ANTIQUE CLOISONNÉ JAPANESE BEADS

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Intricate cloisonné beads in Japan track the 19th-century upheavals in technological development and society. While late Edo Japan had developed its own aesthetic based upon Chinese sources, the Meiji quest for Western technology produced a uniquely Japanese cloisonné industry unmatched elsewhere in the world. Cloisonné beads mirror this change, beginning in the 1830s with decorative motifs derived from Ming cloisonné and Edo glass beads, and morphing throughout the Meiji era into tiny masterpieces demonstrating a uniquely Japanese art form captured in advanced enamel technology.

INTRODUCTION

Current art history consensus is that the technique of cloisonné was introduced into China from the West during the 14th-century Yuan Dynasty, and that Chinese artists quickly adapted it to produce distinctly Chinese works over the subsequent 400 years (Quette 2011).

Cloisonné is a difficult art form, often requiring a production team to encompass the required skills: technical glassmaking chemistry, metallurgy, kiln construction and firing knowledge, artistic talent in sculpture and surface design, and precision execution of manual tasks. Using fine flat wires, a design is drawn upon a copper or copperalloy base to create a mosaic of small enclosed areas called cloisons. Enamel powders consisting of ground glass and various other chemicals and minerals are packed into the cloisons, and the object is then fired in a kiln until the powder melts. The powder shrinks as it melts, thus the cloisons need to be refilled and refired a number of times until the enamel is level with the tops of the cloisons. Using a graduated variety of grinding stones and polishing powders, the piece is ground and polished until the enamel and the wire edges form a smooth surface. Some enamel formulas permit a final firing to fire polish the surface to a high glassy luster, although this was typically not done with the enamels and firing temperatures available prior to around the end of the 19th century.

At least one Chinese connoisseur was apparently initially somewhat sniffy about cloisonné. Beatrice Quette (2011:7) cites Cao Zhao's *The Essential Criteria of Antiquities*, published in 1388:

The body is made of copper; for the decoration in five colors, molten substances are used, similar to inlay work from the Frankish Lands. I have seen incense burners, flower vases, boxes, small bowls, and the like, appropriate for a lady's chamber but not for the study of a scholar of cool, reticent taste.

Nonetheless, the rich unfading colors of cloisonné secured its continuing popularity among the Chinese for centuries, largely under the patronage of the imperial courts due to its complex production process and expense. Under the 18th-century Qianlong emperor much cloisonné was produced, such as impressive temple and court furnishings as well as luxurious personal items such as bowls, cups, burners and tools for incense, and desk paraphernalia for writing. But nowhere is the production of cloisonné beads mentioned in any sort of literature until the late 19th century, and no verifiable examples of cloisonné beads can be found in either China or Japan prior to their appearance in Japan in the early 19th century.

The divergent reactions of China and Japan to the disruptions, disasters, and economic turmoil caused by European incursions during the 19th century sent the two countries on surprising and radically different paths with respect to cloisonné production – a 19th-century blossoming of the cloisonné art form in Japan, versus a beleaguered and struggling cloisonné tradition in China as the Qing dynasty was driven to collapse. In their little way, beads illustrate this divergence in 19th-century Chinese and Japanese approaches to cloisonné. While Japan developed fine cloisonné beads during the 19th century, the Chinese relentlessly ignored the possibility.

Sumptuary regulations controlled what colors and materials could be used for the Qing court necklaces and hat finial beads required to be worn by the various ranks of officials. Perhaps cloisonné was viewed as more suitable

for palace, temple, and household furnishings, and wearing brightly colored cloisonné beads would have been perceived with disdain, similar to how we might regard wearing a necklace of drawer pulls or cabinet knobs. More likely, the copper base required for cloisonné enamel may have been deemed unsuitable for court necklace beads, where silver and gold were the preferred metals. Silver court-necklace beads do feature intricate cloisonné-like designs of various floral and auspicious symbols, worked in a fine, twisted wire and enameled with glassy blue, purple, and occasional touches of yellow, green, and white. These enamels were fired once to melt them and, unlike cloisonné, required no further refilling of the cloisons or grinding and polishing. Such beads might be more accurately described as enameled silver rather than cloisonné, even though the twisted wires do form separate cloisons.

