1-9. WII*; round-ribbed monochrome beads (these exhibit a series of contiguous rounded ribs set perpendicular to the perforation); 9 varieties, each of two sizes:

1. WII**; tsp. bright turquoise; *Oncie* 3.
2. WII**; tsp. ruby; *Oncie* 6.
3. WII**; op. copen blue and op. bright navy swirled together; *Oncie* 9.
4. WII**; op. bright blue; *Oncie* 12.
5. WII**; tsp. teal green; *Oncie* 18.
6. WII**; op. light gold; *Oncie* 24.
7. Missing; *Oncie* 30.
8. WII**; tsl. oyster white; *Oncie* 36.
9. WII**; op. grass green; *Oncie* 48.

There are 9 groups, each containing two sizes:

Size a)	Diameter:	3.8-3.9 mm	(3.9 mm)
	Length:	3.2-3.4 mm	(3.3 mm)
Size aa)	Diameter:	5.4 mm	(5.4 mm)
	Length:	5.4 mm	(5.4 mm)
Size b)	Diameter:	4.6-4.9 mm	(4.8 mm)
	Length:	4.8 mm	(4.8 mm)
Size bb)	Diameter:	6.7 mm	(6.7 mm)
	Length:	7.0 mm	(7.0 mm)
Size c)	Diameter:	5.4-5.5 mm	(5.4 mm)
	Length:	5.7 mm	(5.7 mm)
Size cc)	Diameter:	7.9 mm	(7.9 mm)

	Length:	7.5 mm	(7.5 mm)
Size d)	Diameter:	6.4 mm	(6.4 mm)
	Length:	7.1-7.6 mm	(7.4 mm)
Size dd)	Diameter:	—	—
	Length:	—	—
Size e)	Diameter:	7.6 mm	(7.6 mm)
	Length:	6.9 mm	(6.9 mm)
Size ee)	Diameter:	11.0 mm	(11.0 mm)
	Length:	10.0 mm	(10.0 mm)
Size f)	Diameter:	7.5-7.6 mm	(7.6 mm)
	Length:	7.2 mm	(7.2 mm)
Size ff)	Diameter:	11.5 mm	(11.5 mm)
	Length:	11.0 mm	(11.0 mm)
Size g)	Diameter:	—	—
	Length:	—	—
Size gg)	Diameter:	—	—
	Length:	—	—
Size h)	Diameter:	9.5 mm	(9.5 mm)
	Length:	8.4 mm	(8.4 mm)
Size hh)	Diameter:	13.0 mm	(13.0 mm)
	Length:	11.5 mm	(11.5 mm)
Size I)	Diameter:	9.8 mm	(9.8 mm)
	Length:	9.9 mm	(9.9 mm)
Size ii)	Diameter:	13.4 mm	(13.4 mm)
	Length:	12.2 mm	(12.2 mm)

10-12. WIIa; beads of simple shapes coated with copper-colored enamel; 3 varieties.

10. WIIa*; oblate; *Oncie* 9 [size].

11. WIIa*; oblate/round; *Oncie* 12 [sizes b, bb].

12. WIIa*; round; *Oncie* 15 [sizes c, cc].

The five size groups have the following measurements:

Size a)	Diameter:	4.3-4.6 mm	(4.5 mm)
	Length:	2.4-2.8 mm	(2.6 mm)
Size b)	Diameter:	3.8-4.3 mm	(4.0 mm)
	Length:	2.8-3.3 mm	(3.1 mm)
Size bb)	Diameter:	6.4 mm	(6.4 mm)
	Length:	6.0 mm	(6.0 mm)
Size c)	Diameter:	5.1-5.2 mm	(5.2 mm)
	Length:	4.7-4.9 mm	(4.8 mm)
Size cc)	Diameter:	6.6 mm	(6.6 mm)
	Length:	6.6 mm	(6.6 mm)

13-15. Missing; *Oncie* 24, 30, 36, respectively.

16-45. WIIb, WII*, and WIIe; round, round-ribbed, and melon beads of monochrome and polychrome glass; 30 varieties, each of two sizes:

16. WIIb*; round; op. grass green.

17. WII**; round ribbed; tsl. oyster white.

18. Missing.

19. WIIb*; round; two-tone body: one end is op. light gold; the other is op. dark palm green green [162].

20. Missing [162].

21. WIIe*; melon; two-tone body: one end is tsl. oyster white; the other is tsp. ruby [162].

22. WIIb*; round; op. black trailed on op. grass green [163].

23. WII**; round ribbed; tsp. bright navy trailed on tsl. oyster white [163].

24. WIIe*; melon; tsp. scarlet trailed on op. light gold [163].

25. WIIb*; round; op. black with an op. white equatorial band [160].

26. WII**; round ribbed; tsl. oyster white with a tsp. turquoise green equatorial band [160].

27. WIIe*; melon; tsl. oyster white with a tsp. ruby equatorial band [160].

28. WIIb*; round; tsp. ruby with op. white ends [161].

29. WII**; round ribbed; tsl. oyster white with tsp. teal green ends [161].

30. WIIe*; melon; tsp. light gray (clear) with op. bright navy ends [161].

31. WIIb*; round; three-tone body: one end is op. white, the other is op. dark palm green; the center is op. black.

32. WII**; round ribbed; tsl. oyster white with one tsp. teal green end and one op. light gold end.

33. WIIe*; melon; tsl. oyster white with one tsp. ruby and one op. bright blue end (the largest specimen has no blue end).

34. WIIb*; round; op. light gold with op. dark palm green ends and a tsp. ruby equatorial band.

35. WII**; round ribbed; tsl. oyster white with op. light gold ends and a tsp. teal green equatorial band.

36. Missing.

37. WIIb*; round; threads of op. white, tsp. scarlet, and tsp. turquoise green.

38. WII**; round ribbed; spiral threads of op. white, op. light gold, and op. dark rose brown.

39. WIIe*; melon; op. black and tsp. scarlet trailed on op. light gold.

40. WIIb*; round; swirled tsl. oyster white and tsp. scarlet body with op. bright blue ends.

41. WII**; round ribbed; swirled tsl. oyster white and op. bright blue body with op. light gold ends.

42. Missing.

43. WIIb*; round; swirled tsl. oyster white and tsp. ruby body with an op. bright blue equatorial band.

44. WII**; round ribbed; op. dark palm green body trailed with op. white and op. black threads.

45. WIIe*; melon; op. bright blue swirled on op. white, with an op. black equatorial band.

Each shape is represented by two size groups:

Round

Size a)	Diameter:	6.2-8.4 mm	(7.0 mm)
	Length:	6.2-8.4 mm	(7.0 mm)
Size b)	Diameter:	8.0-11.3 mm	(10.2 mm)
	Length:	8.5-11.8 mm	(9.6 mm)

Round ribbed

Size a)	Diameter:	5.8-7.8 mm	(7.0 mm)
	Length:	6.0-8.2 mm	(7.0 mm)
Size b)	Diameter:	9.5-10.8 mm	(10.4 mm)
	Length:	9.5-10.1 mm	(9.7 mm)

Melon

Size a)	Diameter:	7.0-8.0 mm	(7.5 mm)
	Length:	6.1-8.0 mm	(6.8 mm)
Size b)	Diameter:	10.2-12.8 mm	(10.8 mm)
	Length:	8.7-9.9 mm	(9.2 mm)

46-52. WIIIf and WIIIg; tsp. light gray (clear) beads of simple and complex shapes decorated internally with a colored element encircling the perforation; 7 varieties:

46. WIIIf*; round; tsp. turquoise green element.

47. Missing.

48. WIIIg*; melon; op. light gold element.

49. WIIIg*; round knobbed; tsp. ruby element.

50. WIIIg*; square decorated (each face exhibits a raised five-petal flower); tsp. turquoise green element.

51. WIIIg*; square ribbed; op. white element.

52. WIIIg*; round faceted (pressed pentagonal facets encircle the ends, while diamond-shaped facets encircle the middle); tsp. turquoise green element.

Despite the different shapes, all the beads in this section have approximately the same dimensions and represent two size groups:

Size a)	Diameter:	6.0-7.6 mm	(6.9 mm)
	Length:	6.2-7.3 mm	(6.8 mm)
Size b)	Diameter:	8.8-10.5 mm	(9.8 mm)
	Length:	8.7-9.9 mm	(9.2 mm)

53. WII*; round spiral-ribbed beads with polychrome bodies; 1 variety of two sizes:

53. WII**; tsl. oyster white body encircled by a tsp. ruby and a tsp. turquoise green band.

Size a)	Diameter:	6.8 mm	(6.8 mm)
	Length:	6.8 mm	(6.8 mm)
Size b)	Diameter:	9.8 mm	(9.8 mm)
	Length:	9.1 mm	(9.1 mm)

54. Missing.

55-69. WIIIfb; round beads decorated with various designs; 15 varieties:

55. WIIIfb*; tsl. oyster white body decorated with op. copen blue splotches [168].

56. Missing [168].

57. WIIIfb*; op. white body decorated with tsp. scarlet, op. light gold, and tsl. rose wine splotches [168].

58. WIIIfb*; tsp. ruby body decorated with an op. white trailed wreath about the middle.

59. WIIIfb*; op. black body decorated with 3-4 tsp. ruby on op. white eyes around the middle, and 3-4 op. bright blue on op. white eyes around either end.

60. WIIIfb*; op. black body decorated with 6-8 tsp. ruby on op. white eyes around the middle, and 6-8 op. bright blue on op. white eyes around either end.

61. Missing.

62. WIIIfb*; tsp. light gray (clear) body decorated with tsp. scarlet on op. white squiggles around the middle, and 2-3 op. bright blue dots around either end.

63. WIIIfb*; tsl. oyster white body decorated with a wavy floral spray of tsp. scarlet on op. white and tsp. turquoise green.

64. WIIb*; tsl. oyster white body decorated with 2-3 wavy tsp. scarlet diagonals and 2-3 diagonals of op. white and tsp. bright navy threads twisted together.

65. WIIb*; op. black body decorated with a spiral aventurine stripe and a spiral series of op. white dots.

66. Missing.

67. WIIb*; tsl. oyster white body decorated with 3-4 flowers having op. dark palm green stems and op. light gold on tsp. ruby blossoms.

68. WIIb*; op. dark palm green body decorated with a spiral stripe of tsp. ruby on op. white, and a wavy spiral stripe of op. black.

69. WIIb*; tsl. oyster white body decorated with an op. white, tsp. scarlet, tsp. turquoise green, and op. dark rose brown floral wreath about the middle.

Nos. 55-59 represent two size groups:

Size a)	Diameter:	6.6-7.1 mm	(6.8 mm)
	Length:	5.9-7.2 mm	(6.5 mm)
Size b)	Diameter:	8.6-9.4 mm	(9.0 mm)
	Length:	8.2-9.0 mm	(8.5 mm)

Nos. 60-69 represent another two size groups:

Size a)	Diameter:	7.0-9.0 mm	(8.4 mm)
	Length:	6.8-9.7 mm	(8.6 mm)
Size b)	Diameter:	10.2-11.8 mm	(10.7 mm)
	Length:	9.7-12.0 mm	(11.2 mm)

70. Missing.

71-75. WIIb and WIIId; round beads decorated with various raised and flush designs; 5 varieties, each of two sizes:

71. WIIId*; tsl. oyster white body decorated with a raised tsl. bright blue wreath about the equator.

72. WIIId*; tsl. oyster white body decorated with a raised op. black, tsp. scarlet, tsp. teal green, and tsp. bright blue wreath about the equator, and op. light gold dots around either end.

73. WIIb*; op. white body decorated with 2-3 flush op. grass green/op. white/tsp. ruby/op. white/op. bright navy diagonal stripes, and 2-3 diagonal series of tsp. ruby dots.

74. WIIId*; tsl. oyster white body decorated with raised tsp. ruby teardrops, and flush op. light gold dots.

75. WIIId*; tsl. oyster white body decorated with a raised wavy tsp. scarlet on op. white stripe about the

middle, and 4-5 tsp. bright navy teardrops around either end.

The two size groups have the following metric values:

Size a)	Diameter:	8.2-9.8 mm	(9.1 mm)
	Length:	8.6-9.4 mm	(9.0 mm)
Size b)	Diameter:	11.0-13.1 mm	(11.9 mm)
	Length:	11.6-12.4 mm	(11.9 mm)

76-90. WIIb; round beads decorated with various designs; 15 varieties:

76. WIIb*; op. copen blue body decorated with tsp. ruby and aventurine squiggles.

77-78. Missing.

79. WIIb*; op. black body decorated with tsp. ruby and aventurine squiggles.

80. Missing.

81. WIIb*; op. dark palm green body decorated with tsp. ruby and aventurine squiggles.

82-83. Missing.

84. WIIb*; op. copen blue body decorated with aventurine squiggles.

85. WIIb*; op. dark palm green body decorated with op. black squiggles.

86. WIIb*; op. bright blue body decorated with aventurine floral designs set parallel to the perforation.

87. WIIb*; op. bright navy body decorated with aventurine floral designs set parallel to the perforation.

88. WIIb*; op. dark palm green body decorated with aventurine floral designs set parallel to the perforation.

89. WIIb*; op. white body covered with swirls of op. white, tsp. scarlet, tsp. dark jade green, op. bright navy, and aventurine.

90. Missing.

The two size groups have the following dimensions:

Size a)	Diameter:	8.6-10.5 mm	(9.5 mm)
	Length:	7.9-10.4 mm	(9.2 mm)
Size b)	Diameter:	11.0-13.4 mm	(12.2 mm)
	Length:	11.5-12.9 mm	(12.1 mm)



Figure 5. Detail of the non-glass (resin) beads in Folder F (photo: Jamey D. Allen).

91-102. Non-glass (resin) beads; light to dark brown in color, these are of two forms (Fig. 5):

Facetted: these exhibit 8 pressed, roughly pentagonal facets; the ends range from flattish to rounded; 12 sizes:

Size 1)	Diameter:	3.6 mm	(3.6 mm)
	Length:	2.2-2.8 mm	(2.5 mm)
Size 2)	Diameter:	4.1-4.2 mm	(4.2 mm)
	Length:	3.6-4.1 mm	(3.9 mm)

Size 3)	Diameter:	4.3-4.7 mm	(4.5 mm)
	Length:	3.8-4.1 mm	(4.0 mm)
Size 4)	Diameter:	4.6-5.2 mm	(4.9 mm)
	Length:	4.1-4.5 mm	(4.3 mm)
Size 5)	Diameter:	4.7-5.5 mm	(5.1 mm)
	Length:	5.6-6.5 mm	(6.0 mm)
Size 6)	Diameter:	4.8-5.4 mm	(5.0 mm)
	Length:	6.1 mm	(6.1 mm)
Size 7)	Diameter:	5.6-6.2 mm	(5.9 mm)
	Length:	6.4 mm	(6.4 mm)
Size 8)	Diameter:	6.2-6.4 mm	(6.3 mm)
	Length:	5.7-6.6 mm	(6.2 mm)
Size 10)	Diameter:	7.1-7.7 mm	(7.4 mm)
	Length:	8.0-8.3 mm	(8.2 mm)
Size 12)	Diameter:	7.8 mm	(7.8 mm)
	Length:	7.0 mm	(7.0 mm)
Size 16)	Diameter:	8.2-8.5 mm	(8.4 mm)
	Length:	8.9-9.1 mm	(9.0 mm)
Size 20)	Diameter:	8.7 mm	(8.7 mm)
	Length:	10.4 mm	(10.4 mm)

Grooved: these roughly barrel-shaped beads exhibit 2 (on the smaller specimens) to 3 cut grooves which encircle the body perpendicular to the perforation (on the larger specimens, the grooves generally occupy one half of the bead); the ends are flattish to rounded; 12 sizes:

Size 1)	Diameter:	4.4 mm	(4.4 mm)
	Length:	4.6 mm	(4.6 mm)
Size 2)	Diameter:	5.4 mm	(5.4 mm)
	Length:	4.7 mm	(4.7 mm)
Size 3)	Diameter:	5.6 mm	(5.6 mm)
	Length:	5.6 mm	(5.6 mm)
Size 4)	Diameter:	5.6 mm	(5.6 mm)
	Length:	6.4 mm	(6.4 mm)
Size 5)	Diameter:	6.4 mm	(6.4 mm)
	Length:	6.6 mm	(6.6 mm)
Size 6)	Diameter:	6.2 mm	(6.2 mm)
	Length:	7.0 mm	(7.0 mm)
Size 7)	Diameter:	7.3 mm	(7.3 mm)
	Length:	8.9 mm	(8.9 mm)
Size 8)	Diameter:	7.0 mm	(7.0 mm)
	Length:	7.6 mm	(7.6 mm)
Size 10)	Diameter:	7.9 mm	(7.9 mm)
	Length:	8.1 mm	(8.1 mm)
Size 12)	Diameter:	10.4 mm	(10.4 mm)
	Length:	10.0 mm	(10.0 mm)
Size 16)	Diameter:	10.4 mm	(10.4 mm)

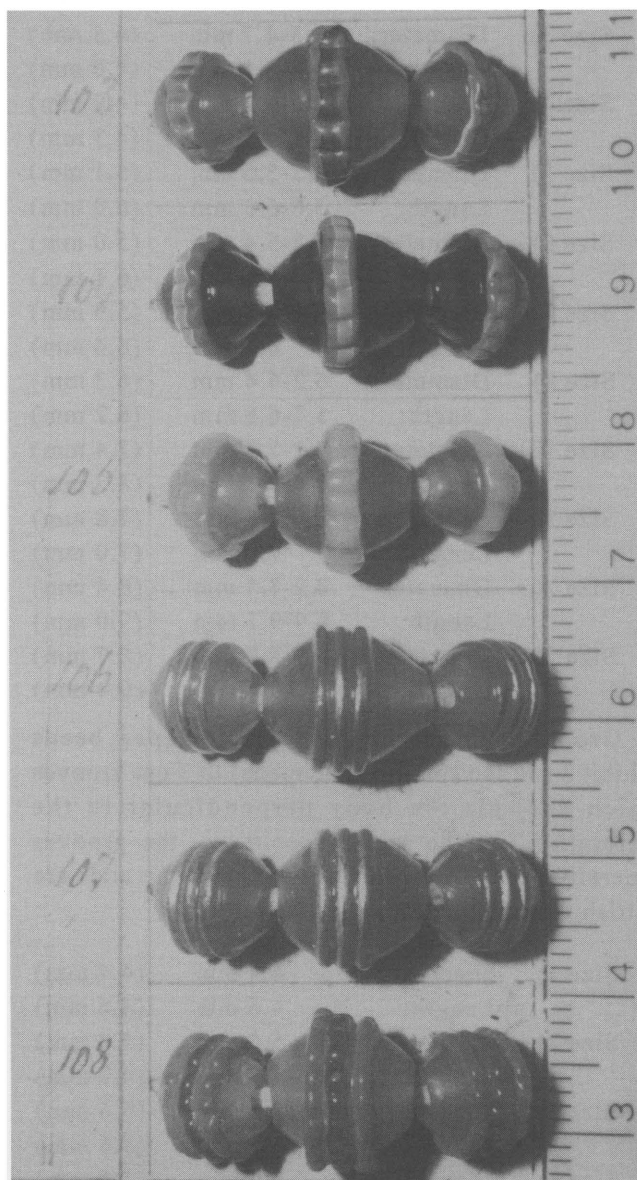


Figure 6. Detail of the round beads with raised equatorial rings in Folder F (photo: Jamey D. Allen).

