pp.180-181 shows the post-1970 palette, which uses darker colors. The Gujarati fan on p. 189 is certainly not in three-bead netting as stated. The term "zipper edging" (p. 193) is an unsatisfactory substitute for "picot edging."

Anyone seriously interested in beadwork would want to know where a given piece illustrated in the book is to be found. Here the Sources of Illustrations on p. 202 is not only in minuscule print (which is, regrettably, par for the course) but also unevenly put together and woefully lacking in real and correct information. A vast number of pieces are credited to Tessa Bunney who turns out to be a photographer, not an owner, and, furthermore, one whose captions are often incorrectly given. This means, among other things, that a good many illustrated pieces in Stefany Tomalin's collection are not credited to her but to Tessa Bunney. While it would have meant that captions were fuller and more obtrusive, it would have been so much more useful to give the location or ownership of each piece as part of the caption instead of forcing the researcher to trawl through the Sources of Illustrations section on p. 202. Yet we find that the Afri-Karner collection is credited not only on p. 202, but also in every hyped caption to an illustrated piece from it. It should have been possible to extend that treatment to all the illustrated pieces.

"Collections" on p. 203 lists 13 South African museums with collections, which is useful to know but nearer home, the British Isles and Europe could have been better covered. Museums in the U.S.A. and Canada seem to be well listed.

The Bibliography contains some surprising omissions and errors. The very first entry, *Beaded Splendor*, ought to have put in under Africa, and it is remiss not to have included Stefany Tomalin's *Beads!* The articles in Bead Society of Great Britain newsletters nos. 48 and 52 ought to have been named. Under "Africa," Ulli Beier's *Yoruba Beaded Crowns* and even my own *Beads and Beadwork of West and Central Africa* should have been included. Under "Asia," Jamey Allen would very likely be the first to say that *Magical Ancient Beads* was not worth including, and should be replaced by Heidi Munan's pamphlet on beads in the Sarawak Museum, or by Oppi Untracht's *Traditional Jewelry of India*. The whole bibliography should have included the place of publication, date, and preferably, ISBN number for every entry.

At the end of this review, the feeling is one of great regret that a book that has so much going for it in splendid illustrations and wide coverage of the subject should have so many avoidable flaws. A complex subject like this needs to be checked, re-checked, and checked again, not only by the authors, but also by the proofreaders of Thames & Hudson and Rizzoli who have done a cursory job in spotting typos.

Errors in the text and captions are far too numerous to list here, where I have limited myself to just a few. The Bead Society of Great Britain is concerned that there are many factual and textual errors in this volume which ought to be corrected in a second or subsequent edition, and a list of *errata* is being compiled which will be sent in good faith and in a spirit of co-operation to the authors and the publishers in the hope that these mistakes will be rectified and enhance the reputation of the book in future editions. A copy of the errata will be posted on the Bead Society of Great Britain's website http://www.beadsociety.freeserve.co.uk.

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A Bead Timeline. Volume I: Prehistory to 1200 CE.

James W. Lankton. The Bead Society of Greater Washington, The Bead Museum, 400 Seventh St., N.W., Washington D.C. 20004. 2003. 96 pages, 79 color figs. $24.95 (paper cover).

This catalog was published as an adjunct to "The Bead Timeline of History," a permanent exhibition that opened in 2000, at the Bead Museum in Washington, D.C. It is intended to be the first volume in a series to accompany the exhibit and covers the time period from the Paleolithic/Neolithic transition (ca. 12,000 BCE) through the Early Islamic period to 1200 CE. But its subject matter and value go far beyond what one generally expects from exhibition catalogs.

Installation of the Timeline exhibit was carried out by Jamey Allen, James Lankton, and Hilary Whittaker. It is about 34 feet long and displays some 5,000 beads which are organized so that chronological time runs along the horizontal axis and cultural/geographical associations are placed on the vertical axis. Over 2,300 of the beads are illustrated in the book. Lankton electronically repositioned some of the beads for the publication to correct their location and added a few others that were not included in the Timeline at time of publication. This is entirely in character with the concept behind the exhibit for it is meant to be a work in progress, with beads being added or rearranged when appropriate.