EDO JAPAN (1602-1868)

Cloisonné was appreciated in Edo Japan in various ways, despite being a relatively uncommon decorative technique often confined to flat surfaces, possibly to allow for better enamel control during firing (Schneider (2010:15-21). Captain Brinkley, writing in 1902, asserts:

One thing, however, is certain; namely, that until the nineteenth century enamels were employed by the Japanese decorators for accessory purposes only. No such things were manufactured such as vases, plaques, censers, or bowls having their surface covered with enamels either in the *champlevé* or *cloisonné* style (Brinkley 1902:330).

He nonetheless mentions beads (ojime) as cloisonné products in Edo Japan prior to the 19th century:

For such purposes as the decoration of *kugi-kakushi* (metal ornaments used to conceal the heads of nails in the interiors of houses), beads (*ojime*), and clasps (*kagami-buta* and *kana-mono*) for pouches, recessed handles of sliding-doors, or metal caps and plates on wood-work, vitrifiable pastes, whether translucid or opaque, seemed suitable (Brinkley 1902:331).

Sifting the literature for elusive references to early Japanese cloisonné beads, Fredric Schneider (2010:295) notes this comment hidden in the very last pages in Brinkley:

Hiratsuka, Mohei. 19th cent. (d. 1840.) A worker in cloisonné enamel who used translucid pastes for making ojime, Kagami-buta and Kama-mono [pouch clasps].

Hiratsuka, Kinnosuke. Present day. Son of Hiratsuka, Mohei. A skilled worker in cloisonné enamels. Remarkable for having introduced (1887) the style known as Hirata-jippo; namely, enamel designs suspended in the reticulations of silver vases chiseled à *jour* (Brinkley 1902:12-13, following index).

Schneider's more exhaustive survey allows a more expansive view than expressed by Brinkley:

...by the early nineteenth century cloisonné and enameling, though relatively rare, had become part of Japan's decorative arts tradition, including architectural elements, items for the scholar's desk, household and temple objects, sword furniture, and ojime and netsuke sartorial adornment (Schneider 2010:19).

Despite the reference to the mysterious Hiratsuka as a cloisonné beadmaker, historical accounts attribute the development of a cloisonné industry in Japan for the purpose of decorating three-dimensional objects to one man – Kaji Tsunekichi (1803-1883) – in the 1830s (Brinkley 1902:333-334). Struggling single-handedly to reverse engineer what was likely a Ming Chinese bowl, his determination reinvented cloisonné in Japan. Lawrence Coben and Dorothy Ferster describe in detail the vicissitudes of the early Japanese cloisonné workshops. They present a convincing case for how the economic, social, and political situation in 19th-century Japan enabled the Japanese cloisonné artists to create the art form anew, free from the traditional constraints of the Chinese imperial workshops (Coben and Ferster 1982).

The relationship between cloisonné and glass industry knowledge is crucial, as cloisonné enamels are a form of glass. Kaji Tsunekichi could thus tap for expertise an already existing Japanese glass industry that knew how to build and fire kilns, where to find minerals, and forge the necessary metal tools. Coben and Ferster (1982:31) cite an amusing account of an apprentice to a cloisonné master searching the city of Nagoya until he found the shop where his master bought the blue glass used in his "secret" background enamel. One wonders if these early Japanese cloisonné enamels were similar to those made by women in Mauritania by grinding glass to a fine powder and adding a bit of ground feldspar as flux to make their Kiffa beads. Greater technical refinements ensued and by the 1850s, Kaji Tsunekichi's work had achieved sponsorship from the Tokugawa daimyo of his home area in the Nagoya area and cloisonné production had spread as his pupils opened their own ateliers.

Glass beads were already popular in Japan for many uses in the early 19th century (Blair 1973:194), including Buddhist prayer beads, as ojime (the little bead used to secure the cords in the Japanese inro pouch accessory set), and for women's hair ornaments (kanzashi). Thus, once cloisonné beads could be manufactured, a local market for them likely already existed. One example of what could be an early cloisonné ojime (Figure 1) features simple circumferential bands of red, white, and turquoise, reminiscent of similar stripes on the glass beads also used as ojime in the Edo Period (Blair 1973:227).



Figure 1. An early white, red, and turquoise cloisonné ojime shows design affinity with an Edo glass of ime (Helmsley 2014).

Schneider (2010:26) discusses these early enamels that in Japanese are termed doro shippo:

In comparison to later work, these doro shippo pieces used lower fired enamels... with a more limited opaque palette, generally of dull and subdued colors... often emphasizing deep green, and incapable of polishing to a hard, mirrorlike surface.... Because the pieces were fired at a relatively low temperature and the enamels did not melt well, they usually emerged from the kiln with a wavy enamel surface and severe pitting, and thus often required grinding after each of the many firings needed to complete a piece.... The enamels did not adhere well to the metal substrate and had a coefficient of expansion that tended to leave cracks when fired; therefore, closely-spaced wires were required over the entire surface to hold the enamels properly in place and prevent cracking even when the design did not warrant them.