	Length:	10.9 mm	(10.9 mm)
Size 20)	Diameter:	9.0 mm	(9.0 mm)
	Length:	11.6 mm	(11.6 mm)

103-108. WIIId*; round monochrome beads decorated with raised equatorial bands or rings (Fig. 6); 6 varieties:

103. WIIId*; tsl. bright blue body decorated with a raised rippled equatorial band of tsp. scarlet on op. white.

104. WIIId*; tsp. ruby body decorated with a raised rippled equatorial band of op. light gold on op. bright blue.

105. WIIId*; tsl. rose body decorated with a raised rippled equatorial band of tsl. oyster white.

106. WIIId*; tsl. surf green body decorated with 3 raised, gilded equatorial rings.

107. WIIId*; tsl. rose body decorated with 3 raised, gilded equatorial rings.

108. WIIId*; tsl. citron body decorated with 3 raised, rippled equatorial rings: the one in the middle is tsp. ruby; those on either side are tsl. turquoise green.

Size a)	Diameter:	8.2-9.5 mm	(8.8 mm)
	Length:	7.4-8.8 mm	(8.1 mm)
Size b)	Diameter:	10.2-11.8 mm	(11.0 mm)
	Length:	10.0-12.5 mm	(11.0 mm)

BEAD FOLDER "E"

Measuring 39.5 cm in length, 28.0 cm in width, and 3.2 cm in thickness when closed, this folder consists of two tray-like cardboard pages connected by a cloth hinge. Unlike the sample book and Folder F, all four edges of each page are edged with narrow wooden slats. The folder's covers, which consist of the backs of the cardboard pages, are encased in marbled yellow, green, blue, ruby, and black paper; the wooden slats are covered with textured, glossy, orange paper. The front cover has "09.97.E." in red paint at the top and a blue "5" pencilled on a square white label in the center. The pages are sectioned into four pairs of columns with brown-ink lines. One column displays the beads while that to the left of it provides the catalogue number. *Cartela 9* (card 9) is written at the top of the first page in black ink, as is the number "9" in blue pencil.

The beads, numbered sequentially from 181 to 360, are all of wound manufacture (Pl. VIII). All but 11 remain.

Folder "E" Bead Inventory

181-183, 189, 200-201. WIIm and WIIp; short square barrel beads and long square truncated convex bicone beads (Beck's types IX.B.1.b. and IX.D.1.f.,

respectively) with monochrome bodies. These square-sectioned beads generally taper toward either end from a slight central ridge, although the two smallest sizes are simply oblate beads that have been pressed while viscid to give them a squared outline. While two shapes are technically present, the catalogue reveals that the WIIIm specimens are simply short versions of the WIIP beads. There are 6 varieties:

181. WIIIm*; short square barrel; op. black [size a].

182. WIIIm*; short square barrel; tsp. ruby [size a].

183. WIIP*; long square truncated convex bicone; tsp. ruby [size b].

189. WIIP*; long square truncated convex bicone; tsp. light gray (clear) [size b].

200. WIIP*; long square truncated convex bicone; tsp. ruby [size c].

201. WIIP*; long square truncated convex bicone; op. white [size c].

Size a) Diameter: 3.2-3.6 mm (3.5 mm)

Length: 1.6-3.0 mm (2.4 mm)

Size b) Diameter: 3.7-4.4 mm (4.0 mm)

Length: 6.2-7.0 mm (6.5 mm)

Size c) Diameter: 5.2-6.2 mm (5.8 mm)

Length: 9.2-10.2 mm (9.7 mm)

184-188. WIC; monochrome oval (olive-pit- shaped) beads; 5 varieties:

184. WIC*; op. black [size a].

185. WIC*; op. bright blue [size b].

186. WIC*; tsp. turquoise green [size b].

187. WIC*; op. black [size b].

188. WIC*; tsp. terra cotta [size c].

Size a) Diameter: 3.2-3.3 mm (3.2 mm)

Length: 4.4-4.6 mm (4.5 mm)

Size b) Diameter: 3.4-3.8 mm (3.6 mm)

Length: 5.7-6.8 mm (6.2 mm)

Size c) Diameter: 4.2-4.3 mm (4.2 mm)

Length: 7.5 mm (7.5 mm)

190-191. WIIIE; beads of complex shapes covered with a copper-colored enamel; 2 varieties:

190. WIIIE*; long square barrel (Beck type IX.D.1.b.); these have square-sectioned bodies that taper toward either end.

Size a) Diameter: 4.9-5.2 mm (5.0 mm)

Length: 7.4-8.0 mm (7.7 mm)

191. WIIIE*; square diagonal-ribbed; these are square beads covered with diagonal ribs.

Size a) Diameter: 4.6-5.6 mm (5.1 mm)

Length: 6.5-7.1 mm (6.8 mm)

192-199, 202-203, 205. WIC and WIIIB; oval (olive-pit-shaped) beads with monochrome and polychrome bodies; 10 varieties:

192. WIIIB*; op. white body decorated with a spiral tsp. ruby stripe [size a].

193. WIC*; tsp. teal green [size a].

194. WIC*; op. amber [size a].

195. WIC1; op. white [size b].

196-197. Missing.

198. WIC*; op. black [size b].

199. WIC*; tsp. bright navy [size b].

202. WIC*; op. light gold [size c].

203. WIC*; op. bright blue [size c].

205. WIC*; tsl. oyster white [size d].

Two sizes appear to be represented:

Size a) Diameter: 5.4-6.0 mm (5.7 mm)

Length: 8.4-9.8 mm (9.2 mm)

Size b) Diameter: 5.6-6.1 mm (5.9 mm)

Length: 10.7-11.5 mm (11.0 mm)

Size c) Diameter: 6.7-7.6 mm (7.1 mm)

Length: 12.2-13.1 mm (12.7 mm)

Size d) Diameter: 7.2 mm (7.2 mm)

Length: 14.2-15.0 mm (14.6 mm)

204. WII*; oval ribbed beads with monochrome bodies. These were apparently rolled in a ribbed mold while still on the mandrel to impart a series of ribs or rounded ridges that encircle the bead perpendicular to the perforation; 1 variety:

204. WII*; op. black.

Size a) Diameter: 6.6-7.0 mm (6.8 mm)

Length: 11.7-12.0 mm (11.8 mm)

206. Missing.

207-214. WIB; round monochrome beads; 8 varieties:

207. WIB*; op. redwood.

208. W1b*; tsl. oyster white.

209. W1b*; op. cerulean blue.

210. W1b*; tsp. ruby.

211. W1b*; tsp. dark jade green.

212. W1b*; tsl. citron.

213. Missing.

214. W1b*; op. black.

Size a)	Diameter:	4.6-6.0 mm	(5.4 mm)
	Length:	4.3-6.6 mm	(5.3 mm)

215-216. W111a and W111e; beads of simple and complex shapes covered with a copper-colored enamel; 2 varieties:

215. W111a*; round.

Size a)	Diameter:	6.0-6.2 mm	(6.1 mm)
	Length:	5.6-6.2 mm	(5.9 mm)

216. W111e*; melon.

Size a)	Diameter:	5.3-5.5 mm	(5.4 mm)
	Length:	5.8-6.1 mm	(6.0 mm)

217-219, 223-227. W1b; round monochrome beads; 6 varieties:

217. W1b*; tsp. dark jade green [size a].

218. W1b*; op. cerulean blue [size a].

219. W1b12; op. bright blue [size a].

223. W1b1; tsp. light gray (clear) [size b].

224-226. W1b*; op. black [sizes a,b,c].

227. W1b*; op. teal green [size c].

Size a)	Diameter:	7.2-8.5 mm	(7.9 mm)
	Length:	8.1-9.5 mm	(8.9 mm)

Size b)	Diameter:	9.0-9.8 mm	(9.3 mm)
	Length:	9.1-10.4 mm	(9.8 mm)

Size c)	Diameter:	9.7-10.6 mm	(10.1 mm)
	Length:	10.6-11.3 mm	(10.8 mm)

220-222. W11*; round-ribbed beads with monochrome bodies; 3 varieties:

220. W11**; op. grass green.

221. W11**; tsl. citron.

222. W11**; op. white.

Size a)	Diameter:	7.4-8.4 mm	(8.0 mm)
	Length:	7.9-8.3 mm	(8.2 mm)

228-232. W111a; round double-layered beads; 1 variety:

228-232. W111a*; tsp. ruby on op. white (one of the no. 230 specimens has an op. light gold core).

Five size groups are represented:

Size a)	Diameter:	6.5-6.8 mm	(6.6 mm)
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	Length:	6.2-6.8 mm	(6.5 mm)
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Size b)	Diameter:	7.6-7.8 mm	(7.7 mm)
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	Length:	7.6-8.2 mm	(7.9 mm)
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Size c)	Diameter:	9.8-10.2 mm	(10.0 mm)
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	Length:	10.4-11.1 mm	(10.8 mm)
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Size d)	Diameter:	11.6-12.8 mm	(12.2 mm)
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	Length:	11.1-12.4 mm	(11.7 mm)
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Size e)	Diameter:	14.6 mm	(14.6 mm)
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	Length:	13.6 mm	(13.6 mm)
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233. W1c; oval polychrome beads; 1 variety:

233. W1c*; op. white with tsp. ruby ends and a tsl. bright navy equatorial band.

Size a)	Diameter:	6.6 mm	(6.6 mm)
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	Length:	8.6-9.7 mm	(9.2 mm)
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234-239. W111b and W111d; cylindrical beads decorated with flush and raised designs; 6 varieties:

234. W111d*; op. black body decorated with a gilded central band, and a raised, wavy, op. light gold filament about either end [size a].

235. W111d*; op. black body decorated with a gilded central band, and a raised, wavy, op. white filament about either end [size a].

236. W111b*; tsp. ruby body decorated with an op. light gold ring about the middle, and an op. white ring about either end [size b].

237. W111b*; op. black body decorated with an op. light gold ring about the middle, and an op. white ring about either end [size b].

238. W111b*; op. black body decorated with a wavy op. light gold ring about the middle, and a wavy op. white ring about either end [size b].

239. W111d*; op. black body decorated with a gilded central band, and a raised, wavy, op. light gold filament about either end [size c].

Three size groups appear to be represented:

Size a)	Diameter:	4.4-5.0 mm	(4.8 mm)
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	Length:	7.2-10.4 mm	(9.0 mm)
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Size b)	Diameter:	6.0-6.7 mm	(6.3 mm)
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	Length:	7.7-9.1 mm	(8.4 mm)
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Size c)	Diameter:	6.1-6.2 mm	(6.2 mm)
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Length: 11.8-13.0 mm (12.4 mm)

240-244. WIIa; beads of simple shapes with tsp. ruby on op. light gold bodies; 2 varieties:

240. WIIa*; cylindrical [size a].

241. WIIa*; oval [size a].

242-243. WIIa*; cylindrical [sizes b,c].

244. WIIa*; oval [size b].

Cylindrical

Size a)	Diameter:	4.6-5.2 mm	(4.9 mm)
	Length:	6.4-6.6 mm	(6.5 mm)
Size b)	Diameter:	7.6-7.8 mm	(7.7 mm)
	Length:	11.2-11.8 mm	(11.5 mm)
Size c)	Diameter:	8.3-8.5 mm	(8.4 mm)
	Length:	12.0-12.2 mm	(12.1 mm)

Oval

Size a)	Diameter:	6.8-7.2 mm	(7.0 mm)
	Length:	9.8-10.4 mm	(10.1 mm)
Size b)	Diameter:	8.3-8.4 mm	(8.4 mm)
	Length:	12.2-12.3 mm	(12.2 mm)

245-258. WIb, WIIc, and WII*; monochrome and polychrome beads of simple and complex shapes; 14 varieties:

245. WIIc*; oval; op. amber.

246. WIIc*; oval; tsp. ruby.

247. WII**; flattened oval; tsp. dark jade green.

248. WII**; flattened oval; tsp. redwood.

249. WII**; short square truncated convex bicone (Beck type IX.B.1.f.); op. black.

250. WII**; short square truncated convex bicone (Beck type IX.B.1.f.); tsp. ruby.

251. WII**; round ribbed; tsp. dark jade green.

252. WIb*; round; op. amber.

253-254. Missing.

255. WII**; round ribbed; op. black.

256. WIb*; round; op. dark palm green with op. black inclusions.

257. WIb*; round; op. dark palm green.

258. WIb*; round; op. light gold.

Round

Size a)	Diameter:	9.0-9.4 mm	(9.2 mm)
	Length:	9.4-10.2 mm	(9.8 mm)

Size b)	Diameter:	10.5-11.6 mm	(11.0 mm)
	Length:	9.9-12.0 mm	(11.1 mm)

Oval

Size a)	Diameter:	8.4-9.0 mm	(8.6 mm)
	Length:	13.7-14.2 mm	(14.0 mm)

Flattened oval

Size a)	Width:	7.0-7.8 mm	(7.3 mm)
	Thickness:	4.8-6.0 mm	(5.4 mm)
	Length:	10.1-10.8 mm	(10.5 mm)

Round ribbed

Size a)	Diameter:	7.1-7.8 mm	(7.4 mm)
	Length:	8.0-8.4 mm	(8.2 mm)
Size b)	Diameter:	9.5-9.8 mm	(9.6 mm)
	Length:	10.2-10.5 mm	(10.4 mm)

Short square truncated convex bicone

Size a)	Diameter:	6.4-7.5 mm	(6.9 mm)
	Length:	5.1-6.1 mm	(5.7 mm)

259-273, 275-284. WIIb and WIIId; round beads decorated with flush and raised designs; 26 varieties:

259. WIIb*; threads of op. white, tsp. ruby, and tsp. turquoise green [size a].

260. WIIb*; op. cerulean blue body decorated with op. white dots [size b].

261. WIIb*; tsp. turquoise body decorated with 3 diagonal op. light gold "coils," and 3 diagonal series of swirled op. white and tsp. scarlet dots [size b].

262. WIIb*; tsl. oyster white body decorated with an op. light gold equatorial band studded with 5 tsp. scarlet dots [size b].

263. WIIb*; op. black body decorated with 2 wavy op. light gold stripes, and op. white dots [size b].

264. WIIb*; tsp. bright navy body decorated with an op. white lattice around the equator [size b].

265. WIIb*; op. black body decorated with an op. light gold grid with a tsp. scarlet on op. white eye in each of the 8 grid squares [size b].

266. WIIb*; tsl. light gray body decorated with 4 tsp. turquoise green and op. dark rose brown wreaths set parallel to the perforation and which alternate direction around the bead [size c].

267. WIIb*; op. light gold body decorated with a combed design of tsp. scarlet on op. white, and aventurine [size c].

268. WIIId*; tsl. oyster white body decorated with a raised tsp. bright blue and tsp. light gold wreath about the equator, and a tsp. bright blue ring around either end [size c].

269. WIIIB*; op. black body decorated with a spiral stripe of amber and another of entwined filaments of op. white, tsp. scarlet, and tsp. bright blue [size c].

270. WIIIB*; op. white body decorated with a spiral tsp. ruby stripe [size c].

271. WIIIB*; op. black body decorated with a spiral stripe of tsp. scarlet on op. light gold, and 3 tsp. bright navy on op. white diagonals [size c].

272. WIIIB*; tsl. light gray body decorated with 3 diagonal tsp. scarlet "coils" and 3 diagonal tsp. turquoise green "coils" [size c].

273. WIIIB*; op. dark palm green body decorated with 3 op. white and op. light gold wreaths set parallel to the perforation, and 3 dots of swirled op. white and op. bright navy [size c].

275. WIIIB*; tsl. oyster white body decorated with 5 tsp. ruby on op. white eyes around the middle, and 5 op. bright navy on op. white eyes around either end [size c].

276. WIIIB*; op. sunlight yellow body decorated with a tsp. ruby and tsp. turquoise green wreath encircling the bead [size c].

277. WIIIB*; op. dark palm green body decorated with a "wreath" of op. white, tsp. scarlet, and op. light gold, and 4 op. light gold dots [size c].

278. WIIIB*; tsl. light gray body decorated with tsp. scarlet on op. white eyes, and op. black on op. bright blue eyes [size c].

279. WIIIB*; tsp. ruby body decorated with an op. white combed design [size c].

280. WIIIB*; op. white body decorated with 3 large op. black on tsp. bright blue eyes about the middle, and 3 tsp. ruby dots about either end [size c].

281. WIIIB*; op. white body decorated with a band of entwined tsp. scarlet, tsp. turquoise green and op. bright navy filaments about the middle, and a wavy tsp. scarlet on op. white stripe around the ends [size c].

282. WIIIB*; tsp. ruby body decorated with a "wreath" of thin op. light gold stripes, and op. white dots [size c].

283. WIIIB*; op. sunlight yellow body decorated with tsp. scarlet and tsp. bright navy wreaths [size d].

284. WIIIB*; op. white body decorated with a spiral tsp. scarlet stripe, and a spiral series of swirled tsp. scarlet and tsp. bright blue dots [size d].