Inside the catalog's front cover are two useful maps that show the locations of the main cultures of Europe, western

Asia, and northern Africa that are discussed in the text. A similar one for Asia is located inside the back cover as is a "world" map that shows principal long-distance trade routes for beads and bead materials.

A forward by Robert K. Liu and an introduction by James Lankton are followed by Joyce Diamanti's essay *Beads, Trade, and Cultural Change*. Beginning with the earliest beads yet found, which are nearly 60,000 years old [recent evidence suggests an even earlier origin], she sets the scene for the exhibit and catalog by explaining that beads provide important clues in the search for the origins of human culture, including the development of abstract thinking, artistic creativity, technological inventiveness, and self-awareness. As culture developed, beads were used to mediate social relations and played a role in religious, political, and economic life. Long distance trade in the materials used to make beads as well as trade in the beads themselves is evident from early on.

An essay by Jonathan M. Kenoyer on *Stone Beads and Pendant Making Techniques* follows. It is a useful synopsis of the history and technology of stone beadmaking, describing the minerals used and the techniques developed to alter and decorate them as well as explaining how they were shaped, perforated, and polished.

The main text, by archaeologist James Lankton, is divided into eight chapters based on time periods. Throughout the volume, Lankton emphasizes the historical events and technological changes that influenced beads and beadmaking. Each chapter is accompanied by a full-page photograph showing the Timeline segment under discussion. In addition there are numerous close-ups of selected groups of beads. All of the superb photographs in the catalog were taken by Robert K. Liu.

Chapter 1 covers the period from 12,000 to 4000 BCE. Beads were made mainly of shell and teeth in the early periods but began to diversify during the Neolithic when agriculture, animal husbandry, and large permanent settlements developed. Lankton notes that there was an expansion in the uses and meanings of beads, and materials to make them were traded over longer and longer distances. Beads played an increasingly important role through time as symbols of ethnic identity, status, and wealth, thereby reinforcing social order.

Chapter 2 covers the millennium from 4000 to 3000 BCE. Lankton discusses the link between fired clay tokens (which are thought to have represented quantities of commodities) and the invention of writing in West Asia and notes that these tokens can be considered as beads or pendants since many of them were pierced. They played an important role in facilitating the expansion of trade, which in turn accelerated the spread of new ideas and technology and culminated in large urban settlements and the rise of states based on class distinction. Other advances included new systems of accounting and writing, which led to numeracy and literacy, and the development of the wheel—both for vehicles and pottery. The origins of monumental art and architecture also date to this time. Indeed, this era could be considered as the beginning of civilization. Beads from this period were made from increasingly diverse varieties of stone including steatite, quartz, carnelian, rock crystal, and lapis lazuli, and some were carved in fanciful or animal shapes. Early Egyptian and Chinese beads, especially those of jade, are discussed as well.

Chapter 3 continues from 3000 up to 2000 BCE (essentially the Early Bronze Age). This period witnessed a huge demand for luxury goods that accompanied the rise and fall of numerous dynasties and empires. As Lankton states, such goods, which included beads, were used to demonstrate and legitimize the power of emerging elites and the demand for them led to revolutionary developments in prestige technologies. Lankton also relates the story of the first war fought over beads, noting as well that craft workers were part of the booty of war and that this strategy became a means by which craft technology spread throughout the ancient world.

Again, both the varieties of the stone used for beads and their shapes increased. Numerous spacer beads, the first bronze beads, and large, rather elaborate faience ones are found. The first melon beads appeared, plus long biconical and etched carnelians from the Indus Valley, both of which demonstrate the mastery of the beadmakers there. Lapis lazuli, most of which originated in Afghanistan (over 2000 km from Mesopotamia), was the defining gem of this millennium in West Asia and beads made from it were restricted to the most wealthy and powerful.

In Chapter 4, which covers the second millennium BCE and the first two centuries of the first, Lankton discusses the development of glass beads in the context of prestige technology. From at least the middle of the 3rd millennium, crafts workers from Mesopotamia or Syria had begun to work with glass, but the technological advances necessary to produce quality glass products (such as mosaic beads which appear during this period) were probably driven by the need of the rulers of emerging states to find a prestigious substitute for lapis lazuli, which had become increasingly rare in the second millennium. As a new technology, glass and the beads made from it were rare and highly valued.