Another Japanese use for cloisonné beads appears in Coben and Ferster (1982:72), where Plate 11 shows a pair of scroll weights by Kaji Tsunekichi dated to 1854-1859. These large beads (3.5 cm diameter) feature a turquoise background enamel covered with finely wired leaf scrolls, flowers with two-tone petals in red and pink and dark blue and white, blossom petals arranged in rows or tiny trefoils, and a geometric net in the "four-directions" pattern of ovals forming connected circles. The peony-type flowers are reminiscent of Chinese cloisonné, where flower petals are often blends of two or more hues. The patches of tiny geometric patterns are a distinguishing feature of larger doro shippo pieces, very much resembling patches of textile patterns from which they are believed to have been derived (Schneider 2010:27). Although difficult to be certain from only viewing a photo, the enamel colors appear to be the doro shippo hues of turquoise blue, deep pink, red, dark blue, light yellow, white, and purple. Distinctive tiny cloud motifs that resemble paperclips are arranged at right angles to form the "four-directions" net of circles; identical tiny clouds may be seen in many larger mid-19th-century Japanese doro shippo works (Figures 2-3). The surface is matte.



Figure 2. a-b) Doro shippo ojime pre-1870 with indented petals on the pink blossom, a typical Japanese motif; c-d) ojime likely post-1870 with tripartite motifs in b-d. All ca. 15 mm in length (photo by author).

The collection of the Victoria & Albert Museum in London contains an early cloisonné inro, ojime, and netsuke ensemble (Figure 4) dated to ca. 1800-1850 (Irvine 2011:18). The inro and netsuke pieces feature two different designs that appear derived from the Ming Chinese cloisonné admired by Kaji, such as lotus flowers and leaf scrolls. The ojime, however, is worked in a distinctly different manner, with a pattern of swirls and dots reminiscent of Edo glass beads. The red enamel portion has not been filled to the level of the wires, but instead left a bit sunken and fire-polished to



Figure 3. a-b) Doro shippo ojime pre-1870; c-d) ojime likely post-1870. Tiny dots and spirals forming an edge border are a distinctive feature of Japanese cloisonné; 4-5 mm hole diameter (photo by author).

the glassy shine acquired in the kiln – an attractive contrast to the matte enamels, but not at all similar to Ming-inspired motifs on the inro and netsuke. Gregory Irvine (2017: pers. comm.) observes that the unmatched styles of the wirework and enameling in the three pieces of this ensemble indicate the likelihood that it is an assemblage, and not the work of a single artist. Thus is apparent a divergence in overall style between what seem to be Ming-inspired floral and leaf motifs combined with tiny geometric patches, versus the stripes and murrine seen on Edo glass beads. These stripes and dots perhaps represent continuance of earlier indigenous ojime designs produced prior to Kaji Tsunekichi.

Unique to Japanese cloisonné beads is a tripartite composition demonstrated both in small motifs and in the overall arrangement of a design. Perhaps this relates to an artistic tradition reflected in the designs of *mon* (crests) and hexagonal patterns in textiles (Figure 2,b-d).

The first documented works of Japanese cloisonné to appear in Europe were at the 1867 International Exhibition in Paris where 27 such items were exhibited. Of these the Victoria & Albert Museum acquired a small cylindrical three-tiered box, a kettle, and 10 ojime beads (Irvine 2011:78) (Figure 5). Apart from the pair of scroll weights mentioned above, these are the only dated pre-Meiji cloisonné beads from Japan. Their technical aspects are impressive; minute and fine wire designs, often with two colors in the same cloison – green or blue on yellow, red



Figure 4. Cloisonné inro, ojime, and netsuke ensemble. The ojime design appears more in the tradition of Edo glass beads, in contrast to the lotus and leafy vine motifs derived from Ming cloisonné (©Victoria & Albert Museum, M.235:1-1912).

or blue or purple on white – indicating at least two enamel applications and firings. Applying the minute wires and filling the tiny cloisons on beads scarcely 13 mm in diameter must have required keen eyesight and a very steady hand. Background enamels are hard to discern, but appear to be a patchwork of red, blue, dark green, purple, or a murky dark green/white mix. The doro shippo enamel is pitted and still shows parallel striations from polishing.