Size a)	Diameter:	7.2-8.0 mm	(7.6mm)
	Length:	6.8-7.1 mm	(7.0 mm)
Size b)	Diameter:	8.6-9.4 mm	(9.0 mm)
	Length:	8.6-9.9 mm	(9.3 mm)
Size c)	Diameter:	10.2-11.4 mm	(10.7 mm)
	Length:	9.8-11.8 mm	(11.0 mm)
Size d)	Diameter:	12.0-12.1 mm	(12.0 mm)
	Length:	12.2-12.6 mm	(12.4 mm)

274. WIIIC; round-ribbed beads decorated with eyes; 1 variety:

274. WIIIC*; tsl. oyster white body decorated with 5 op. black on op. bright blue eyes about the middle.

Size a)	Diameter:	10.3 mm	(10.3 mm)
	Length:	9.8-10.2 mm	(10.0 mm)

285-294. WIIIB; round beads decorated with dots and eyes; 10 varieties:

285. WIIIB*; op. black body decorated with 2 eyes of tsp. scarlet on op. white, and 4 of op. bright blue on op. white [size a].

286. WIIIB*; op. black body decorated with 3 eyes of tsp. scarlet on op. white, and 6 of op. bright blue on op. white [size a].

287. WIIIB*; op. black body decorated with 4 eyes of tsp. scarlet on op. white, and 8 of op. bright blue on op. white [size a].

288. WIIIB*; op. black body decorated with 8 eyes of tsp. scarlet on op. white, and 12 of op. bright blue on op. white [size a].

289. WIIIB*; op. black body decorated with 8 eyes of tsp. scarlet on op. white, and 12 of op. bright blue on op. white [size b].

290. WIIIB*; op. black body decorated with 20 eyes of tsp. scarlet on op. white, and 26 of op. bright blue on op. white [size b].

291. WIIIB*; op. black body decorated with 30 tsp. scarlet on op. white [size b].

292. WIIIB*; tsp. ruby body decorated with 12 op. white dots [size b].

293. WIIb*; op. black body decorated with ca. 26 op. white dots [size b].

294. WIIb*; op. bright blue body decorated with 12 eyes of tsp. scarlet on op. white, and 18 of op. bright blue on op. white [size b].

Size a)	Diameter:	8.4-9.5 mm	(8.9 mm)
	Length:	8.3-10.3 mm	(9.0 mm)
Size b)	Diameter:	9.6-11.0 mm	(10.6 mm)
	Length:	10.0-11.3 mm	(10.8 mm)

295-303. WIIb; round beads with monochrome bodies decorated with various designs; 9 varieties:

295. WIIb*; op. bright blue body decorated with 6 blossoms of tsp. scarlet on op. white and op. bright navy set parallel to the perforation and which alternate direction around the bead.

296. WIIb*; op. deep red brown body decorated with an op. white wreath about the middle.

297. WIIb*; tsp. ruby body decorated with an op. light gold wreath about the middle.

298. WIIb*; tsl. oyster white body decorated with a spiral tsp. scarlet "coil," and a spiral series of op. bright navy dots.

299. WIIb*; op. black body decorated with an op. light gold grid with a tsp. scarlet on op. white eye in each of the 8 grid squares.

300. WIIb*; op. white body decorated with an op. bright navy grid with a tsp. scarlet dot in each of the 12 grid squares.

301. WIIb*; tsl. oyster white body decorated with 4 double-stemmed flowers of op. dark palm green and tsp. scarlet on op. white set parallel to the perforation.

302. WIIb*; tsl. light gray body decorated with 14 eyes of tsp. scarlet on op. white, and 18 of op. bright blue on op. white.

303. WIIb*; op. black body decorated with op. light gold splotches, tsp. scarlet on op. white dashes, and op. light gold splotches adorned with 1 tsp. scarlet and 4 op. white dots.

Size a)	Diameter:	11.1-13.8 mm	(12.1 mm)
	Length:	10.6-12.6 mm	(11.7 mm)

304-307. WII*; flattened cones with decorated bodies; 4 varieties:

304. WII*; op. white body decorated with an op. bright navy wreath about the bead [size a].

305. WII*; tsp. ruby body decorated with an op. white wreath about the bead [size b].

306. WII*; op. black body decorated with an op. white wreath about the bead [size b].

307. WII*; op. white body decorated with a combed design of tsp. scarlet and op. dark palm green [size b].

Size a)	Width:	7.3-8.3 mm	(7.8 mm)
	Thickness:	7.8 mm	(7.8 mm)
	Length:	9.1-10.2 mm	(9.6 mm)
Size b)	Width:	8.0-9.6 mm	(8.8 mm)
	Thickness:	6.0-8.0 mm	(6.6 mm)
	Length:	10.5-12.8 mm	(11.3 mm)

308-336. WIIb; oval beads with monochrome bodies decorated with various designs; 29 varieties:

308. WIIb*; op. white body decorated with a crude tsp. scarlet wreath about the middle [size a].

309. WIIb*; op. black body decorated with 2 eyes of tsp. scarlet on op. white, and 4 of op. bright navy on op. white [size b].

310. WIIb*; op. black body decorated with an op. light gold grid with a tsp. scarlet on op. white eye in each of the 8 grid squares [size b].

311. WIIb*; op. amber body with a tsp. scarlet on op. white thread wrapped repeatedly around the middle [size b].

312. WIIb*; tsp. ruby body decorated with a wavy op. light gold stripe about the middle, and a wavy op. white stripe around the ends [size b].

313. WIIb*; tsp. ruby body partially decorated with a combed feather design of op. bright blue on op. white [size b].

314. WIIb*; tsl. citron body decorated with a combed design of tsp. scarlet on op. white around the middle [size b].

315. WIIb*; tsp. ruby body decorated with meandering stripes of tsp. scarlet on op. white around the middle [size b].

316. WIIb*; op. white body decorated with 4 crude tsp. bright navy wreaths set parallel to the perforation [size b].

317. WIIb*; op. bright blue body decorated with a spiral stripe of entwined filaments of op. white and tsp. scarlet, and a spiral series of op. light gold dots [size b].

318. WIIb*; tsp. teal green body decorated with 4 op. white wreaths set parallel to the perforation [size b].

319. WIIb*; op. black body decorated with 4 op. white wreaths set parallel to the perforation [size b].

320. WIIb*; tsl. deep blue body decorated with 4 op. white wreaths set parallel to the perforation [size b].

321. WIIb*; tsl. oyster white body decorated with 3 sets of 3 spiral op. bright navy stripes [size b].

322. WIIb*; tsp. ruby body decorated with meandering op. light gold lines [size b].

323. WIIb*; tsp. ruby body decorated with a spiral stripe of op. light gold, and another of entwined op. white and op. bright navy filaments [size b].

324. WIIb*; tsl. oyster white body decorated with a spiral stripe of op. bright blue, and a spiral series of op. black on op. light gold eyes [size b].

325. WIIb*; op. white body decorated with a spiral stripe of entwined op. white and tsp. scarlet filaments [size b].

326. WIIb*; tsp. ruby body decorated with a combed feather design of tsp. scarlet on op. white [size b].

327. WIIb*; op. deep blue body decorated with a combed feather design of tsp. scarlet on op. white [size b].

328. WIIb*; op. black body decorated with 2 diagonal stripes of tsp. scarlet on op. white and 2 of op. bright blue on op. white [size b].

329. WIIb*; op. black body decorated with 3 tsp. redwood and op. bright blue design elements around the middle, and op. bright navy and op. bright blue on op. white crescents on either side [size c].

330. WIIb*; tsl. oyster white body decorated with a spiral band of op. sunlight yellow bordered by op. bright blue, and a spiral series of tsp. scarlet "coils" [size c].

331. WIIb*; tsl. light gold body decorated with a combed feather design of tsp. bright navy on op. white [size c].

332. WIIb*; tsl. deep blue body decorated with a combed feather design of tsp. bright navy on op. white [size c].

333. WIIb*; tsp. ruby body decorated with a combed feather design of tsp. bright navy on op. white [size c].

334. WIIb*; op. bright blue body decorated with a combed feather design of tsp. scarlet on op. white [size c].

335. WIIb*; tsp. light gray (clear) body decorated with a combed feather design of entwined filaments of op. white and tsp. scarlet [size c].

336. WIIb*; op. white body decorated with 24 large tsp. scarlet dots [size c].

Three poorly defined size categories appear to be represented:

Size a)	Diameter:	7.5-7.8 mm	(7.6 mm)
	Length:	10.0-10.1 mm	(10.1 mm)
Size b)	Diameter:	7.1-9.3 mm	(8.3 mm)
	Length:	11.8-18.0 mm	(15.4 mm)
Size c)	Diameter:	8.8-10.0 mm	(9.3 mm)
	Length:	19.4-22.4 mm	(20.7 mm)

337-341. WIIb, WIIc, and WIId; monochrome-bodied beads of simple and complex shapes decorated with various flush and raised designs; 5 varieties:

337. WIIb*; long bicone (Beck's type I.D.2.e.); op. black body decorated with an op. white equatorial band.

Size a)	Diameter:	8.8 mm	(8.8 mm)
	Length:	28.7 mm	(28.7 mm)

338. WIIc*; standard square truncated convex bicone (Beck type IX.C.1.f.); tsp. ruby body decorated with 4 tsp. scarlet on op. white eyes about the middle, and 4 op. light gold on op. white eyes on either side.

339. WIIc*; standard square truncated convex bicone (Beck type IX.C.1.f.); tsp. ruby body decorated with 4 tsp. scarlet on op. white eyes about the middle, and 4 op. bright blue on op. white eyes on either side.

Size a)	Diameter:	11.0-11.6 mm	(11.2 mm)
	Length:	12.0-12.2 mm	(12.1 mm)

340. WIId*; round; op. black body decorated with a raised op. white wreath about the middle, and 5 op. light gold dots on either side.

341. WIIb*; round; tsl. oyster white body decorated with a swirled design of tsp. scarlet on op. white and tsl. bright navy.

Size a) Diameter: 11.2-12.1 mm (11.5 mm)
Length: 10.2-11.6 mm (11.1 mm)

342-344. WII* and WIIIe; monochrome beads exhibiting pressed facets; 2 varieties remain:

342. WIIIe*; square faceted (these are square-sectioned specimens with 4 diamond-shaped pressed facets about the middle and 4 roughly triangular facets about either end); tsp. ruby on op. white.

Size a) Diameter: 10.4-10.6 mm (10.5 mm)
Length: 11.2-11.4 mm (11.3 mm)

343. Missing.

344. WII**; irregular faceted (irregular in shape, this variety exhibits ca. 12 irregular pressed facets); op. black

Size a) Diameter: 13.1-13.3 mm (13.2 mm)
Length: 11.8-12.3 mm (12.0 mm)

345-351. WIb and WII*; round and round-ribbed beads with monochrome bodies; 7 varieties:

345. WIb12; round; op. bright blue.

346. WIb*; round; tsl. light gray.

347. WIb*; round; op. deep blue.

348. WIb*; round; op. light gold.

349. WII**; round ribbed; op. black.

350. WIb*; round; op. dark palm green.

351. WIb*; round; op. black.

Size a) Diameter: 11.5-13.8 mm (12.8 mm)
Length: 11.6-13.8 mm (12.8 mm)

352-354. Missing.

355, 358-359. WIc and WIIIIa; oval beads with monochrome and polychrome bodies; 3 varieties:

355. WIc*; oval; op. black [size a].

358. WIIIIa*; oval; tsp. ruby on op. white [size b].

359. WIc*; oval; op. cerulean blue [size b].

Size a) Diameter: 8.6-8.8 mm (8.7 mm)
Length: 15.4-15.9 mm (15.7 mm)

Size b) Diameter: 11.8-13.0 mm (12.4 mm)
Length: 23.0-26.4 mm (24.7 mm)

356-357. WII*; oval ribbed beads with monochrome bodies; 2 varieties:

356. WII**; oval ribbed with a flat raised medial band; op. cerulean blue [size a].

357. WII**; oval ribbed; tsl. citron [size b].

Size a) Diameter: 10.2-10.3 mm (10.2 mm)
Length: 14.7 mm (14.7 mm)

Size b) Diameter: 10.6 mm (10.6 mm)
Length: 17.2 mm (17.2 mm)

360. Missing.

DISCUSSION

The Giacomuzzi sample book is clearly a product of the Giacomuzzi brothers, as revealed by its label. Although Folder F does not have a label, it has a very similar page layout and the flourishes at the top of certain numerals (i.e., 5 and 0) are common to both. It is, therefore, likely that Folder F is also from the Giacomuzzi company. Folder E has a different page layout (identical in some aspects to the Venetian Bead Book) and the handwritten numerals on its pages are of a different style from that on the Giacomuzzi book and the other folder. While the red serial numbers (09.97.B., 09.97.E., and 09.97.F.) painted on all three items suggest that they originally formed part of a set containing at least six components (09.97.A., C., and D. are missing), it is possible that the numbers are museum or archive accession numbers assigned to a collection of unrelated bead sample books and folders accumulated after the Giacomuzzis were no longer in business. Thus, it is presently impossible to state with any certainty whether Folder E is a product of the Giacomuzzi company or of a competing Venetian firm.

Regarding the age of the book and folders, the date of the most recent medal on the book's label is 1852 which provides it a solid *terminus post quem*. As the Giacomuzzi brothers also received a silver medal in 1868 and a badge of honor the following year, it is probable that these awards would have been added to the company's labels shortly thereafter (Francis 1988: 10). It is, therefore, postulated that the Giacomuzzi sample book was produced sometime between 1852 and 1869. Being of similar size, construction, and content, the two folders are believed to date to the same period.

Wound glass beads with applied flush decoration and undecorated glass beads of various forms

dominate the Giacomuzzi sample book. Distinctive styles found in minor quantities include the copper-enamelled varieties, as well as those with zoned bodies, colored internal elements and raised designs, and those formed by spirally wrapping a glass rod into the form of a round or oval bead.

Folder E exhibits a similar frequency of styles, but lacks those with internal elements and spiral-wrapped bodies. Folder F is very similar in content to the book but lacks the spiral-wrapped beads. It is the only component of the Giacomuzzi collection which displays non-glass beads. It is not clear whether the latter—apparently made of a hard resin—were produced in Venice/Murano or imported from elsewhere.

The Giacomuzzi book and folders contain a wealth of information concerning wound bead sizes of the mid-19th century. They also reveal the complexity of the sizing systems in use. A comparison of the various dimensions reveals that just about every shape has a different set of size categories. Furthermore, in that the beads are handmade and thus not perfectly even throughout, there is considerable overlap in dimensions from one size group to the next. The fact that the difference from one size to the next is frequently only a millimeter or a fraction thereof further complicates matters. Nevertheless, if one keeps all this in mind, it is possible to postulate historical size groups for wound beads from 19th- and 20th-century contexts if the sample is large enough (at least 100 specimens of one variety, though the results become statistically more valid as the quantity increases). The data provided by the Giacomuzzi book and folders reveal that to accurately determine size categories, it is important to correlate bead length with bead diameter for each bead, something which Lester Ross (1976, 1990) has recommended for years. To keep measurement variations to a minimum, he also urged researchers to record a bead's least diameter (Ross 1990:42).

Despite the missing beads, the Giacomuzzi bead book and associated Folder F vividly reveal the products of this famous glass- and beadmaking family. It is hoped that other identified mid-19th-century sample books and cards will eventually be found so that we may learn more about the products of the individual beadmaking companies that together made Venice and Murano famous throughout the world.

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Karlis Karklins
Parks Canada - OSC
1600 Liverpool Court
Ottawa, Ontario K1A 0M5
Canada

LATE NEOLITHIC AMBER BEADS AND PENDANTS FROM THE LAKE LUBĀNS WETLANDS, LATVIA

Ilze Biruta Loze

In Late Neolithic Europe, amber beads and pendants were initially mainly made in the coastal zone of the Baltic Sea, due to the presence of amber washed up by the Litorina Sea. There were four principal localized zones of Neolithic amber artifacts in this region: the eastern Baltic, the mouth of the Vistula River, Jutland and Skone, and Fennoscandinavia. The British Isles are regarded as a fifth zone. As the popular-scientific literature has so far provided scant information on the amber-working zone of the eastern Baltic, this article summarizes the findings revealed by extensive archaeological research, particularly during the past forty years.

AMBER (SUCCINATE) RESOURCES IN THE EASTERN BALTIC

Attention has so far only been paid to the amber resources of Jutland and the Sembian peninsula in the present-day Kaliningrad region, Russia (pre-war Germany) (Fig. 1). Evidence reveals that amber was spread along the shore of the Litorina Sea in dune sand sporadically washed up by the sea and redeposited by the wind. Geological-geomorphological research performed in the Latvian littoral has uncovered rich amber-bearing dune zones on the west coast of the Gulf of Riga in the direct vicinity of Lake Engure (Eberhards and Saltupe 2000:141-147). The sites of 19th- and 20th-century amber pits have also been found in dune sands here as well as elsewhere on the western shore of the Gulf of Riga, at nearby lakes Babīte and Kaņiera, and the Ģipka Lagoon (Loze 2003b:202-208; Zagorska 2003). Thus, it appears that raw amber was not only found on the shores of the Litorina Sea, but also on the coast of the Gulf of Riga.

In the Late Neolithic, amber was also recovered from sand washed up by the sea. Wide-scale

archaeological research carried out in the Żuławy region of Poland, near the mouth of the Vistula River, confirms this (Mazurowski 1985:5-60, 1999:121-129). Hence it is possible to conclude that in the Latvian littoral, the unearthing and collecting of washed-up amber was an organized activity, and that amber working was conducted in specific areas.

A center of amber working appeared during the Neolithic period in the Lake Lubāns depression of eastern Latvia. Interestingly, it was in an amber-free zone situated 200-250 km from the amber-producing sites on the littoral of the Litorina Sea. The inhabitants of the Lake Lubāns wetlands were able to obtain amber either from the people inhabiting the environs of lakes Babīte, Engure, or Kaņiera, or through their own major expeditions to amber-producing sites. Regarding the manufacture of amber ornaments and the development of a far-reaching exchange system, the special significance of the Lake Lubāns depression was determined by its rather advantageous geographical position. Being located in the central part of the Eastern Latvia Plain, the Lake Lubāns depression—by way of the River Aiviekste, a tributary of the Daugava, the largest river in the eastern Baltic—was connected both with the littoral of the Litorina Sea, and the basins of the upper Volga and Dnieper, regions in the Neolithic eastern Baltic where amber ornaments have been uncovered.