In Egypt, Lankton notes that glass beads and vessels were being made in a palace-based industry by the mid-15th century BCE and that within a generation, Egyptian beads

rivaled and even surpassed those made in western Asia. New innovations from the Nile Valley included the first drawn glass beads (made by folding a long plaque of glass around a mandrel, then drawing it into a tube).

Chapter 5 deals with the period from about the 8th century through to 400 BCE. Although referring to the time span of the previous chapter, Lankton here notes that the catastrophic end of the Late Bronze Age in 1200 BCE was accompanied by the widespread destruction of traditional centers in West Asia and the disappearance of most luxury products, including glass, for the following two hundred years. Glass bead production did, however, continue in Egypt and began in Europe (where early sites date to the 11th and 10th centuries). The eventual revival of international commerce in the early 1st millennium BCE can be seen in the trade in new bead varieties which increase through time as new technologies, spurred on once again by a rising demand for luxury goods, are developed. The new types included stratified eye beads and face beads.

Lankton also questions why so much early glass was turquoise, proposing that one reason could be that early glass-like substances (such as faience and stone glazing) involved the use of copper which yields a beautiful blue-green. He follows with a valuable discussion of faience and frit and the problems involved in how these terms are used (and misused).

Chapter 6 begins with the 4th century BCE and continues to the mid 2nd century CE—roughly the Hellenistic and early Roman periods. This was a time of great innovation in glass technology and led to the development (or rediscovery) and use of plaques and canes of mosaic glass. Decoration on glass beads proliferated. The manufacture of eye beads changed from the stratified technique (in use since the 6th century BCE), where the design was formed by adding successive layers of different colored glass, to the simpler and potentially more intricate method of applying thin sliced segments of bullseye canes to the hot glass bead (mosaic cane eye beads). Gold-glass beads, made by combining gold foil with drawn colorless glass, appeared as well as layered glass beads that resemble banded agate.

Glass beadmaking in China and Southeast Asia is also discussed, including the intricate Warring States eye beads from China and the long, cylindrical folded beads from Ban Chiang in present-day Thailand.

Chapter 7 begins in the mid-2nd century and ends in the late 7th century with the Arab capture of the primary and secondary glassworking areas of West Asia and Egypt. It includes the peak and decline of the western Roman Empire. Lankton points out that, although most of the complex glass beads from this period are commonly called Roman beads, they were in fact produced in many different regions. Indeed, Roman women preferred well-made stone beads of lapis lazuli, carnelian, or rock crystal rather than large or decorated glass beads.

Well before this time, primary glassmaking and secondary glassworking were carried out in different locations. Glassmaking was undertaken at a few centralized places near sources of raw materials, mostly away from population centers, while glassworking, including beadmaking, was decentralized and took place mainly in urban areas. It is thought that much of the glass used in the glasshouses of the West during this period was made in present-day Israel.

Lankton discusses in some depth beads found in Europe, West Asia, Egypt, India, Southeast Asia, Asia, and the Americas. This period saw the invention of glass blowing to make vessels—it was used for beads as well but only rarely. Segmented beads were another innovation.

Chapter 8 covers the period from the mid-8th century to 1200 CE, which corresponds roughly to the Early Islamic period in Egypt and West Asia. Beads and their technology changed little from the previous period until the late 8th to early 9th century when the distinctive bead style we associate with the early Islamic period was developed. One unique new type, known as Fustat fused-rod beads, was probably made in Fustat (ancient Cairo). Other distinctive beads from this period include folded beads (sometimes called mirror beads) and torus-folded beads. Mosaic cane beads are also widespread, not only in West Asia and Europe but also in West Africa and in Indonesia where they first appeared at least three hundred years before their Early Islamic counterparts. Other beads highlighted in this chapter include stone varieties from Nishapur (Iran), China, and South and Central America.

The catalog ends with two pages of highlights of a recent bequest to the museum from Jeanette and Jonathan Rosen, as well as a helpful page by Deborah Zinn describing several bead-related websites and providing hints on how to navigate the web. A useful six-page list of references completes the volume.

The only difficulty I found in navigating this most valuable catalog is that it is sometimes hard to find a specific bead or group of beads in the full-page photos. I imagine this is because beads were moved to more accurate positions on the Timeline for the publication while their original identification numbers were maintained.