Stefany Tomalin (2013) has a long Liberty-necklace-style sautoire of similar beads in two sizes (12 mm and 18-20 mm), and Frederick Chavez has dozens in a variety of sizes (Figures 6-7). The Tomalin and Chavez beads generally seem to feature tidier wirework patterns and a smoother polish, and seem to be iterations of the same style as the 1867 beads, only more carefully worked. Like the Victoria & Albert beads and the Kaji Tsunekichi scroll weights, they combine floral and geometric motifs. The design and enamel similarities make it difficult to believe that these beads are not the work of a single atelier, perhaps even a single artist. There is such a comparative plethora of these beads, could



Figure 5. Ten cloisonné ojime acquired at the International Exhibition of 1867 in Paris (©Victoria & Albert Museum, 613-1868).



Figure 6. Japanese cloisonné beads in the style of those in the V&A Museum collection showing floral patterns with bi-colored petals (Frederick Bourguet-Chavez collection).



Figure 7. Japanese cloisonné beads in the style of those in the V&A Museum collection showing patches of tiny geometric textile-inspired patterns (Frederick Bourguet-Chavez collection).

they perhaps have been initially conceived as suitable for strands of Buddhist prayer beads, not individual ojime? In his book describing his collection of Japanese enamels, James Lord Bowes (1886:84) lists: "189. A collection of Beads (judzu), the entire surfaces of which are enamelled. They were used in the rosaries of the monks in Japan."

Gregory Irvine mentions that the Liberty store, established in 1875, was one of the major dealers in Japanese art in London. Perhaps these more carefully worked beads were later productions encouraged by the initial 1867 sale and exported to London? Also noted by Irvine (2011:78-79) is that the Victoria & Albert paid an "extraordinary" price of £60 for the small 1867 cylindrical box, so perhaps the beads carried a similarly high price that encouraged further production and export.

POST-MEIJI JAPAN (1868-ONWARD)

Doro shippo works for export tapered off after the late 1870s, after German glass chemist Gottfried Wagener was hired by the Japanese Meiji government to modernize their glaze and enamel industries. New high-fired enamels were developed in numerous colors, with smooth unpitted surfaces that could be polished to a high gloss. This was a turning point in the history of Japanese cloisonné, and marked a radical divergence not only between Chinese

and Japanese works, but between Western and Japanese cloisonné. Fredric Schneider (2010:50) notes: "After they absorbed Wagener's enamel developments in the late 1870s, Japanese cloisonné artists almost immediately surpassed European efforts." Schneider (2010:119) discusses the development of goldstone, speckled, and mottled enamels which appear often in Kyoto-style cloisonné. Transparent enamels saw increasing use by the late 1870s.

Cloisonné beads continued to be scarce in the years following the 1870s, although the examples of ojime and kanzashi that appear to be from these decades are well made (some exceptionally so) with precise wirework and neatly applied enamels in new colors that could be smoothly polished. The Meiji government banned Buddhism and promoted Shinto as the state religion, so demand for sumptuous Buddhist prayer beads presumably lessened. Likely as a result of the change in Japanese dress that the government encouraged during the Meiji push for modernization, inro sets and kanzashi were not appropriate accessories for Western suits and short haircuts, and seem to have been relegated to a use similar to the Western tuxedo - for fancy dress only. Perhaps because of a connection with elegant dress, fine cloisonné beads for ojime and kanzashi, while uncommon, continued to be made from the 1880s through the 1920s. They display technical and stylistic innovations and virtuosity similar to those seen in contemporary larger works, such as the use of tapered and sculpted wires of different sizes, gold and silver wires, silver

substrate, hundreds of enamel hues and tones, and glossy transparent enamels. Fredric Schneider (2010:189) relates:

An early twentieth century Ando Japanese-language flier, circa 1904, advertised rings, bracelets, hairpins, hair ornaments, combs, hatpins, cuff links, buttons, buckles, pins, and beads, made to the customer's design, so there must have been demand in the domestic market and/or from retailers for resale to foreigners, although few such pieces marked Ando survive.

What did these Ando beads look like? Nobody knows.