Archaeological excavations conducted from the 1960s to the 1980s uncovered amber-working sites in nine settlements. Four of them (Nainiekste, Piestiņa, Suļka, and Zvidze) are of the Middle Neolithic period and were inhabited 3300-2250 B.C. The remainder (Abora I, Asne I, Eiņi, Iča, and Lagaža) date to the Late Neolithic, and are sites where amber working was

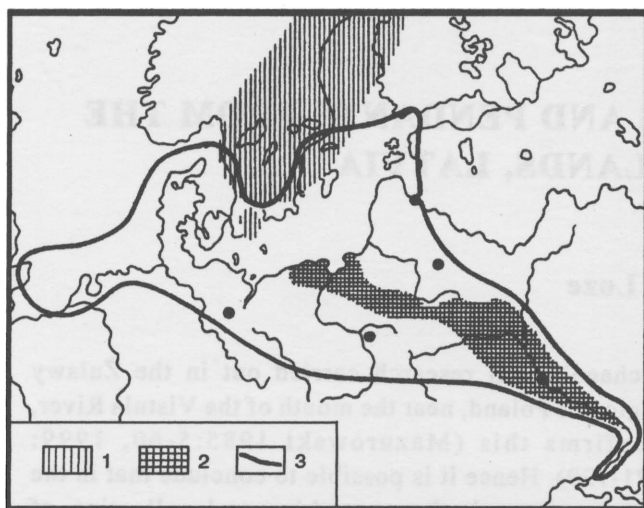


Figure 1. Amber and amber-producing deposits in the Southern Baltic (after Katinas 1966, 1971): 1, possible zone of primary amber deposits; 2, amber in tertiary deposits; 3, limit of spreading of shifted amber deposits (all drawings by I. Loze and Mārta Jankalniņa).

developed prior to 2250-1800 B.C. This article stresses amber working and the manufacture of beads and pendants during the Late Neolithic that are characteristic of the introduction of technological innovations.

AMBER WORKING OF THE LATE NEOLITHIC

The amber-working sites have produced both whole and broken beads and pendants, as well as fragments of rings, discs, and zoomorphic figurines. These sites are characterized by the presence of whole and broken ornaments, whole and broken semi-finished pieces in various stages of completion, and manufacturing waste such as chips and flakes, as well as pieces of unaltered amber.

The condition of the amber ornaments recovered from the Lake Lubāns depression depends on the nature of the soil. Amber found in peat is well preserved and neither the structure nor the color have been altered. Conversely, amber deposited in mineral soil (loam) has not only lost its natural color, becoming a dark brownish red, but has also suffered changes to its structure, thus requiring conservation.

Amber artifacts recovered from Late Neolithic archaeological sites in the Lubāns depression comprise 1,400 pieces. The majority were found at the

Abora I settlement site, with the rest coming from the Asne I, Eiņi, Iča, and Lagaža settlements (Fig. 2). In addition there are several hundred pieces of amber-working waste, as well as about 100 pieces of natural amber.

At the Lake Lubāns depression, the manufacture of amber beads and pendants, as well as other items, was carried out according to the amber-working techniques of the day. The stages include:

- selecting suitable amber pieces;
- flaking off the cortex;
- splitting the chunk into pieces of the required size;
- giving the selected amber piece the required form;
- creating the form of the appropriate ornament, and smoothing irregularities by retouch;
- processing the surface by polishing and grinding;
- drilling the perforation;
- polishing with a piece of hide or woollen cloth.

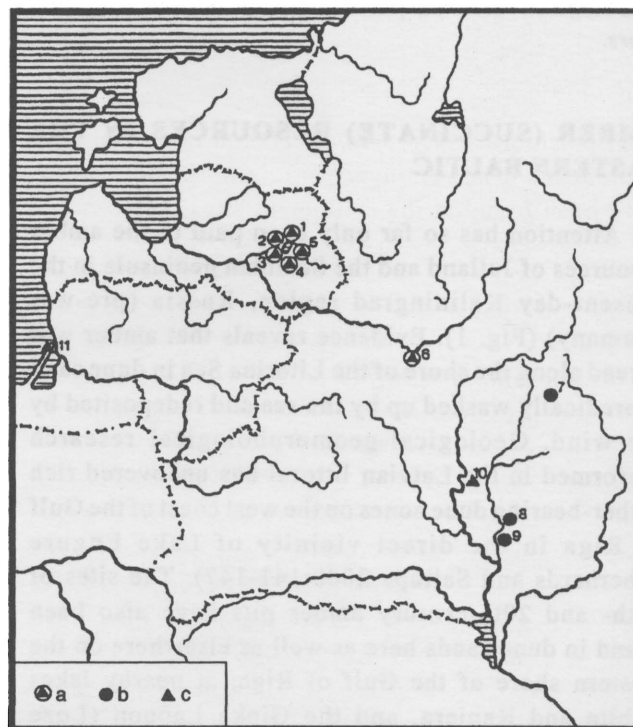


Figure 2. Distribution of tooth-shaped and key-head amber pendants: a, both forms; b, tooth-shaped pendants; c, key-head pendants. The sites: 1, Abora I; 2, Asne I; 3, Eiņi; 4, Iča; 5, Lagaža in the Lake Lubāns wetlands; 6, Asavets II in the Krivina wetlands (Belarus); 7, Pečkuri; 8, Proletariat village; 9, Strelitsa site; 10, Mosha Khodosovischi barrows in the Middle Dnieper region; 11, Juodkrante on the Kuršiu Spit (after Loze 2000).

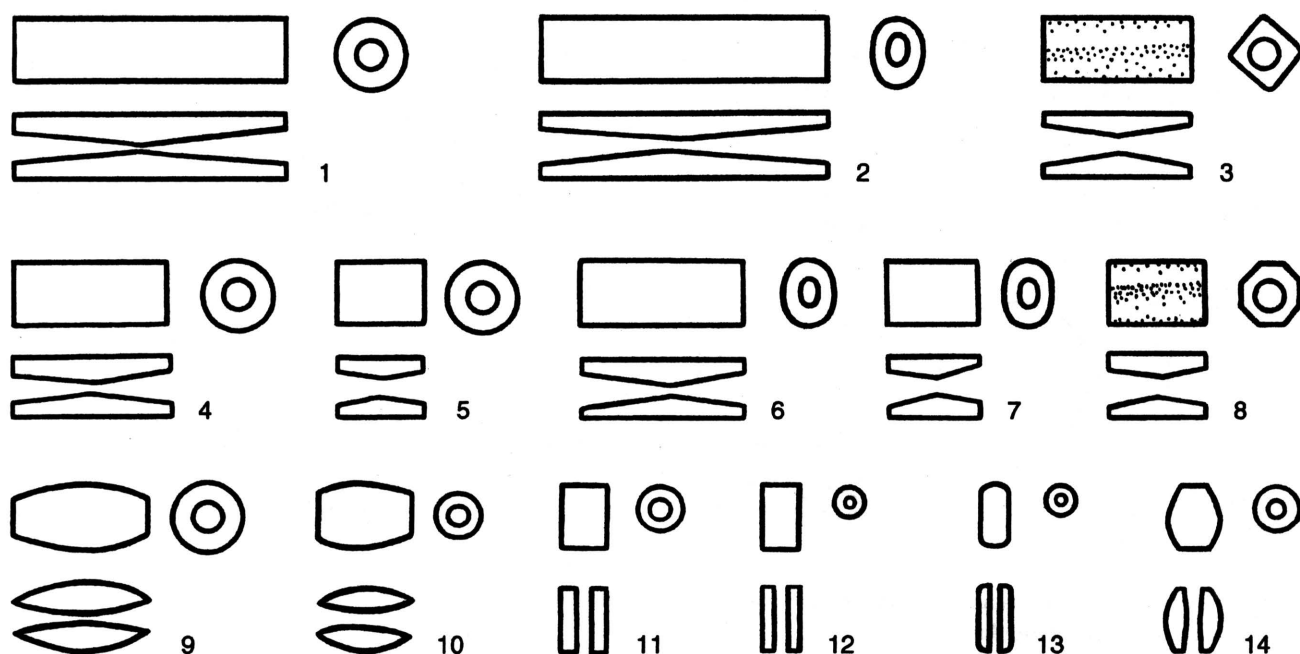


Figure 3. Types of amber tubular, barrel-shaped, and disc-shaped beads: 1, 4-5, tubular, round cross-section; 2, 6-7, tubular, oval cross-section; 3, 8, tubular, polyhedral; 9-10, 14, barrel shaped with flat ends; 11-13, disc shaped.

Flint perforators, scrapers, awls, and bone and horn implements were employed for this work, all of which have been found at the settlement sites.

Beads and Spacers

At the amber-working workshops of the Lake Lubāns depression, finished and partially completed beads comprise half of all the recovered amber artifacts. The Late Neolithic beads represent four forms: tubular, barrel shaped, disc shaped, and button shaped. As has been proved by studies at the Konchansk cemetery in the Novgorod region of Russia, the button-shaped beads were also attached to garments, and were not always strung (Zimina 2003:149-155, fig. 4).

Beads with Simple Perforations

The production technology exhibited by **tubular beads** of the Late Neolithic period differs little from that of the Middle Neolithic. It should be noted, however, that the process had been simplified, since the Late Neolithic amber workers had stopped producing tubular beads with a slight to distinct medial

bulge (Loze 2003a:fig. 5)(Pl. IXA). Based on the finds at Abora I and other Late Neolithic settlements (Asne I, Eiņi, Iča, and Lagaža), tubular beads of this period are cylindrical, less frequently with oval cross-sections and very slightly marked edges at their ends.

The cylindrical examples, which predominate, and the less frequently encountered beads with oval cross-sections are represented by both long and short forms. The former are 1.2-3.6 cm long, their diameters reaching 0.8-1.12 cm (Fig. 3, 1-2). The short beads are no longer than 0.7-1.0 cm, and measure 0.7-1.0 cm in diameter (Fig. 3, 4-7).

Found only at the Abora I settlement, polyhedral tubular beads measure 1.2-2.1 cm in length (Fig. 3, 3, 8). They may be rhombic or hexagonal in cross-section. They are found in relatively small quantities, attesting to the extra skill and time required for their production in comparison with the usual cylindrical beads.

The following production stages have been noted for cylindrical beads:

- preparing a naturally occurring cylindrical piece or a split piece for working;
- removing the surface from a cylindrical piece or gradually rounding a split piece by retouch;

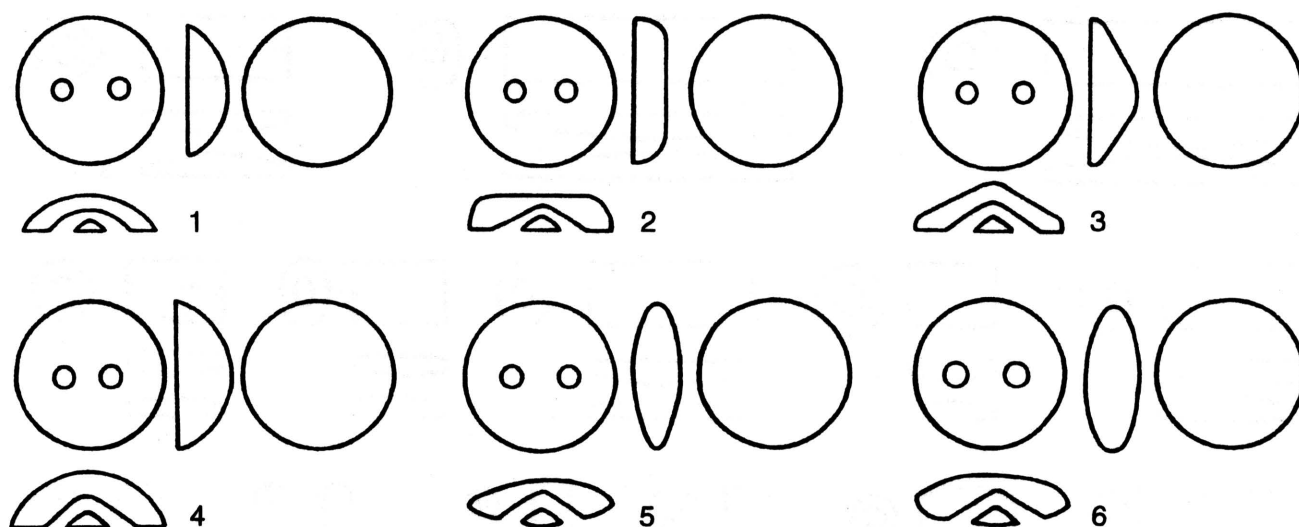


Figure 4. Types of amber circular button-shaped beads: 1, thin convex; 2, rectangular; 3, conical; 4, thick convex; 5, thin lenticular; 6, thick lenticular.

- smoothing and polishing the ends in preparation for perforation;
- perforating the bead from either end;
- smoothing the retouched sides;
- polishing the bead.

Differing from those of the Middle Neolithic, **barrel-shaped beads** were produced in a far more elaborate manner. Among them are both short and long specimens up to 2.5 cm in length and 1.0 cm in diameter (Fig. 3, 9-10, 14).

Disc-shaped beads with flat or rounded ends measure 0.5-0.8 cm in length, with diameters that range from 0.7 to 1.3 cm (Fig. 3, 11-13; Pl. IXA bottom).

Button-Shaped Beads with V-Shaped Perforations

In the archaeological literature, button-shaped beads with V-shaped perforation are also called buttons, and they began to be used more than 20,000 years ago (Arnal 1969:221-227). They were produced of various materials, including ivory and shell, but the mass production of amber buttons only began in Neolithic Europe, when they were in great demand. The largest Late Neolithic manufacturing centers for amber button-shaped beads are considered to be the lower Vistula and the eastern Baltic region, including the Kuršiu Spit (Czebreszuk 2003:164-169), from

whence Eastern Europe obtained them starting in the Middle Neolithic and extending to the period of the Eneolithic Cultures. These peoples subsequently adopted the amber-working techniques, and active individuals of the Bell Beaker Culture, or to put it more precisely, the contingent specializing in trade, spread amber button-shaped beads over Europe as far as the British Isles.

The Late Neolithic button-shaped beads from the Lake Lubāns depression are of circular and quadrangular forms; oval and triangular varieties are found less frequently.

Circular Button-Shaped Beads

Beads in this category are classified according to the form of their cross-section (Fig. 4): 1, convex, thin and thick; 2, rectangular; 3, conical; and 4, lenticular, thin and thick.

Their diameters range from 0.8 cm to 2.8 cm. Rather fine examples produced of honey-colored transparent and smoky amber, as well as bone-white amber, have been found (Pl. IXB). Amber combining all of these colors was also often used. The edges of these beautiful beads are decorated with fine notches.

Partially completed examples of circular button-shaped beads from the Lake Lubāns depression reveal the following production steps:

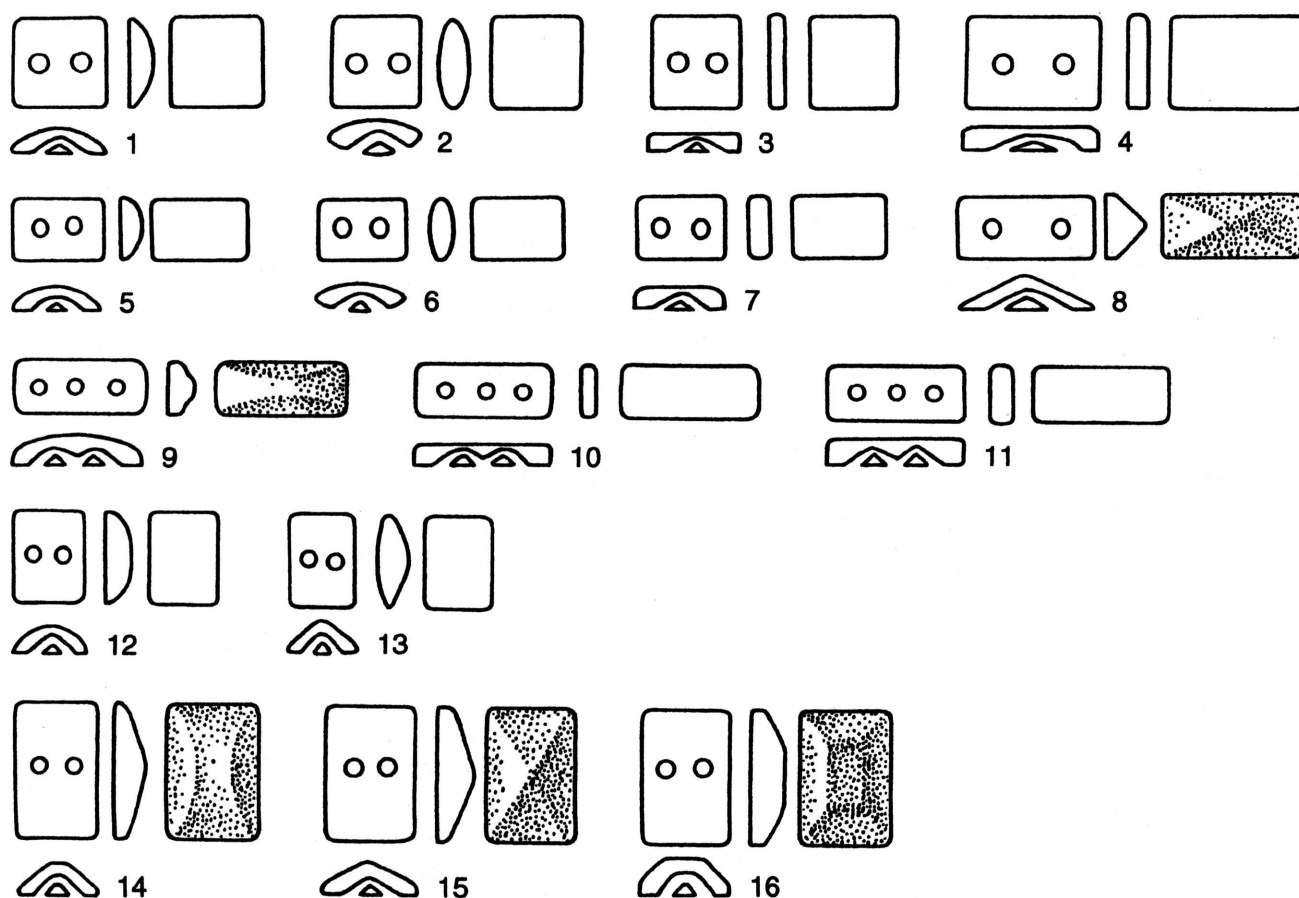


Figure 5. Types of amber quadrangular button-shaped beads.

