logically. Pages 70 through 87 are beads found on the cards of the J.F. Sick & Co. in the Royal Tropical Institute of Amsterdam. The Picards have been studying these sample cards for some time and have advanced what appears to be a correct interpretation of their chronological order. Why were the beads not shown in this order? It they had been, would any meaningful pattern have arisen from this simple and rational arrangement? The answer is an emphatic Yes! On the pages indicated are 350 millefiori/mosaic beads dating from before World War I, and 298 from the period 1920 to 1931. Of the 350 pre-World War I beads, no less than 88.9% have composite (I much prefer the term "bundled" because of the many meanings of "composite") *murrine*, made by bundling together monochrome glass canes to build up the design; only 6.6% have molded ones at this time. After the war, only 9.7% of the beads have composite (bundled) designs, while 68.1% are molded and 22.1% are cased (layered). Moreover, two thirds of the later composite/bundled chips are on beads made from 1920 to 1925, and six of the remaining ten are used very sparingly on beads in 1927, with none used after 1929.

Assuming the dating is correct, and there seems no reason not to, and keeping in mind the hazards of using sample cards (though these are from a well-dated and carefully curated set), this means that the composite/bundled mosaic chips on millefioris are virtually all from the early decades of this century, while molded ones do not come into their own until after the Great War.

This strikes me as very important. The dating of beads is a crucial fact about them. The figures are so overwhelmingly lopsided that unless a serious attempt were made to skew the data presented in this book (and there is no reason to think that this was done), the pattern is quite clear. This, then, solves the mystery which has existed for many years as to why there is a difference between these two methods for making mosaic canes: the difference is chronological.

Are there other chronological differences between these beads? For one, there is a clear ascendancy of simple cased *murrine* over time: only one is recorded before World War I, 15 in the next six years, and then 50 in the last six years. What about added stripes, the laying of canes lengthwise, and so on? There may also be patterns here, but the hodgepodge method of arranging the beads has prevented me from pursuing them.

The point is this: the Picard's volumes, in particular the one on millefiori beads, contain a great deal of data, enough apparently to clear up what has long been a major problem in the understanding of these beads. But this ought to be the task of the authors to elucidate, not a reviewer, who spent nearly a day flipping back and forth through the unorganized presentation. Had the beads been put in simple chronological order, this distinction and any other possible ones would have jumped off the page and been immediately clear to everyone.

In sum, these are wonderful books and are recommended to anyone with a serious interest in beads or to those who just like to look at them. There is room for improvement, but the improvements that have already been made in the series lend strength to the belief that we will see future volumes being even more valuable than those published thus far.

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Glass in Jewelry: Hidden Artistry in Glass.
Sibylle Jargstorf. Schiffer Publishing Ltd., West Chester, Pennsylvania, 1991. 176 pp., 284 color figs., 35 b&w figs., index. $29.95/ £24.95 (paper).

The book list of Schiffer Publishing comprises a wide range of subjects, almost all on "collectibles" and, as such, they are well illustrated and include value guides. They are aimed at the intelligent collector, rather than the academic reader. This book, written by a trained chemist from Braunschweig, Germany, is more scholarly than many books published by Schiffer, although, from the student's viewpoint, it is marred by the nearly total lack of sources for the archival illustrations used and the lack

of reference citations, apart from a few footnotes in tiny print. There is hardly any indication of the ownership of the illustrated pieces, which include beads and beadwork in variety, as well as brooches and miniature mosaic jewerly. The references are mostly in German and it seems likely that the original manuscript was in that language, though no translator's credit is given.

This book's scope is obviously not confined to beads, although a very high proportion of the illustrations and subject matter deals with them. Nothing is presented on the jewelry or beads of India or China; the focus is on jewelry made in Venice (Murano) and central Europe. There is some allusion to glass beads made in antiquity, or to some of the more noteworthy beads made for the overseas trade, such as white hearts, chevrons and millefioris.

The illustrations, mostly in color, often four to a page, are outstandingly good, and alone make the book worth the high price in sterling. There are a few cases where the color register is suspect, as on p. 15 where a beaded notebook cover and a detail of the same are in different shades, while the historical black-and-white photographs of German women wearing jewelry or beaded dress ornament are mostly too dark to serve any useful purpose (that on p. 154 is perhaps the worst). Some duplication occurs; e.g., on pages 22 and 44, and 24 and 49. The absence of a scale in the photographs is a pity, though it is usually possible to infer that the subject is shown actual size, or double that. Detailed closeups of cut-glass, molded or faceted beads, some with 96 or 117 facets, and photographs showing the different varieties of glass used (bicolored, satin, uranium, filigree, aventurine and iridescent, to name just a few) make the book a joy to leaf through. The use of complementary mounts or backgrounds adds to the visual pleasure.