There are very few typos considering the amount of detail in the text. One occurs in the bottom left-hand column of page 16 where extra conjunctions occur. Then a reference

to bead number 637 on page 79 indicates it is to be found in Fig. 8.0 but it is actually in Fig. 7.0. Additional errors of the same type occur on pages 82 and 83: bead number 688 is referred to Fig. 8.1 but the bead is to be found in Fig. 8.0. Likewise, number 690 is found in Fig. 8.7 not 8.8; 693 is in Fig. 8.0, not 8.8; and 689 is in Fig. 8.7, rather than 8.8.

This catalog goes far beyond enhancing the Timeline exhibit. It encompasses an enormous swath of time, placing beads and the technologies developed to make them in their cultural and historical context, a true tour de force. It is a "must-have" resource for anyone, professional or novice, who is interested in ancient beads.

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Amber in Archaeology.

Curt W. Beck, Ilze B. Loze, and Joan M. Todd (eds.). Institute of the History of Latvia Publishers, 1 Akadēmijas Laukums, Rīga LV-1050, Latvia. 2003. 260 pp., 125 b&w figs. $25.00 postpaid (soft cover).

This volume presents the Proceedings of the Fourth International Conference on Amber in Archaeology which was held in Talsi, Latvia, in 2001. It contains 18 articles which span the region from Scandinavia and the Baltics to the Balkans and Mediterranean. Most of the articles are by European researchers but the United States is also well represented. The reports are organized into six sections: The Chemistry of Amber; The East Baltic Area; Northern Europe; Eastern Europe; Central Europe; and the Balkans and Mediterranean.

The section on THE CHEMISTRY OF AMBER contains but one article: **The Chemistry of Sicilian Amber (Simetite)**, by Curt W. Beck, Edith C. Stout, and Karen M. Wovkulich. Quite technical in nature, the article consists primarily of a lengthy table which lists the compounds found in simetite. The study reveals that this form of amber was produced by trees of the family *Leguminosae*.

Six articles comprise the section on THE EAST BALTIC AREA:

Amberworking as a Specialist Occupation at the S rnate Neolithic Site, Latvia, by Valdis Bērziņš. The distribution of amber artifacts and waste material at this workshop site reveals that there was organized serial production here, with different stages of work being performed in different parts of the site.

Lithuanian Amber Artifacts from the Roman Iron Age to Early Medieval Times, by Audronė Bliujienė, provides an informative and well-illustrated survey of the material recovered from numerous sites across Lithuania.

Middle Neolithic Amber Workshops in the Lake Lub ns Depression, by Ilze B. Loze, reviews the adornments, principally beads and pendants, excavated at an amber-working site in eastern Latvia.

Viking Age and Medieval Finds of East Baltic Amber in Latvia and the Neighbouring Countries (9th-16th Century), by Ēvalds Mugurēvičs, briefly discusses later material, principally beads, crosses, tiny axes, spindle whorls, and pendants.

Stone Age Amber Finds in Estonia, by Mirja Ots, reveals that there are relatively few amber artifacts in this region but they are, nonetheless, fairly varied.

The "Gold Coast" of the Gulf of Riga, by Ilga Zagorska, discusses the amber-rich western coast of the Gulf of Riga with emphasis on the artifacts uncovered at the Siliņupe settlement site which was occupied during the Middle and Late Neolithic periods.

NORTHERN EUROPE is represented by three articles:

Beads of Belonging and Tokens of Trust: Neolithic Amber Beads from Megaliths in Sweden, by Tony Axelsson and Anders Strinnholm, hypothesizes that beads may have been intentionally broken and the halves shared by members of a group or by members of different groups as tokens.

The Importance of Amber in the Viking Period in the Nordic Countries, by Bente Magnus, starts with a survey of amber through the centuries before it turns to the topic at hand.

A Grave of a Noble Iron Age Woman with Many Amber Beads in Järrestad, South-East Sweden, by Berta Stjernquist, provides insight into bead usage, manufacture, and trade in Sweden.

The single paper dealing with EASTERN EUROPE is **Amber Ornaments from the Konchanskii Burial Grounds**, by Maja Zimina. This extensive Neolithic cemetery (267 burials) in western Russia produced a variety of amber ornaments, primarily "buttons," as well as rings, beads, and pendants.