- rounding the sides of a suitable, naturally circular or split piece;
- smoothing the surface and sides by retouch;
- basal polishing in preparation for perforation;
- thorough polishing of the face, sometimes even forming facets;
- creating a V-shaped hole from the back side;
- final polishing the surface and preparing the bead for use.

The sequence of polishing the face and then drilling the V-shaped perforation was sometimes reversed depending on the skill of the worker. Semi-finished pieces suggest that while a skilled person could safely produce a V-shaped perforation in a single plane after the surface was completely finished, a novice made it before the surface was

polished, fearing breaking the bead during the drilling process. The unfinished beads also reveal that several people were involved in the manufacturing process. The primary processing was performed by certain individuals who then turned them over to specialists who had good perforation skills.

Quadrangular Button-Shaped Beads

Beads in this group only appear during the Late Neolithic. The specimens from the Abora I settlement reveal the particular specialization and skill of the artisans who manufactured them. The beads are rectangular or square in shape with either sharply distinguished or slightly rounded corners (Pl. IXC). Their cross-sections vary, and the V-shaped perforations are aligned either along the transverse or

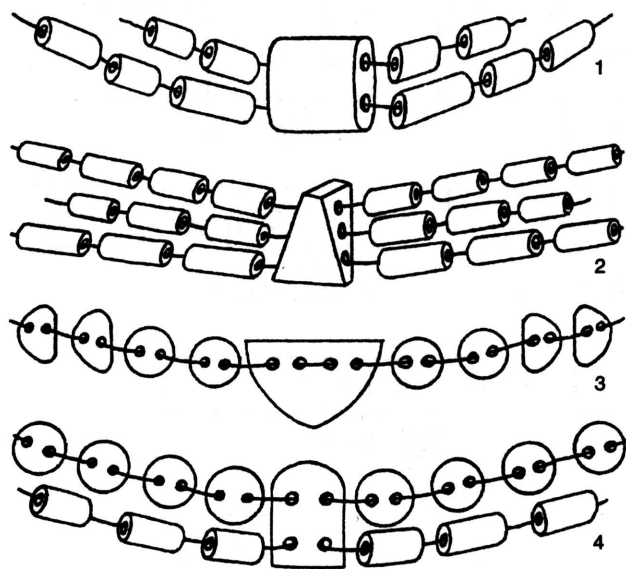


Figure 6. Types of amber spacers.

the longitudinal axis. Their surfaces may be polished smooth or faceted.

Eight categories are postulated:

1. square with convex, lenticular, or rectangular cross-sections (Fig. 5, 1-3);
2. short rectangular with the perforation set parallel to the longitudinal axis (Fig. 5, 4);
3. rectangular with slight differences in the length of the sides; having convex, lenticular, or rectangular cross-sections; and longitudinally-oriented V-shaped perforations (Fig. 5, 5-7);
4. long rectangular with a conical cross-section, triangular surface faceting, and a longitudinally-oriented V-shaped perforation (Fig. 5, 8);
5. narrow, long rectangular with three perforations, convex cross-section, and arch-shaped faceting along the long sides (Fig. 5, 9);
6. narrow, thin and thick rectangular with a rectangular cross-section (Fig. 5, 10-11);
7. rectangular with convex or conical cross-sections and perforations set along the transverse axis (Fig. 5, 12-13);
8. large rectangular with faceted surfaces; convex, conical, or truncated arch-shaped

cross-sections; and perforations set parallel to the transverse axis (Fig. 5, 14-16).

Spacers

In strands of beads, spacers were used to link both tubular and button-shaped forms. Based on the finds at the Abora I settlement, it appears that in the settlements of the Lake Lubāns depression, beads were strung in two to three strands. They are much simpler than those found in Central and Western Europe (Gardin 2003:180-198). In the Lake Lubāns wetlands, block spacers with two to three perforations (Pl. IXD top) were used to link tubular beads. The following are the principal types:

1. broad block spacers with oval cross-sections and two lateral perforations; they measure up to 2.0-2.3 cm in length, 2.5 cm in width, and 1.0 cm in thickness (Fig. 6, 1);
2. narrow block spacers with rectangular cross-sections; they are up to 3.3 cm in length, 1.5 cm in width, and 0.9 cm in thickness;
3. narrow block spacers with sharp oval cross-sections and two lateral perforations;
4. pyramidal block spacer with a regular triangular cross-section and lateral perforations (Fig. 6, 2).

Two types of spacers were used to link button-shaped beads.

1. trianguloid with a pair of symmetrically situated V-shaped perforations along the longest edge (Fig. 6, 3);
2. quadrangular with a rounded upper edge and two sets of V-shaped perforations set parallel to the transverse axis (Fig. 6, 4).

Large circular or quadrangular button-shaped beads with two V-shaped perforations drilled in the back were also utilized as spacers for strands of smaller button-shaped beads with only one V-shaped perforation.

Also worthy of mention is a cloven conical ornament with a vertical perforation. Judging from the ornament complex it belonged to (which consisted of four tooth-shaped pendants perforated from the back and the top), the conical ornament had been used as a

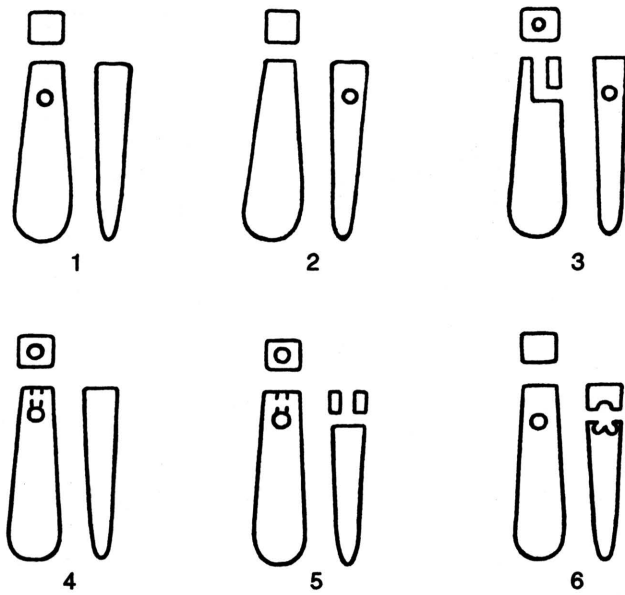


Figure 7. Perforation types of tooth-shaped pendants: 1, frontal; 2, lateral; 3, from the top and side; 4, from the top and back; 5, from the top, back, and both sides; 6, from the back and two sides.

spacer for the pendants, the tiny strings used for attachment having been threaded through the conical spacer (Loze 1975).

Pendants

In the Late Neolithic settlements of the Lake Lubāns depression, pendants form the second largest group of ornaments after beads. They include irregular amber pieces with a frontal perforation, as well as specially manufactured symmetrical examples of irregular form. Among the latter, tooth-shaped and key-head pendants bear special mention as they were made with new types of perforations which were drilled from two adjacent faces. This innovation not only raised the production quality of these pendants to a new level, but also ensured the arrangement of complicated ornaments in which the pendants played a subordinate role, being attached to larger, rather impressive figural pendants.

Tooth-shaped and key-head pendants perforated from two faces may be considered as characteristic of the ornaments produced in the amber workshops of the Lake Lubāns depression, since this perforation method was not used either on the Kuršiu Spit, or at the

Šventoji settlements of the Lithuanian littoral. In the Lake Lubāns depression, the pendants were made of transparent, smoky, and bone-white amber, which gave them a splendid appearance and testifies to the high aesthetic demands of the amber workers. The introduction of the new perforation technologies made it possible to attach them in many different ways; they could be strung, fixed to garments or headgear, or incorporated into complex ornaments.

Tooth-Shaped Pendants

Six types of perforations have been recorded for the tooth-shaped pendants of the Lake Lubāns depression and form the basis for their classification (Fig. 7, 1-6): 1, frontal; 2, lateral (from both sides); 3, down from the flat top and in from one side; 4, down from the top and in from the back; 5, down from the top, and in from the back and from both sides; and 6, in from the back and two sides.

Tooth-shaped pendants include broad and narrow examples (Pl. IXD bottom). Their lower edges may be straight or curved. Some specimens exhibit scrupulously finished lateral facets, which give the upper end a quadrangular form. The upper ends of pendants that lack such facets are round or oval.

The pendants with the first type of perforation (frontal) are not common. Those with lateral perforations include symmetrical and asymmetrical pendants without finished lateral facets. Several fine, broad examples with lateral facets are in the collection and these were the best for necklaces. One such necklace was found in a rich grave of the Middle Dnieper Corded Ware Culture in Belarus (the Strelitsa cemetery), where the string consisted of 21 such amber pendants arranged in a circle inside what may have been a copper diadem (Loze 2000:fig. 4). The form of the pendants might have been borrowed by local amber workers, or the pendants could have been imported from the Lake Lubāns depression via inter-tribal exchange.

Among the tooth-shaped pendants of the third perforation type (from the top and one side) there are few broad examples—the narrow ones prevail, and one of them is of cylindrical form.

Pendants with perforations drilled from the back and from the top (type 4) were produced in large

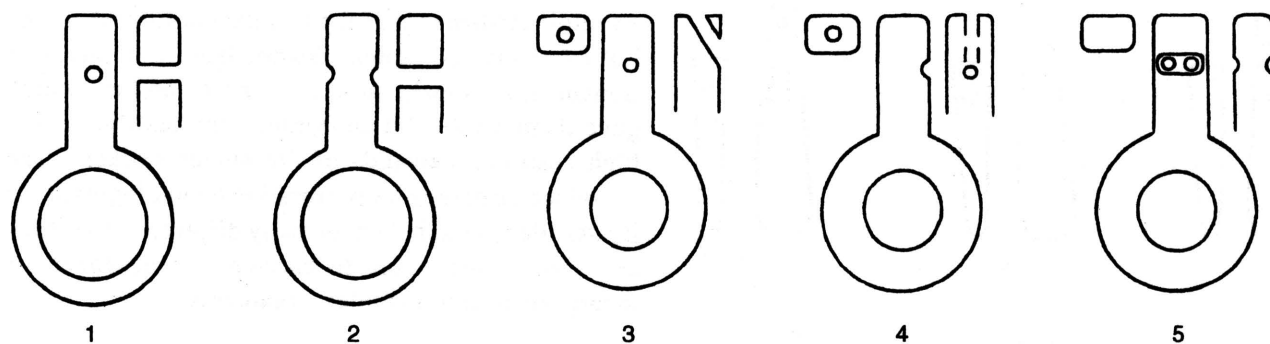


Figure 8. Perforation types of key-head pendants: 1, frontal; 2, lateral (from both sides); 3, from two adjacent faces; 4, from the top and one side; 5, complex.

numbers. Among them were many variants, which differed in their cross-section (rectangular, circular, lens-shaped, oval, flattened oval, and irregular), as well as the processing of the sides and bottom edge. Inconsistency between the cross-section of a pendant and the form of the upper end has also been noted. The pendants are 2.0-4.5 cm long and under 1.1 cm in thickness.

Pendants with complicated perforations (types 5 and 6) were made less frequently, since special skill was needed to perforate them and not break the ornament.

Partially completed tooth-shaped pendants reveal they were made by experts. Their production process includes the following stages:

- forming a contoured blank by splitting and retouch;
- smoothing the top face and sides;
- processing the surface by retouch;
- polishing the surface (horizontally, obliquely, or vertically) and sides (only vertically, sometimes from opposite sides);
- perforating the pendant on the polished surface.

Amber tooth-shaped pendants have also been found in the upper reaches of the Daugava River basin at Asavets II, the Late Neolithic habitation site on the bank of the Krivina, a tributary of the Daugava. The pendants include a few examples similar to the type 3 and 4 pendants from the Lake Lubāns depression (Charniauskis 2001:142, fig. 2). These pendants could also have come from amber workshops of the Lake Lubāns depression, either from the Abora I or Iča settlement.

In the Late Neolithic, the amber-working specialists of the Lake Lubāns depression who made V-shaped perforations in button-shaped beads and had introduced the techniques for perforating tooth-shaped pendants, utilized both perforation methods to construct complicated ornaments. Taking a large amber pendant with a lateral perforation, which was a splendid ornament by itself, it was possible to drill one or more V-shaped perforations in their lower edge through which, by means of a tiny string or strip of hide, big tooth-shaped pendants with perforations from the top and the back could be suspended (Pl. XA). In the case of tooth-shaped pendants with perforations from the top and one side, two such pendants with perforations in opposite sides could be mutually linked. They could, therefore, be used to create other composite ornaments where the attachment of paired tooth-shaped pendants increased the impressiveness of the ornament.

Key-Head Pendants

Amber workers in the Lake Lubāns depression in the Late Neolithic and Early Bronze Age got stimulac for manufacturing key-head pendants from the Kuršiū Spit and other European regions. Twenty-one key-head pendants were found at the Abora I and Iča settlements

These pendants, which resemble the head of a key, have a long or short stem projecting upward from a perforated disc (Pl. XB top). The discs are either round, oval, or flattened oval. The stem and disc are in a proportion of 1:1, 2:1, or 1:1.5. The hole in the center

of the disc varies. The cross-section of the stem is either round, oval, or quadrangular.

Five perforation types have been recorded:

1. frontal (Kuršiu Spit) (Fig. 8, 1);
2. lateral (Fig. 8, 2);
3. from two adjacent faces (from the top and the back)(Fig. 8, 3);
4. from the top and one side (Fig. 8, 4);
5. complex: from the back with two smaller perforations from the sides intersecting the larger one (Fig. 8, 5).

Miscellaneous Pendants

Drop-shaped pendants have been found at the Eiši and Dziedziekste settlements. The Eiši specimen is medium size (3 cm long) and manufactured of fully transparent amber of the highest quality. It resembles a large raindrop with a biconical perforation in its narrow end (Pl. IXD top, left). The pendant from the Dziedziekste settlement is smaller (2.5 cm long) and is also made of transparent amber with a conical frontal perforation.

Disc-shaped pendants are comparatively rare. One of them, found at the Eiši settlement, is made from an oval disc with a hole in the middle and a biconical perforation at the top. It has a nice appearance, being made of matte amber with different brownish and yellowish tinges (Plate IXD top, right).

It is also worth noting several other types of pendants which were used in the production of complicated jewelry. These include a piece of an unfinished **semi-circular pendant** which had a sufficiently broad and thick lower edge to accommodate a V-shaped perforation.

Also of note is a **cloven conical pendant** with lateral perforations and a perforation along its vertical axis. The lateral perforation suggests how the pendant was worn: it could either be attached to a garment or placed in the center of a string, simultaneously having a tooth-shaped pendant with a perforation from the top and back suspended from it. Such use was documented in a disturbed grave at the Abora I settlement (Loze 1975:66, fig. 10, 1).

Figurine Pendants

The figurine pendants found in the Lake Lubāns depression reveal that the Neolithic peoples had surprisingly rich imaginations. Three-dimensional zoomorphic or symbolic figurines predominate. It goes without saying that their manufacture was linked to the demands of the people's spiritual life. It is, therefore, essential that we not only analyze the form, but also the symbolic implications of the figurines.

A possible zoomorphic pendant seems to represent a reptile (Pl. XC). It is flat with a slightly concave surface. The neck is indistinct; the eyes are bored, but the mouth is not marked. The rather broad body is asymmetrical. Two projections on one side add plasticity. The gradually narrowing lower part with a lateral perforation is broken. The figurine, manufactured of the highest quality transparent amber, lacks finishing touches.

A figurine of similar manufacture was found among the grave goods accompanying a 2- or 3-year-old child at the Abora I settlement (Pl. XD, right). It is an easily recognizable snake-like creature because of its lithe body, two drilled eyes, and a groove for the mouth at the upper, fairly bulky, end. It does not have the relative dimensions of a snake, possibly because the maker might not have had a sufficiently long piece of amber at hand. It most likely represents a grass snake because the figurine lacks the zigzag stripes typical of an adder which appear on the bone and antler figurines at the Abora I and Zvidze settlements. The figurine consists only of the head and the upper part of the body. Replacing the whole object with a part of it is a rather characteristic feature of Stone Age art.

Another figurine pendant was found next to the snake-like one. It is more problematic and, therefore, allows for different interpretations (Pl. XD, left). The lower portion exhibits a lateral perforation. It may be difficult to distinguish a zoomorphic figurine, but it is a two-headed creature. It is interpreted as an example of an interesting ornament with symbolic meaning which demonstrates the skill of the amber workers where a snake-like figurine is complemented with a pendant of similar type.

Another rather unique amber figurine pendant was uncovered at the Asne I settlement and, like those mentioned previously, is devoid of any known analogy. It is formed of a large, thick piece of amber and resembles a broken oval mushroom cap. It has a swelling with a hole in the center of one side, but the outer edge of the other side is decorated with 14 holes, each with the same diameter. It is likely that the holes represent units of time based on the phases of the moon. It cannot be doubted that the figurine pendant possessed a symbolical meaning.

Drilled decoration also appears on the surface of a rounded triangular amber pendant. The holes are arranged in two symmetrical rows: two in the upper row and four in the lower row. The bottom edge is slightly rounded. Such decorations also characterize Late Neolithic ornaments in the Juodkrante collection (Klebs 1882).

CONCLUSION

During the Late Neolithic, as in the Middle Neolithic, tubular beads enjoyed particular popularity in the Lake Lubāns depression. Judging from the large quantity of broken unfinished items, the manufacture of them, compared to the production of button-shaped beads and pendants, undoubtedly demanded more highly skilled workers. Cylindrical beads were also made by beginners who had not yet acquired the appropriate skills for this work. During the drilling process, these beads mainly broke along their longitudinal axis. Breakage occurred less frequently along the transverse axis. When this happened, the broken piece was fashioned into a short tubular or disc-shaped bead. Tubular amber beads were also manufactured during the Eneolithic, but did not continue into the Bronze Age.

Globular beads, like those found at the Middle Neolithic Sulka (fine specimens) and Nainieks (unfinished pieces) settlements, were no longer produced during the Late Neolithic period. One can only guess how the globular beads—which the world of the Mycenaeans got to know several thousand years later—could be produced in the Lake Lubāns depression (one of the most intensively inhabited micro regions of Europe) at such an early date.

Of great antiquity, amber button-shaped beads, generally circular or quadrangular in form, were also popular ornaments in the Lake Lubāns depression during the Late Neolithic. They were worn both strung and attached to garments.