Bead colors are covered in a short note on the seed beads produced in great quantity for knitwork and embroidery in the early 19th century. By the 1830s the beadmakers of Murano claimed to make 150 different shades, including five basic whites: alabaster, chalk, milk, opal and porcelain, in sizes from one to nine millimeters. Bohemia also developed a wide range of colors. One manufacturer exhibited 105 different colors in 1873, while a group of glass recipes from 1892 included 21 varieties of yellow which, to judge from the ingredients, must really have differed. One wonders how the Munsell color charts would have coped.

"Bohemian" glassworking is given detailed coverage. Two maps on pp. 37-38, and Chapter 5, sub-headed "Bead- and Gem-making in Bavaria/Thuringia/Bohemia/Silesia," together with many other references throughout the text, give a good picture of beadmaking in central Europe, naming some of the glassmakers and their products, and describing the exploitation of the many cottage workers. Peter Francis, Jr's. *Czech Bead Story* (1979) and his densely written later account in *The Glass Trade Beads of Europe* (1988) are still the best review of this area of bead production, but the present book does illustrate gems and beads made for the European and American fashion market up to the late 1950s, and shows the work of some of the fashion designers.

Sybille Jargstorf's training as a chemist means that there are useful and welcome technical explanations of the glass or beadmaking processes, such as opaline/alabaster glass (p. 14), white-heart beads (p. 29), aventurine or goldstone glass (Chapter 11), and the making of false pearls and coral or gold hollow-glass beads (pp. 135-6). Full attention is given to beadmaking equipment in the longest chapter (Chapter 6, "How the Beads are Made") which is illustrated with line engravings of lampworking devices, pressing tools and a faceting machine (but frustratingly, the lettered parts are not explained in the captions, and no sources are given for the drawings). Photographs of bundles of drawn tubes and canes, lampworking in the E. Moretti workshops on Murano and in the Schuhmeyer workshop in Neu-Gablonz, details of blown beads, satin-glass beads, pressed, faceted, iridescent and fancy beads in variety complement the text with its explanations of how certain effects were achieved. There is one word, "protoberas," which may be a geological term, that occurs on page 37. The material is clearly a substance of volcanic origin used in the making of black beads in the Fichtel mountains of Bavaria. It is not defined in the *Oxford Dictionary* or *Encyclopedia Britannica*, and I would have liked more information on it since there is quite a range of volcanic substances that might have been used to make black glass.

Chapter 9, "Millefiori Jewelry," sketches in the antiquity of this aspect of glassworking which goes back to the first century B.C. (though, surprisingly,

there is no reference to Anglo-Saxon millefiori), and reviews the work of the little-known German Dr. Fuss in 1833, and of Domenico Bussolin in 1836 (his factory opened in 1838) in rediscovering the lost art of mosaic glassmaking. The theory seems to have been worked out by Count Caylus (in 1752) and put into practice in 1766 by Reiffenstein, whose analysis of an antique portrait cane is quoted. Illustrations include 19th-century and modern millefiori beads, a drawing of antique beads (probably from Alexandria) including mosaic and portrait canes, and a portrait cane of Garibaldi.

The chapter on "Aventurine Jewelry" illustrates beads, brooches and bracelets featuring this beautiful glass, first recorded in 1644, and named from *aventura*: risk or chance, from the uncertainty that the mixture would come out correctly. The chemistry of copper and its behavior as an element in the making of differently colored glasses is explained, with the wry observation that the practical experience of Muranese glassmakers was superior to that of German chemists and glass manufacturers.

The chapters on "Once Fashionable Jewelry" and "Modern Designs in Glass Jewelry" provide valuable documentation for what one might term recent, as well as tomorrow's antiques. The pieces illustrated are almost entirely from Silesia or Germany; Lalique and Tiffany get only a brief reference, and the Dior necklace on p. 172 originated in Neu-Gablonz. One's pleasure in browsing over the jewelry stalls at bazaars and antique fairs is enhanced by knowing rather more about recent glass-bead jewelry than before.

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