A mysterious string of 29 beads strung on red inro cord (Figure 8) appears to feature post-1870 enamel. Colors include pink, red, light yellow, green, turquoise, blue, white, black (deep cobalt blue when edges examined with penlight and loupe), and chocolate brown. The brown enamel distinguishes these beads from Chinese enamels, where opaque brown is not used in ca. 1900 works (see also Figures 2,d, 3,d). The better control of pitting and polish also distinguish these beads from earlier doro shippo efforts. The overall design features two repeating patterns: 1) a double circle motif alternating with a five-petal blossom, and 2) a "four-directions" motif alternating with a blossom of six petals of two alternating colors. The designs of the collar motifs around the holes also differ between the two patterns. The tiny elements of which the motifs are composed are very precisely placed, in a manner similar to the brocade-



Figure 8. Inro cord with 29 15-mm beads. While the typically Japanese design motifs repeat, the beads show individual color variations (photo by author)

patterned borders that can be seen on larger works dated to the 1870s-1880s. Despite the repetitive designs, the motifs are often colored differently, apparently according to the whim of the enamelist. At least one flower features bicolored petals (red and white) in the style of the older Victoria & Albert doro shippo beads. While the beads appear to be of a more casual quality than the intricate Victoria & Albert beads, care was nonetheless taken in their manufacture. The cord appears to have been reknotted in a few places, and the ends are cut but not finished. Such a matched set of beads suggests that they were not intended to be ojime, which generally appear to be individually crafted, not produced in quantity. But what was their purpose? Prayer beads? A cincture? Decoration? Tourist item? Another mystery, unsolved.

As mentioned above, a tripartite arrangement of tiny motifs or overall design is characteristic of many Japanese cloisonné beads. Likewise, a pentagonal version of flower petals or star points appears that is less often encountered in 19th-century Chinese work. Perhaps reflecting the importance of cherry blossoms in Japanese iconography, these tiny petals are often indented on their outer edges in the same manner as cherry-blossom petals. A distinctly Japanese design is a row of very tiny dots frequently appearing as reinforcement for the edges of the enamel work (Coben and Ferster 1982:235). Russian twisted-wire cloisonné work can feature similar edge dots, but they are much larger and not so closely spaced. A similar edge reinforcing motif is a row of tight spirals, which seems particularly favored and adopted by the Inaba atelier (Figures 2,c, 3,c, 9). Kanzashi can be found worked in the colorful Kyoto-style of cloisonné popular from the 1890s to the 1920s, with a distinctive diaper of spirals against a black background. In more carefully worked pieces these spirals are tightly coiled and precisely placed, whereas more common pieces show loose spirals randomly arranged.

Wirework in later Japanese cloisonné beads reflects an expanded repertoire of wire design techniques and materials. Silver and gold are used in addition to copper, different widths and a flattened twist appear, wires are shaped into sculptural curves and tapered ends, all of which are noticeably different from the uniform flattened or fine twisted wires that continued in standard use in Chinese cloisonné (Schneider 2010:126-132). Schneider (2010:127) notes:

The twisted-wire, chain-link-like effect was first employed by the Hiratas, though only occasionally. The technique was used somewhat more often on ceramic substrate cloisonné pieces probably made no later than the 1870s, indicating an early-Meijiera date for the initial use of twisted wires on post-



Figure 9. Small Inaba dish with matching dot and spiral motifs on the ojime (photo by author).

1830 wares. These efforts pre-date the less frequent use of this technique by Kaji-tradition workers on metal-substrate.

Examples of flat-twisted-wire use in Japanese cloisonné can be found in pieces such as small vases with an overall decorative style and enamels indicating late Meiji or Taisho (1912-1926) production. A unique bead in the collection of Frederick Chavez features flat twisted wire as an important element in the overall design (Figure 10).



Figure 10. Simple yet sophisticated design featuring twisted wire and matte enamels in bright colors (Frederick Bourguet-Chavez collection).

A masterpiece of unsurpassed Late Meiji-early Taisho cloisonné artistry is a rare ojime (Figure 11) in the collection of Fredric Schneider, where within the confines of the surface of a small bead are depicted magical items from the treasure ship of Japanese folklore: Hotei's bag of fortune, Daikokuten's mallet, the lucky rain cape and hat of invisibility, and treasures such as a branch of coral, rhinoceros horn, pearls, and gems. The combination of the tiny sculpted and twisted precious-metal wires with transparent and opaque enamels against a black background conveys the impression of tiny three-dimensional objects floating in space (Schneider 2010: C-2).



Figure 11. Ojime depicting four treasures from Japanese folklore (courtesy/copyright, Fredric T. Schneider).

Unlike the stereotypical Ming leaf scrolls and lotus and peony patterns seen in doro shippo beads, later Japanese cloisonné beads display the detailed naturalism of their contemporary larger Japanese vases featuring cascades of wisteria and lush floral gardens (Figures 12-14). The silver oval bead in Figure 12 depicts, with hair-fine wires, a wisteria vine on one side and a grape vine on the other. Could this have been designed as a stylish watch fob for the waistcoat of a Western-style 3-piece suit, or perhaps for an elegant kanzashi?