Button-shaped beads are particularly well represented in the Late Neolithic grave-goods of a male buried at the Abora I settlement. Of these, the large rectangular specimens with scrupulous surface faceting deserve special mention. These were strung together with other quadrangular and circular button-shaped beads. This testifies to the existence of strong canons concerning the production of quadrangular beads and the scrupulousness involved in compiling the strings. Who was this individual of around 30, whose grave goods included a string of 27 beads? This person was buried in a grave together with two women and an individual of indeterminate sex, with no differences in their grave goods. This person may have occupied a significant position in Late Neolithic ranked society. This may be why his grave goods not only included the skilfully manufactured button-shaped beads (which served as a model for the classification of quadrangular button-shaped beads from the archaeological settlements of the Lake Lubāns depression), but also an imported object—a slate spearpoint with a rhombic incised design.

Pendants were also very popular in the Lake Lubāns depression during the Late Neolithic. The elongated-trapezoidal and oval pendants with a frontal perforation which predominated during the Middle Neolithic (Pl. XB bottom) were replaced by tooth-shaped and key-head pendants. The former were represented by particularly original ornaments which were not produced outside the Lake Lubāns depression. They were the first to be used as subordinate elements in the production of multi-component ornaments. They were attached to V-shaped perforations along the bottom edge of a larger pendant which had a lateral perforation at the top.

As for the key-head pendants, discussion is ongoing concerning who might have worn these ornaments. An opinion is held that it may have been women. This is based on findings at the Abora I settlement where, in grave no. 33, two key-head pendants were found under the lower jaw and skull of a woman. As revealed by finds in female graves in the Lake Lubāns depression, amber key-head pendants were either worn independently or incorporated into

complicated ornaments in the same way as described above for amber tooth-shaped pendants.

The amber key-head pendants uncovered at the Abora I settlement have been produced at different times as the manner of production differs among them. Several specimens are similar to those from the Kuršiu Spit—they are disc-shaped with a fairly broad upper part and a frontal perforation (Klebs 1882). Some archaeologists believe that these pendants relate to the Bronze Age; namely, their age coincides with the period of classical Unetice culture in Central Europe.

Finds of partially completed amber key-head pendants at the Abora I settlement provide evidence that they were manufactured locally. In the manufacturing process, a piece of amber was first worked into a rough form and then a disc with a shorter or longer stem was formed. Its surface was subsequently carefully retouched and finely ground. The grinding made the retouched part smooth and only then was the middle of the disc bored and a perforation drilled in the upper part.

Prototypes of key-head pendants may be sought in the southern part of Eastern Europe. Amber was used for their manufacture only in the Eastern Baltic and from there they could reach the Middle Dnieper as, for example, a specimen was found in grave no. 1 of barrow 11 at the Moshka Khodosovichi burial ground near Mogilova. The grave was discovered at the beginning of the 1960s (Loze 2000:71). The object is a ring-shaped pendant with a long stem and a complicated perforation at the back—a big hole is connected to two smaller ones bored in the direction of the lateral faces. Such a perforation had previously only been known from amber ornaments produced in the Lake Lubāns depression.

The pendant was found together with a stone battle axe, a flint wedge-shaped axe, and flint knives and arrowpoints. All this is typical of the Middle Dnieper Corded Ware Culture. Two copper spectacle-shaped pendants and a spearpoint were found there as well. It is very likely that the amber pendant, the same as those from the Lake Lubāns depression, dates to the time of the aforementioned culture.

It is possible that the amber pendant found in the Middle Dnieper basin was brought from the Eastern Baltic, namely, the Lake Lubāns depression. It is also possible that it is the result of mutual cultural contacts

and spheres of influence as the copper spectacle-shaped pendants were produced based on examples from the Middle East. Thus, it is very likely that the Dnieper was a major waterway that played a significant role in promoting cultural change in the Middle Dnieper region during the period from 2300 to 1700 years B.C.

Prototypes for the key-head pendants might also be the copper and gold pendants of similar shape found in the Northern Balkans and Anatolia (Turkey), though they bear the greatest resemblance to pendants of the Aegean Late Neolithic and Early Bronze Age (Aegean AB II and AB III phases) of the period 3000-2500 years B.C. (Makkay 1976:250).

It is also interesting to note that amber ornaments in the Aegean Sea basin, the Peloponnese, and southeastern Thessaly were manufactured only in some settlements in the Aegean Late Bronze period which corresponds to the Middle Bronze Age in northern Europe. Thus, one may conclude that amber from the Eastern Baltic had not yet reached the Aegean Sea basin during the Early Bronze Age.

Heretofore, there was no definite evidence that the Dnieper had a role in conveying amber to the northern and southern coasts of the Black Sea. The outstanding researchers of Mycenaean culture—Anthony Harding and Helen Hughes-Brock—believe that in the years 1600, 1500, and 1200 B.C., amber was brought to Greece from the northern parts of Europe; but it was from the southeastern coast of the British Isles, not the Eastern Baltic (Harding and Hughes-Brock 1974).

The distribution of key-head pendants in such a vast territory (the Aegean Sea basin, Macedonia, Thessaly, Hungary, Slovakia, the Middle Dnieper, the Middle Volga, and the Eastern Baltic) testifies to their specific role in the symbolism of the Late Neolithic, the Eneolithic, and Early Bronze Age that is closely related to the dissemination of a definite world outlook in the territories that were already under Indo-European influence.

Unlike the amber workers of the Middle Neolithic, those of the Late Neolithic occasionally produced special figural ornaments. It is likely that these were the work of experienced specialists who utilized their inventive faculties and professional skills to produce zoomorphic pendants representing such animals as snakes and lizards. These ornaments were relatively

large and not only represented actual animals, but also had symbolic meaning.

The working of amber ceased in the Lake Lubāns depression at the end of the Eneolithic, when the inhabitants of the region moved outside the wetlands. The rather scanty amber finds at Bronze Age sites in other parts of Latvia confirm that the new amber-working technologies introduced in the Lake Lubāns depression during the Late Neolithic were lost forever with the coming of the Bronze Age.

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Institute of the History of Latvia
Akadēmijas Laukums 1
LV-1050 Riga
Latvia

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Amulets and Pendants in Ancient Maharashtra.

Jyotsna Maurya. D.K. Printworld Ltd., F-52, Bali Nagar, New Delhi 110 015, India. 2000. 102 pp., 12 b&w figs., 4 maps, index. \$14.70 + \$3.00 postage (hard bound).

The region of Maharashtra was one of the most important political and economic regions of ancient India because of its important subsistence and mineral resources, its internal trade routes, and the seaports that linked it to distant foreign lands. The author attempts to use the study of amulets and pendants to provide insight into the cultural and historical developments in this region from the prehistoric to the historical period, with a major focus on the Mauryan (ca. 322-183 B.C.) and Satavahana (50 B.C. to A.D. 250) periods. In her introduction (Chapter 1), Maurya begins with a general survey of the importance of beads, amulets, and pendants. Unfortunately, here and in subsequent text, she does not make any reference to the numerous important articles on beads that have been published in India and internationally during the past 20 years.

The second chapter discusses the technological features of amulets and pendants. Here, too, the presentation is extremely brief and does not demonstrate an in-depth knowledge of the available literature on bead technology. In Chapter 3, the author provides a useful summary of excavations in Maharashtra. She has compiled site coordinates and a general chronology for each site, along with a brief summary of highlights of the excavations including, where available, a list of the recovered bead types. The inconsistency in the amount of information for each site is due to the nature of her resources which range from the brief reports found in the *Indian Archaeology-Review* to more comprehensive final-excavation reports. It is difficult for the reader to pull all of the relevant information out of this chapter and it would have been

nice to have a chart comparing the types of beads found at different sites during different periods.

Chapter 4 is a brief presentation of possible source areas for different types of raw materials used in the production of stone amulets and pendants. This section is not well referenced and there are many other publications that present more detailed discussions of material resource areas.

In Chapter 5, the author embarks on a typological study of amulets and pendants that is quite confusing. Her attempt to differentiate between amulets and pendants is not very consistent and she repeatedly reverts to the use of both terms together and often in conjunction with the term "bead." By trying to differentiate between pendants and amulets, Maurya has also made a major error in terminology. The term "pendant" derives from a descriptive term for how an ornament is *worn* and the term "amulet" reflects the way in which an ornament was *used* as a protective symbol or for its powers. Many of the ornaments she calls pendants were probably used as protective amulets and, similarly, many of the so-called amulets may have simply been decorative objects that no longer had the symbolic or ritual meaning of the original object. There is no way to determine if an object was used as an "amulet" from the archaeological record or even from sculpture. It would have been more useful to use the terms "bead" and "pendant," and then discuss the various amuletic properties of the different shapes and materials that were utilized. If one overlooks this typological morass, the descriptive presentation of the different types of beads and pendants is quite informative. In addition to basic description, she is often able to link specific types of ornaments to textual references and sculptural depictions.

In Chapter 6, the author continues with this approach and provides a summary of the different

types of ornaments (beads, pendants, and amulets) and the sites at which they have been found. In this section she also tries to link the emergence of specific types of amulets to changing social, political, and religious systems. While the discussion is somewhat disconnected and is not fully supported with references, it does raise some important issues that need to be pursued through future research. Perhaps the most important themes relate to internal trade and exchange networks and linkages to external regions.

Jonathan Mark Kenoyer
Department of Anthropology
University of Wisconsin,
Madison
1180 Observatory Drive
Madison, Wisconsin 53706

South East African Beadwork, 1850-1910: From Adornment to Artefact to Art.

Michael Stevenson and Michael Graham-Stewart (eds.). Fernwood Press, Vlaeberg, South Africa. 2000. 192 pp., index. South African rands 295.00 (about \$32.00 + postage)(hard cover).

In this book, the beadwork and many of the archive illustrations are from the collections of the editors. Sandra Klopper, of the University of Cape Town, has contributed an Introductory Essay. This has the subheadings: Early Collectors; Beads vs. Indigenous Materials; The Changing Fortunes of Beads; Fashion vs. The Symbolic Use of Colour; Looking for Meaning in Style: Ethnicity vs. Regionalism; The Creative Role of Women; The Role of Beadwork in the Articulation of Male and Female Power and Influence; and Revisiting the Past: Proud Owners of Beadwork in the Late 20th Century.

Most of the pieces are without documentation and are identified by analogy with other published material, though some do have the collector's documentation, such as those acquired by Alfred John Gregory who was in the Cape Colony between 1891 and 1914, some of that time as Medical Officer of Health. Most of his pieces are attributed to the Mfengu, otherwise known as the Fingo. This leads me to raise the matter of the two maps in the volume which have

been taken from *An Atlas of African History* by J.D. Fage. "Fingoland" is shown on the first map, along with a few other tribal areas, but there is no indication on either map of where the Drakensberg range is, even though a number of the beadwork pieces are attributed to this area. It really would have been better to use maps with far less detail (much of it irrelevant to this book), but showing the tribes and areas referred to in the text, and using, for example, Mfengu rather than Fingoland.

The endnotes appear to be designed to incorporate a bibliography so, while authors and titles are indeed given, it does mean that the reader may have to search backwards through the notes to find the relevant title. A properly arranged bibliography is a surprising omission. The index is comprehensive and well laid out.

The pictures of the actual beadwork are of excellent quality and presented in a straightforward manner, whether in total view or in detail—prime requisites for studying beadwork appearance and technique. They are grouped by area, tribal attribution, and object type. Sandra Klopper's Introductory Essay, accompanied by archival illustrative material, some of it from Michael Graham-Stewart's collection, provides a logically arranged and clear background to the whole subject of South African beadwork. As a visual presentation of an insufficiently known assemblage of African beadwork, this volume will be useful as a tool for further research.

Margret Carey
2 Frank Dixon Way
London SE21 7BB
United Kingdom

Ancient Glass in the Israel Museum: Beads and Other Small Objects.

Maud Spaer, with contributions by Dan Barag, Tallay Ornan, and Tamar Neuhaus. The Israel Museum, P.O. Box 71117, Jerusalem 91710, Israel. 2001. 384 pp., 51 color plates, 101 b&w figs., notes, indexes. \$93.00 + \$24.00 shipping (paper cover).

This is a wonderful book. It is beautifully laid out, well written, and profusely illustrated. It is also well made and a joy to read (and reread); a large (it weighs 2 kg or 4+ pounds) soft-cover book that does not fall apart when you open it.

The work is a catalogue of 647 small glass objects in the holdings of the Israel Museum, most of them beads or related items. As Spaer points out in her introduction, beads have received far less attention than large glass items, but this is a grave mistake as beads were among the first glass objects made and beadmaking was often at the forefront of glass technologies.

The first chapter covers both the history of glassmaking and the making and working of glass. The remaining chapters discuss the glass objects themselves: beads, pendants, bracelets and other jewelry, seals and cameos, game pieces and tokens, inlays and amulets, implements (spindle whorls, pins, and rods), and pre-manufactured elements (inlays, mosaic pieces, and what might be ingots). A glossary, a few notes, indices, references, plates, and maps follow the main text. Most chapters will interest bead researchers. I know that I am often asked by default to catalogue objects that are not beads or pendants at various sites, including spindle whorls and bangles (bracelets).

There are several nice touches in the book. It is illustrated throughout, not just in the plates section at the back. Particularly helpful are photos showing beadmaking processes in the section dealing with them. There is also a small bonus of a discussion on Hebron (pp. 146-147). I cannot say whether beads nos. 274-279 were made there, but the collection has none of the monochrome (and crumb) beads so well known in the African trade (at least some African traders know these beads came from Hebron). Perhaps different beads were made for different markets.

The major weakness of the book is not the fault of the author. It is that the book catalogues a museum's holdings, all of which appear to have been donated by collectors and, therefore, carry little information regarding where they were found and on what date. Most museum catalogues have the same weakness. Spaer tries her best to cite parallels, some of which have known proveniences, but dating and sourcing of many items remain problematical. Several beads are

also denoted as being from the "Islamic period" or something similar. Problem is, much of the world, including many places where these beads were found, is still in the Islamic period, now in its 15th century. Still, the book is a necessity for anyone interested in the glass beads of the Middle East. No work is perfect, of course, so the balance of this review will be to critique or correct some parts of it. The problem areas do not detract from the value of the book.

The history in chapter one is well done and informative. Perhaps it should have been pointed out, however, that it is not a general history of glass, but a history of glass around the Mediterranean and, to a lesser extent, Europe. China rates only a single sentence and India, Southeast Asia, and some parts of Europe are completely ignored. Of course, the history serves as an introduction to the catalogue, but then one wonders why China was even mentioned or why the Indian *lada* drawing technique is included in the glossary.

The glassmaking discussion in the same chapter is a little sparse. On page 35, only soda is mentioned as an alkali and it is said, "lime was added to stabilize the glass...." Most of the objects Spaer is dealing with may be soda glass, but no analyses are offered, so that is not certain. It is also likely that ancient glassmakers did not add lime and that it was included accidentally with other ingredients. She mentions these things in the glossary entry on glass, but it is curious that it is not in the text.

The beads are divided according to their decoration. Manufacturing processes would have been a better choice. Relying on decoration places Fustat Fused-Rod beads (they should not be called "Fustat beads" because several types of beads were made at Fustat) in the eye-bead section when they have eyes (no. 128) and in the "trailed line" section when they do not (nos. 181-182). "Trailed lines" is an unfortunate choice because "trailing" refers to adding lines to the body of the bead, while many of these beads have lines that are part of the glass and were not trailed onto the surface. I also think that at least the perforated "amulets" would have been better grouped with the beads or pendants, many of which are also amulets, and not with the inlays.

My major disagreement is over the names Spaer gives to some beadmaking processes. She divides the

hot-working techniques into "rod-forming" and "air-forming." "Rod-forming" is used throughout the book, but as it encompasses winding, joining (fusing), molding, folding, and piercing, it is not always clear what process is being discussed, though it is usually denotes winding. I do not think it is logical to say that air *forms* a drawn bead. Moreover, drawn segmented beads (such as gold-glass beads) would have to fall into both groups, since they began as drawn tubes which were then put on rods or wires to be rolled over molds to segment them.

The term "segmented" is not as confusing as Spaer has it (p. 132). A drawn segmented bead is so-called because the beads were made in a series, each bead being a segment of the tube. They are still called segmented beads whether they are cut into individual beads or left as a sequence of segments. Gold-glass beads are a subset of segmented beads. Perhaps her confusion comes because in this collection segmented beads are apparently represented only by gold-glass beads. In every Middle Eastern assemblage I have catalogued, including the Hellenistic-Roman Red Sea port of Berenike, Egypt, plain segmented beads are always quite common.

Another term with which I have problems is "gob-winding." This is taking a gather of molten glass on a punty or pontil and letting it drip onto a mandrel to form a bead. She claims (p. 45) that this was the most common way to wind glass beads. How she can determine that I cannot say. Most ancient wound beads, in my experience, are furnace-wound (directly in the furnace), as attested by black perforation deposits. The descendants of the beadmakers of Tyre (Hebron, Turkey, and Cairo), as well as traditional beadmakers in India, furnace-wind their beads. On the other hand, at Herat, Afghanistan, a distant offshoot of the Damascus industry, the glass is removed from the furnace and dripped onto a rotating mandrel. If we could identify "gob-wound" beads (and find a more attractive term for them), this might help us distinguish ancient beadmaking traditions and sites.

The section on Venetian beads (pp. 140-145) strikes me as somewhat odd. The history is presented as though she had discovered all these facts herself, referencing others only rarely. There is then a short section discussing research on Venetian beads. It would have been more consistent to cite the literature as she discussed the history, as she did for all the other

sections of the book. Spaer and I have discussed the three combed suboblates (no. 266) she grouped with Venetian beads. She told me that she had no definite information on them. I think they are not Venetian, as they are never found in Africa or the Americas, but have no guess as to their origin.

Now some remarks about individual beads. Bead no. 6 is paralleled with a bead found at Nuzi (both are wound segmented beads but they differ in shape). Rather, this bead looks like the wound, segmented, annular beads found in some numbers at Berenike, and one found in a Meroitic tomb in Nubia. Those at Berenike are mostly from the 4th and 5th centuries; the Meroitic kingdom ended at the beginning of the 4th century.

Beads 45 and 46 are small bicones that Spaer says were "obviously drawn." From the description, they appear to be the same beads that are quite common at Berenike. During my first season there (when I was too ill to look at them closely), I thought they were "obviously wound." Indeed, they are neither. They were made from a plaque of glass that was pierced, folded up the mandrel, and marvered or paddled into cones at either end. This complex technique became evident when I closely examined each one of these beads under a microscope at Berenike.

While some date beads (no. 160) were made by single-strip folding, and all of those in the museum's collection might be, most at Berenike were pierced and folded up the mandrel. Spaer correctly says that the better cornerless-cube beads (nos. 48-49) were made by lapidary techniques, but I have never seen one made in a mold. Most were wound and paddled into shape. Every head pendant (Pl. 25) I have examined was core-formed, not "rod-formed," unless you count the rod that held the clay core.

The glossary is useful, but several entries could use some correction. "Caged" is apparently a misprint for "cased." To the best of my knowledge, only one article ever referred to the spotted Venetian beads as *Alta Verapaz*; I do not think anyone else has ever used the term. Aventurine is a type of glass, not a bead. It can be made into a bead or be used to decorate beads. If a bar is a mosaic cane, it should be called that. Cane-winding is what has been called lamp-winding for a very long time; I see no reason to change it, especially as it contrasts with furnace-winding, etc.

No mention is made in the entry on "chevron bead" that the layers are corrugated, giving the bead its name; this is discussed in the text. Glass is not homogeneous; it is heterogeneous. It is also not a substance but a state of matter. Siliceous does not only refer to glass, faience, and similar artificial products, but also to stones containing silica.

Finally, I wish to discuss the beads that Spaer calls "mirror beads" (nos. 184-187) and the associated "rayed bead" (no. 189). She notes that I have used the term "torus folded" for these beads (Francis 1989:29), but says it is not clear which bead I was discussing. I thought the drawing in Fig. 2c would have made that clear, but that is beside the point. As far as I can tell, the first person to discuss these beads at any length was Chittick (1974:466-468). He replicated these beads with plasticine, but I have never quite been able to follow his method, which involves trailing a decoration, manipulating the bead, and using a mold.

Spaer also cites this work, but only notes Fig. 181e as a parallel to her "mirror beads." In this, she may be right. As I look at Chittick's drawing, the other eight beads do look different, while this one seems to be a "mirror bead." Spaer then cites a work by L'vov and reproduces a drawing from that work in which these beads (as well as some flat pendants) were made by piercing, folding, and manipulating a disc with concentric circular designs. I have not seen L'vov's paper, but am satisfied that this technique is workable, as it was presented by beadmaker Tom Holland at Bead Expo 2002. Holland worked with Jeff Mitchem trying to replicate beads Mitchem had recently uncovered in Jordan.

Spaer relates these beads to the one she calls a "rayed bead." The notes on the "rayed bead" (p. 116; insertion mine), however, read: "Zigzag of eight protruding ribs around small basic [*i.e.* base] bead of conical shape.... The ribs form the main body of the bead. Chipped." The chipped portion presumably helped her reach the conclusions about how the bead was constructed. This, then, is a torus-folded bead, made by manipulating a torus (a thick ring) up and down the sides of a bead used as a base. It is totally unlike the method proposed by L'vov and Holland for making "mirror beads."

My initial assumption that "mirror beads" and torus-folded beads were made in the same way appears

to be in error. Looking into the perforation of a "mirror" bead in the Center's collection, lines matching those on the surface are visible. Similar lines cannot be seen in the perforation of a torus-folded bead. We are dealing with two types of beads here (and possibly a third type that forms the bulk of Chittick's beads from Kilwa). That makes life more interesting, if more complicated.

In sum, Spaer's work is invaluable. I know I shall be consulting it often as I deal with material from roughly the same part of the world. There are a few flaws, but that happens with every publication. The use of what I consider odd or inappropriate terms may be a result of linguistic dissonance or cultural discrepancy (for example, I have never seen a bibliography set up the way this one is, but this may be standard practice elsewhere). The book is a major contribution to bead research.

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Peter Francis, Jr.
Center for Bead Research
4 Essex Street
Lake Placid, New York 12946

Asia's Maritime Bead Trade: 300 B.C. to the Present.

Peter Francis, Jr. University of Hawai'i Press,
2840 Kolowalu Street, Honolulu, Hawai'i
96822. 2002. i-xi + 308 pp., 48 color figs., 89
b&w figs., notes, index. \$52.00 (hard cover).

This reviewer, along with the entire bead community, remains greatly saddened by the premature death of Peter Francis, Jr., the author of *Asia's Maritime Bead Trade*. At it's best, a book review becomes part of a conversation between the reviewer and the book's author, and in this case, the

hoped-for conversation has been cut short. When I first wrote this review in the summer of 2002, I sent a copy of the draft to Pete, partly because I sincerely didn't want to be unfair to a project that meant so much to him, and partly because, as a newcomer to the "Bead World," I didn't want to alienate anyone, let alone Peter Francis, Jr. His only request was very reasonable: for me to give more specific examples of what I saw as a pattern of small errors, none of them important enough to detract from the main messages of the book. I hope that Pete felt some satisfaction in reading the positive parts of the review; we actually became much closer friends after the summer, so I don't think he was deeply disturbed by the few less enthusiastic comments.

I have decided not to alter the original text of the review, but to leave it as if Pete were still here to respond. Reviewing an author's last publication can be an invitation to a more general assessment of the author's career—an invitation I don't feel qualified to accept. As it is, at the time I wrote this review, I was concerned that I was not being critical enough; now, I wish I had been more lavish in my praise.

Asia's Maritime Bead Trade: 300 B.C. to the Present (AMBT) is a remarkable achievement, and the type of comprehensive single-author text rarely seen in today's ever-more specialized academic environment. As such, the book provides a unity of style and vision well suited to the student or scholar searching for a particular point of view. At the same time, *AMBT* illustrates quite well some of the difficulties and pitfalls inherent in such a work which covers half of the world and half of history. Although bead research may seem a narrow field to the uninitiated, the fact that beads cut across so many cultural and historical boundaries makes such research necessarily broad. The bead researcher must integrate history, geography, anthropology, archaeology, and technology, both in terms of the development of technology in society, and in terms of the use of technology in analyzing cultural materials. Such integration of so many disciplines is a difficult task, and with over 20 years of experience at the highest level, Mr. Francis is eminently well qualified for the challenge.

The book is organized into seven sections, with the center five focusing on the major beadmaking industries important in the Asian maritime trade. In

Part One: Introduction, Mr. Francis reviews the scope of the book, with a succinct history of sea trade from the West to Asia, followed by an excellent summary of "Beads, Bead Materials, and Beadmaking." This summary alone would make an excellent inclusion for any beginning course in historical or archaeological sciences, and presents in just a few pages the synthesis of years of study and experience.

Part Two tells the story of the small, drawn-glass beads which became "the most widespread trade bead of all times, quite possibly the most widespread trade item of any sort" (p.19). Mr. Francis is perhaps best known for his study of these ubiquitous beads, which he named "Indo-Pacific" beads in 1986, a term now generally adopted. Basing his ideas on contemporary beadmaking at Papanaidupet in South India, as well as on the characteristic wasters found at early beadmaking sites, Mr. Francis has proposed a manufacturing process unique to the Indo-Pacific beads, and goes on to discuss the evidence for the spread of manufacturing from the early site of Arikamedu, near today's Papanaidupet, to Sri Lanka, Thailand, Vietnam, Malaysia, and Sumatra. The black and white photographs which accompany this section are quite helpful in identifying the various tools involved; perhaps more detailed diagrams of the complicated "lada" process could be included in any future editions. The book's description of the expansion of Indo-Pacific beadmaking, and possibly workers and raw materials, provides one of the most convincing recreations of early technology transfer, with important implications for trade and state development in Southeast Asia, Japan, and Korea. Although many details are necessarily sketched-in, Mr. Francis' exposition here of this great story becomes the touchstone for any further studies.

The third chapter in Part Two describes some of the "by-products" of Indo-Pacific bead manufacturing sites, and goes on to review the significance and distribution of Indo-Pacific beads, literally "from Bali to Mali." These nine pages could easily have been 90, and this reader was left wanting more, both about the "by-products," drawn beads finished by alternate techniques, and about the bead distributions. This particular chapter illustrates some of the pitfalls of a single-author text, and although well-written, emphasizes isolated observation over an integrated summary. The section on Korea, at least, contains

several errors of both omission and commission, where there is little discussion of the progression of Indo-Pacific beads through time, an aspect which is particularly interesting in Korean archaeological finds. The mislabeled map on p. 47, in which the names of two Korean capitals are juxtaposed, raises questions about other small oversights in areas with which the reader may not be so familiar.

Part Three: Chinese Glass Beads provides an excellent review of glass beadmaking in China, followed by a cogent discussion of Chinese trade, as carried out by both Chinese and non-Chinese groups. Chapter 8, Chinese Beads in the Asian Maritime Trade, is particularly helpful for its discussion of the most characteristic Chinese beads. There is apparently relatively little published work on Chinese glass beads, and Mr. Francis' contributions here make a good start toward a more comprehensive treatment.

The subsequent section on beads from the Middle East concentrates first on those Middle Eastern beads sold to Asia, and second on beadmaking methods transferred to Southeast Asia during the Early Islamic period. Both of these sections benefit from Mr. Francis' considerable experience with and study of Middle Eastern and Asian beads, and reflect his opinions on the history and current status of these areas of investigation. While providing an excellent starting point for the beginning student, the section on Middle Eastern beads might be used with caution by the serious investigator. The field of Middle Eastern bead research is severely hampered by too few well-documented sites and examples, and Mr. Francis' admirable desire to integrate Middle Eastern and Asian bead history requires that he extrapolate from uncertainty; this reader would have preferred to see a clearer distinction between the known and the suggested.

Part Five: Stone Beads in the Asian Maritime Trade concentrates on the western and southern Indian stone bead industries, both areas of Mr. Francis' special expertise. In particular, the description of the role of the Pandukal people in South Indian stone beadmaking provides a real contribution. Mr. Francis' reminder on p. 110 that "this section cannot be too dogmatic about identifying western Indian stone beads" would seem good general advice for any author writing about early beads, whether stone or glass. Although Mr. Francis does not attempt to list the occurrences of Indian stone

beads at archaeological sites throughout the Asian maritime region, such an effort would be most welcome, particularly if integrated with the early trade in Indo-Pacific beads.

Part Six: Some Minor Bead Industries presents several glass- and stone-beadmaking traditions which may be minor in comparison to the small Indo-Pacific beads, but are certainly major in terms of interest and historical importance. The many references from the 1990s characterize these excellent summaries, and provide one of the more satisfying sections of *AMBT* not based on Mr. Francis' own work. In particular, the discussion of possible glass beadmaking in the Sa Huynh culture of southern Vietnam is intriguing, and one wishes for a more extensive discussion of Solheim's suggested role for Sa Huynh in the Austronesian "Nusantao" maritime trading network, perhaps a key to the early trade in Indo-Pacific glass beads.

The subsequent discussion of beads from Thailand (Ban Don Ta Phet and Ban Chiang) and eastern Java are well-referenced, and provide reasonable interpretations of the current information. The Javanese (Jatim) beads, in particular, require caution because so little is known from well-conducted excavations, and here the author is careful to distinguish observation from conjecture.

Chapter 14, on Minor Stone Bead Industries, will likewise be of great value to those interested in these important early beads. Mr. Francis presents what he knows in an organized fashion, although the relatively fewer recent citations suggest the possibility that more information may have become available in recent years. Chapter 15 concentrates on organically derived gem materials, in particular amber, coral, ivory, and pearls. No doubt the constraints of space and time precluded complete treatments of these materials in the Asian maritime trade, but the summaries presented form a good orientation for the serious student.

The final section, Part Seven: Drawing to a Close, first considers the transition from Asian- to European-dominated trade. In contrast to the Americas and West Africa, the Asian-controlled bead trade continued into the 20th century, and European beads, even when introduced as early as the 16th century, were of secondary importance. The subsequent Chapter 17 presents an excellent

discussion of heirloom beads among 15 groups in Southeast Asia, based largely on Mr. Francis' own research. Here, the author presents a framework filled in by observed detail, and discussed in terms of suggested hypotheses of how heirloomed beads can help us learn about cultural history.

In Chapter 18, Conclusions, Mr. Francis reviews his ideas on both the beads and the people involved in beadmaking and bead trading. This excellent summary combines the author's earlier work with some of the current theoretical background to the study of South and Southeast Asia. As such, it suggests many areas for further study, along with an overview of the author's current concept of the contribution of bead study to the larger issue of Asian maritime trade.

The seven major parts of *AMBT* are followed by two appendices, 33 pages of notes, an excellent references section, and a quite helpful index. Appendix A reviews the collection of beads in the National Museum of the Philippines, while Appendix B includes a very useful summary of chemical and spectrographic analyses done on Indo-Pacific beads. Mr. Francis' interpretations of the often confusing analyses appear to be sound, although it is unfortunate that he was unable to include the many analyses of Indo-Pacific beads published by Brill in 1999. This section ends with the always apt suggestion that "unquestionably, there is more work to be done." The notes section is a welcome enlargement of the text, and not to be missed.

In addition, there are two groups of plates, with 16 pages in black and white, and an equal number in color, as well as numerous well-done line drawings and maps throughout the text. The series of black and white photographs of beadmaking in India is excellent, and supplements the textual description of these processes. The photographs of individual beads are generally adequate, although poor focus and lighting limit the visual appeal of several of the shots, which appear to have been taken under difficult circumstances.

Asia's Maritime Bead Trade is a very important contribution to both bead study and the story of trade within Asia and from Asia to the West. Mr. Francis' work in these areas has set a standard for serious bead research. In much the same way, *AMBT* sets a standard for future investigation of beads and the people who made, traded, and used them. Subsequent scholars may

not always agree with Mr. Francis' identifications and interpretations, but will owe a great debt to his ability to summarize and synthesize sometimes fragmented information. One test of a book's success may be its ability to stimulate further work, and I would guess that *AMBT* will be very successful in this regard. While setting a stage and telling a story, Mr. Francis makes clear the need for additional work, both careful and rigorous, to revise and refine his vision of beads, people, and history. I strongly recommend *AMBT* to any student of the development of trade between the West and Asia, as well as to those whose work involves beads and their relation to history. In addition, bead enthusiasts and collectors will find much of interest in *AMBT*, which well deserves a place on the bookshelf.

James W. Lankton
926 West End Boulevard
Winston-Salem, NC 27101

Ethnographic Beadwork: Aspects of Manufacture, Use and Conservation.

Margot M. Wright (ed.). Archetype Publications Ltd., 6 Fitzroy Square, London W1T 5HJ, U.K. 2001. ix + 140 pp., 76 b&w figs. \$30.00 (paper cover).

On July 22, 1999, the Conservators of Ethnographic Artefacts (CEA) organized a seminar on "Ethnographic Beadwork: Aspects of Manufacture, Use and Conservation" which was held at the National Museums and Galleries on Merseyside, The Conservation Centre, in Liverpool, England. This seminar was followed by a three-day workshop on ethnographic beadwork, led by Sherry Doyal and Julia Fenn. *Ethnographic Beadwork* brings together various papers and poster sessions from the conference and incorporates additional papers by Annie Lord and Moyra Keatings.

As many bead and beadwork researchers and conservators know, it can be difficult and sometimes downright impossible to find published information regarding the care and conservation of beads and beadwork. Luckily, the CEA has brought this material together for those of us who were unable to attend the seminar and workshops. Most of the papers include notes and references as well as pertinent

bibliographies for the benefit of those wishing more information on specific topics. Some authors include lists of supplies and suppliers. And while most of us would like to see a 140-page book devoted solely to our area of interest, it is interesting, nonetheless, to read about the care of objects and materials outside our usual realms. I generally steer clear of plastic materials, for instance, yet some of the most interesting papers were on just that substance. Glass and pearl disease also are described, as well as beadmaking methods. A synopsis of each paper follows.

Traditional Glass Bead-Making in India, by **Torben Sode and Jan Kock**. Torben is well known among American glass beadmakers and bead societies for his enthusiastic talks over the last several years on Viking-era, Egyptian, and East Indian glass beadmaking communities. Jan Kock is an assistant professor in the Department of Medieval Archaeology at Aarhus University in Moesgaard, Denmark.

This paper explores the glass beadmaking tradition in small villages in India, specifically Papanaidupet, Purdalpur, and in and around Varanasi. Their aim was to record this beadmaking culture before it is swept away by the advances of our computerized electronic age. They note that when Peter Francis originally visited Papanaidupet in the early 1980s, there were 20 furnaces still producing all kinds of seed beads. When Sode and Kock visited in 1992, this number had been halved, and reduced again to two at their most recent assessment. They note that competition from modern factories plush with Japanese bead-manufacturing equipment in the glass city of Firozabad and in Varanasi has proven to be difficult competition.

There are more than 400 glass factories in and around Firozabad, and they note that the "sandy and infertile plain contains a high content of natural soda as well as a natural content of lime," which contributes tremendously to the ability of this area to be an important glass producer (over 70% of all the glass produced in India). The making of glass bangles is also discussed, as well as the glass beadmaking industry in the town of Purdalpur where there are about 45 small glass shops, each with its own furnace.

Around Varanasi, there is an increasing industry in lamp-worked glass beads, a technique introduced there

in 1938, by a Czech couple named Henrick. They established a class in glass beadmaking at Benares Hindu University, which was conducted for 25 years.

Differential Decay of Buried Iron Age Thai Glass in a Uniform Environment, by **Ian C. Glover**. Ian Glover is an Emeritus Reader in Southeast Asian Archaeology at the University College London, Institute of Archaeology.

Glover focuses on the abundant material available from the middle of the first millennium B.C. His specific focus in this paper is glass beads and ornaments from an early 4th-century B.C. Iron Age cemetery at Ban Don Ta Phet in Kanchanaburi Province of west-central Thailand "which has yielded one of the largest (about 3,000) and best provenanced and dated samples of glass beads of any prehistoric site in Southeast Asia."

The author describes the color and diaphaneity of the beads, as well as their locations within the graves and general conditions. He notes that, although most beads found in Thailand are generally thought to have been imported in antiquity from India, some of the finds seem to be peculiarly Thai and support the notion that there may have been a fledgling glass-producing industry there. The beads were found in a variety of conditions, with the more colorful ones having suffered less degradation than the colorless or translucent beads.

Material Characterization of Glass Disease on Beaded Ethnographic Artefacts from the Collection of the National Museum of the American Indian, by **Scott Carroll and Kelly McHugh**. Scott Carroll is a conservator with the Alaska State Museum in Juneau, and Kelly McHugh an assistant conservator at the National Museum of the American Indian in Suitland, Maryland.

While glass disease sounds like something contagious, it is actually due to "a constitutional defect in the glass which renders it susceptible to the slow destructive action of water vapour and carbon dioxide, and can eventually cause extensive damage to the entire body of the glass." Carroll and McHugh survey the literature available on this puzzling conservation problem and discuss testing for pH, instrumental analysis, and the results of examining

specific pieces in the National Museum of the American Indian (NMAI). A survey taken at the time of the move of the NMAI from New York to the D.C. area identified 187 pieces suffering from glass disease. The pieces were categorized by the type of symptom they exhibited and by whether or not the beads had come into contact with leather, hide, or sinew. From there, a variety of tests and solutions were explored. One caution raised was that although beads may appear to have glass disease, the substance coating some beads may have been introduced by the culture from which the beadwork came. An example is a Sioux dress intentionally coated with kaolin.

Mother-of-Pearl and Byne's Disease, by Judith Doré. Judith Doré runs Textile Cleaning and Conservation in Kent, England.

Doré discusses the wide use of mother-of-pearl for ornamentation, its history, the types of shells used, and, to some degree, the technology employed in making mother-of-pearl objects. She surveys historical descriptions of deteriorating mother-of-pearl pieces and the conclusions reached by early curators. There is an extensive description of the steps taken to clean and preserve a piece which suffered from Byne's disease.

Plastic Beads and Buttons in Social History Collections: A Dilemma, by Julia Fenn. Julia Fenn is an ethnographic artefact conservator for the Royal Ontario Museum in Toronto, Canada.

Anyone who has plastic beads and buttons in their collection must read this paper. Fenn points out the incompatibility between plastic and many of the other materials with which they are often coupled: amber and other natural resins are attacked by camphor, a plasticizer used in cellulose nitrate; real pearls, bone, coral, and ivory are all damaged by acidic products from various polymers; and threads (whether of vegetable or animal origins, or metal) are subject to damage from ebonite and cellulose nitrate. Plastic products themselves are damaged by many of the things we use to protect collections, such as mothballs, ammonia, cleaning agents, etc. Fenn points out that in order to properly conserve plastic objects, it is important to first identify them in one's collection. She gives considerable information on tests to identify various plastics which, for instance, help to tell real

from fake amber. After helping the reader through the thicket of possibilities, the author recommends various preferred methods for storing plastic objects. An appendix provides a lengthy description of the various kinds of plastics used in art making, including their history, suggested conservation practices, and what material is most threatened by each type of plastic.

The Conservation of a 26th Dynasty Egyptian Faience Net, by Jenny Potter. Jenny Potter is a conservator in the organic artefacts section of the British Museum in London.

Potter's subject is a netted mummy covering, dating to the 26th dynasty (664-525 B.C.). She gives a colorful impression of what the mummy must have looked like at the beginning, before it became the drab brownish pod-people form we're all so familiar with.

Potter describes the basic composition of the net, including the size and types of beads (bugles and round), the construction techniques, and the method of attaching the net to the mummy. She also talks about earlier attempts at conservation, including photomicrographs of the original thread and more recent conservation thread. In addition to the network was an amulet called a scarabeus, positioned at the neck and made using what appears to be a one- and two-bead peyote stitch, worked in disc-shaped beads (what I would call a heishi-shaped bead). Extensive text is devoted to analyzing the condition of the net, followed by a description of the actual process of conservation and restoration.

Examination and Conservation of a Beaded Throne from Cameroon, by Tracey Seddon and Siobhan Watts. Tracey Seddon is a senior organics conservator and Siobhan Watts a conservation scientist at the Conservation Centre in Liverpool, England.

"In 1916, the Head Chief of Bali in Cameroon, West Africa, presented to King George V a beaded stool or throne." From that time forward, the stool lived the sort of life often lived by objects given to powerful, famous people: it traveled from pillar to post, moved from one storage site to another, growing dirtier and more dilapidated as the years progressed. In 1998, its fortunes finally changed for the better and it

was identified as a prime candidate for display as a star item in the Liverpool Museum's new Heritage-Lottery-Funded galleries. Time for a facelift.

As with the netted mummy cover in the previous paper, the authors spend considerable time and detail describing what the stool is composed of, including both existing and missing materials. Damage was categorized as either needing to be fixed (loose beads and threads) or not (a strange greasy residue on parts of the throne that might be of cultural origin), and various methods of conservation were considered and developed. An in-house scanning electron microscope aided in the process of determining, to some extent, the composition of the glass beads to aid in conservation. Several individual beads are described at length, noting that of the red, white, and blue beads that adorn the piece, the red were by far in the worst condition, as was the fabric under these beads.

Potential Hazards in Caring for Ethnographic Beadwork, by Margret Carey. Margret Carey was an Assistant Keeper in the Department of Ethnography of the British Museum from 1953 to 1961, and is now an Honorary Curator.

Carey tells the sad, though dramatic, story of a beautiful Somali necklace shown in all its glory sometime in the 1950s, followed by a photograph of the piece after it had been disassembled several decades later. This deconstruction was necessary because beads that were presumed to be amber or copal were, in fact, composed of "an early nitro-cellulose (Celluloid) which is inflammable and potentially explosive." In the early 1970s, the necklace (which had previously been stored in relatively open conditions) was packed away in the usual acid-free tissue, a plastic bag, or both, where offgassing from the "amber" beads commenced to eat away at the silver beads. Of course, this wasn't discovered for years. Only by separating the silver from the plastic beads was it possible to stop the destruction of the necklace. It's quite an exciting story and will likely cause many of us to look at our collections and our storage methods a little more closely.

This paper also includes general descriptions of the sorts of problems encountered by those who curate beads and beadwork, such as insect infestations and the various methods of dealing with them, and the problems inherent in freezing. Leather and sinew are

often paired with beadwork and there is some discussion of the issues relevant to those materials as well. There is also a list of threading materials that can cause difficulties.

Whodunnit? Imitation Jewellery Made from Early Plastics, by Margrit Reuss. Margrit Reuss is an object conservator at the National Museum of Ethnology Leiden, in Leiden, the Netherlands.

A survey of the collections of the Linden-Museum in Stuttgart, Germany, revealed 33 objects made entirely or partially of synthetic resins which had been collected in various locations in the eastern hemisphere between 1903 and 1990. It appears that a majority of the objects may have been made in Gablonz and the author briefly describes the trade in beads and other objects by traveling salesmen from Czechoslovakia.

Cleaning Historic Beadwork, by Sherry Doyal. Sherry Doyal is an ethnographic artefact and textile conservator in Cullompton, England.

Doyal carefully describes necessary steps which should be taken before and during the cleaning and conservation of beadwork, with many specific notes on what to look for in the way of glass disease, damage, and thread deterioration. Cleaning methods, including the use of compressed air and solvents, are described with suggested caveats and best practices.

Upgrading the Storage of the African Beadwork Collection at the Royal Albert Memorial Museum, Exeter, by Morwena Stephens and Karla Graham.

While but interns at the Royal Albert Memorial Museum and Art Gallery in the late 1990s, Stephens (ethnographic artefact and textile conservator, Exeter, England) and Graham (archaeological artefact conservator, Centre for Archaeology, Portsmouth, England) were assigned a project to undertake storage improvement and survey a collection of African beadwork. The material included approximately 180 pieces, mostly from South Africa. Photographs show the new storage cases and the authors discuss some of the problems with the previous storage methods.

Deterioration of Glass Beads on an Edwardian Evening Bodice, by Annie Lord. Annie Lord is senior textile conservator at the National Museums and Galleries on Merseyside, The Conservation Centre, in Liverpool, England.

The Merseyside Decorative Art Department has among its holdings a collection of beaded costumes and accessories. White crystalline deposits on the beads of an Edwardian bodice raised concerns about glass disease and the bodice was brought to the Conservation Centre for examination and remedial treatment. Lord discusses at length the state of the various beads and illustrates examples in macro photographs. Analysis of the beads was performed to determine the chemical makeup of the glass and to determine a plan of attack for conservation and long-term storage. As an adjunct to this work, an intern surveyed all the costumes in the storage area to determine the state of those decorated with beads. Of the 130 costumes surveyed, 49 required conservation; eight of them urgently. Lord details the work performed on these pieces and the arrangements that were made for long-term storage.

An Introduction to Stone Beads, by Morya Keatings. Morya Keatings is a volunteer and jeweller at the Royal Albert Memorial Museum in Exeter, England.

Keatings introduces the reader to the Mohs scale of gemstone hardness, and discusses various methods for identifying different kinds of stone, including amber

(which, of course, is not a stone, but why quibble?). She lists the kinds of gemstones typically used in different countries, including prehistoric Europe and the Middle East, and pre-Columbian South America. Recommendations are made for the care of the different stones.

With information about conservation practices for beads and beadwork difficult to find, the best two words to describe *Ethnographic Beadwork* are "gratefully received." Publication of these papers grants collectors and curators a bountiful starting point for their own research, and gives those of us who would like such conservation practices summed up a volume that will answer most of our questions. Beyond its usefulness, it is frequently fascinating and gives a pleasurable glimpse into the working lives of the people responsible for maintaining the artifacts of our various cultures.

Alice Scherer
Center for the Study of
Beadwork
P.O. Box 13719
Portland, Oregon 97213

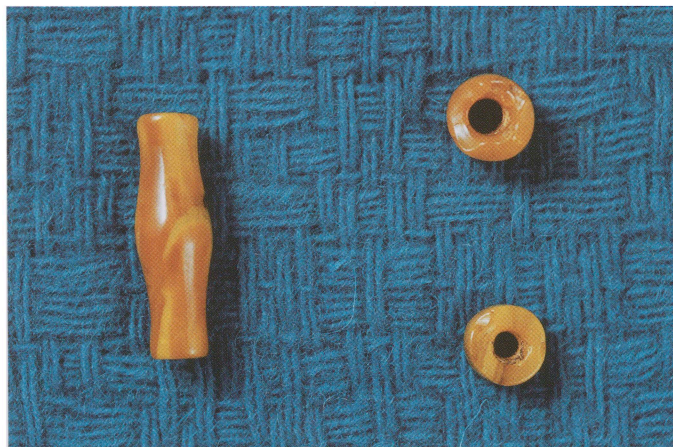
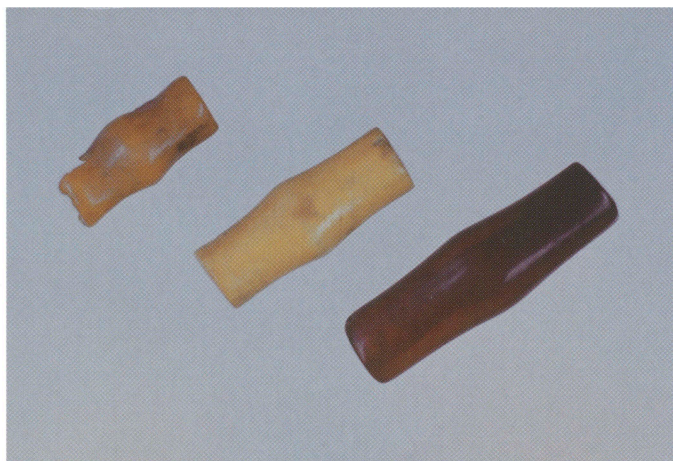


Plate IXA. *Amber:* **Top:** Tubular beads with medial bulges, Zvidze settlement, Middle Neolithic; length: 1.3-2.4 cm. **Bottom:** Tubular bead (1.2 cm long) with medial bulge and disc-shaped beads, Nainiekste settlement (photos: E. Ošs).

Plate IXC. *Amber:* **Top:** Rectangular button-shaped bead, Abora I; 2.6 cm long, 1.5 cm wide, and 0.5 cm thick. **Bottom:** Unfinished rectangular button-shaped bead, Abora I; 3.0 cm long, 1.8 cm wide, and 0.85 cm thick (photos: I.B. Loze).

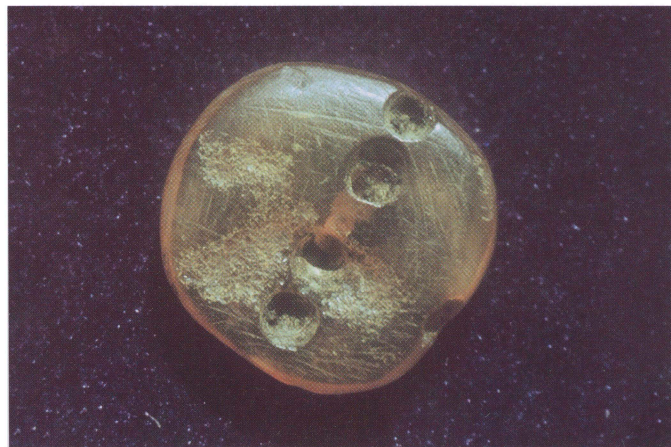
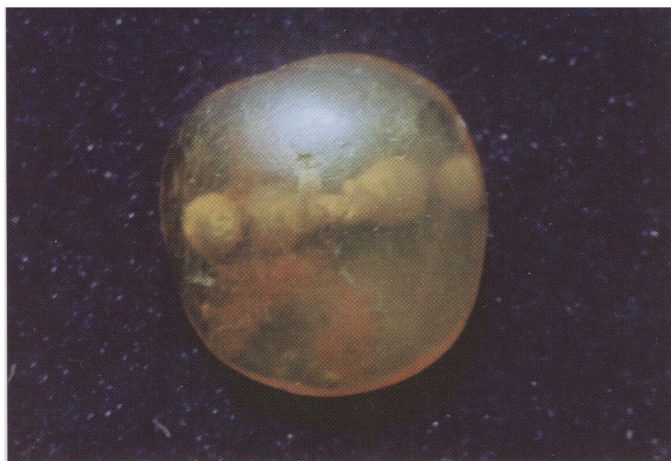


Plate IXB. *Amber:* Circular button-shaped bead, front (top) and back (bottom), Abora I settlement; diameter 2.5 cm (photos: I.B. Loze).

Plate IXD. *Amber:* **Top:** Rectangular spacer (top), Lagaža settlement, and drop-shaped pendants, Eiņi settlement; length: 1.9-3.9 cm (photo: I.B. Loze). **Bottom:** Tooth-shaped pendants, Abora I; length: 2.1 cm, 3.7 cm, and 2.9 cm, respectively (photo: E. Ošs).





Plate XA. *Amber:* Complex two-part ornament—a large pendant with three V-shaped perforations at the base and a tooth-shaped pendant from Abora I; length: 5.9 cm and 3.9 cm (photo: E. Ošs).

Plate XC. *Amber:* Reptile-like pendant, Abora I settlement; length 5.7 cm (photo: I.B. Loze).

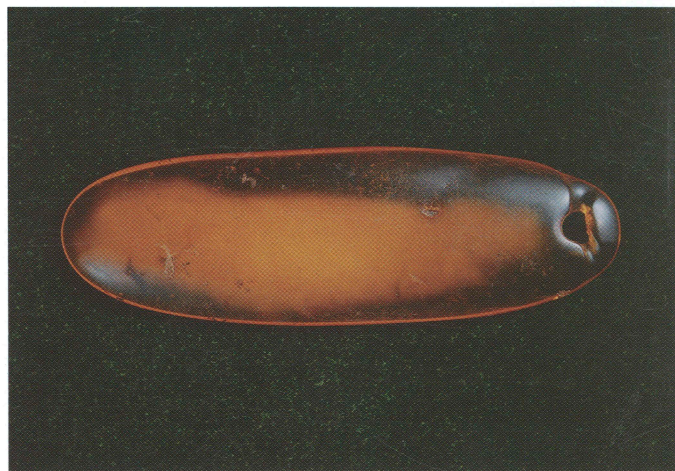
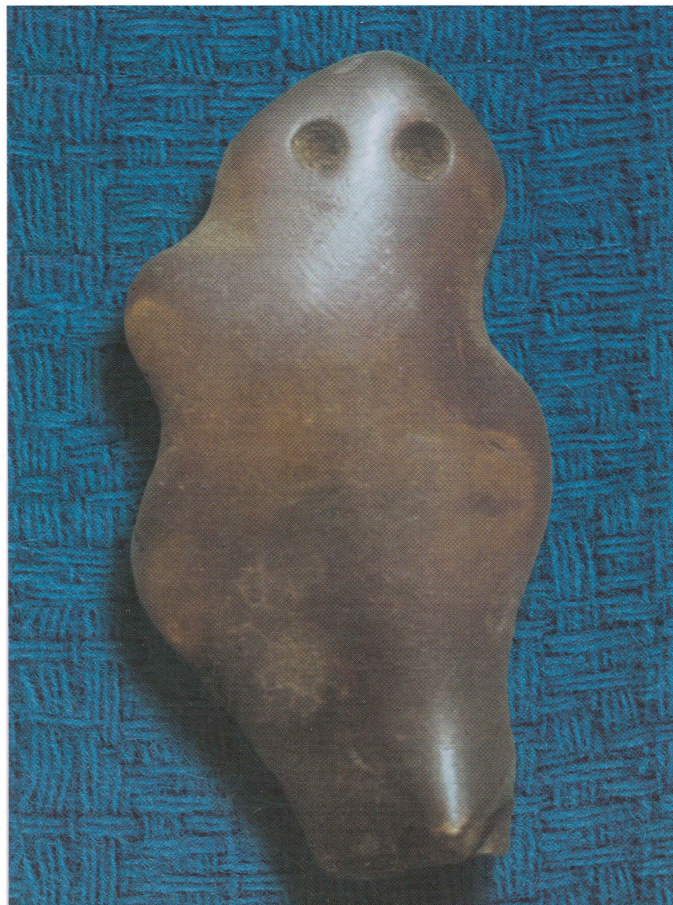


Plate XB. *Amber:* **Top:** Key-head pendants, Abora I; length: 2.6 cm and 2.1 cm. **Bottom:** Oval pendant, Dzedziekste settlement, Middle Neolithic; length: 9.1 cm (photos: E. Ošs).

Plate XD. *Amber:* Two-headed zoomorphic pendant and a grass-snake pendant, found together in a child's grave, Abora I; length: 6.6 cm and 5.5 cm, respectively (photo: I.B. Loze).