A superb example of a cloisonné inro, netsuke, and ojime ensemble (the inro attributed to Kumeno Teitaro, ca.1890-1900) can be seen in an exhibit catalog published by the Los Angeles County Museum of Art (Singer 2017:58).



Figure 12. Bead with fine sculptural silver wires delineating naturalistic vines (courtesy/copyright, Fredric T. Schneider).

The ojime features a tiny spray of purple wisteria and green leaves against a bright engraved silver background covered with pale-lime transparent enamel. Figure 13 illustrates a somewhat similar bead worked in silver with opaque enamel leaves and wisteria blossoms floating above a transparent aqua ground.



Figure 13. Wisteria sprays worked in opaque and transparent enamels in silver wire upon a silver background (courtesy/ copyright, Fredric T. Schneider).

The two kanzashi in Figure 14, with hairstick styles typical of the 1920s, display a painterly technique mixing opaque and transparent enamel for a more lush representation of the flower petals. Curiously, half a century later, this mixed application of opaque and transparent enamels was a prominent feature of the cloisonné work of Ming-Chiao Kuo of Taiwan, a painter and art professor (Figure 15).



Figure 14. Kanzashi styles from around the 1920s (courtesy/ copyright, Fredric T. Schneider).



Figure 15. The large (28mm) bead was originally mounted as a kanzashi; from the Kuo Cloisonne atelier, Taiwan, ca. 1975-1985. The smaller (14mm) beads are similar in size to Japanese ojime, but lack the larger holes necessary to accommodate inro cord (photo by author).

Another uniquely Japanese cloisonné technique is lacquer cloisonné, produced around 1875-1890 for export items such as vases and small boxes. The technique used urushi lacquer instead of enamel to fill the cloisons and thus could be hardened in a warm, moist curing cabinet instead of having to be fired in a kiln (Schneider 2010:230-231). A few rare ojime can be found featuring this lacquer cloisonné (Figures 16-17).



Figure 16. Lacquer of of with tiny, neatly applied motifs reminiscent of the doro shippo style of decoration (courtesy/ copyright, Fredric T. Schneider).



Figure 17. Lacquer cloisonné (17 mm diameter); composition and motifs are in the style of larger lacquer cloisonné works produced in the 1890s (photo by author).

After the 1920s, cloisonné bead production in Japan seems to have ceased. Ironically, China then picked up the manufacture of these beads. But that is another story.

CONCLUSION

Despite the comparative rarity of antique Japanese cloisonné beads, their designs and enamels demonstrate the mid-19th-century shift in Japan to modernize technology and incorporate innovative materials and methods. These uniquely original beads represent a distinctively Japanese contribution to the world of art.

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REFERENCES CITED

Blair, Dorothy

1973 A History of Glass in Japan. Kodansha International, Tokyo, and the Corning Museum of Glass, Corning.

Bowes, James L.

1886 Japanese Enamels, with Illustrations from the Examples in the Bowes Collection. Bernard Quaritch, London. https:// archive.org/details/japaneseenamelsw00bowe, 26 October 2017.

Brinkley, Captain F.

Japan: Its History, Arts and Literature. Vol. VII: Pictorial and Applied Art. J.B. Millet, Boston and Tokyo.

Coben, Lawrence A. and Dorothy C. Ferster

1982 Japanese Cloisonné: History, Technique and Appreciation. John Weatherhill, New York and Tokyo.

Helmsley, Melissa

Ojime collection necklace. Bead Collector Network, 23 2014; http://beadcollector.net/cgi-bin/anyboard. cgi?fvp=/openforum/&cmd=get&cG=9393236353&zu=3 939323635&v=2&gV=0&p=

Quette, Beatrice (ed.)

2011 Cloisonné: Chinese Enamels from the Yuan, Ming, and Qing Dynasties. Yale University Press, New Haven.

Schneider, Fredric T.

2010 The Art of Japanese Cloisonné Enamel: History, Techniques and Artists, 1600 to the Present. McFarland, Jefferson, NC.

Singer, Robert T.

2017 Polished to Perfection: Japanese Cloisonné from the Collection of Donald K. Gerber and Sueann E. Sherry. Los Angeles County Museum of Art, Los Angeles.

Tomalin, Stefany

2013 Antique Chinese Cloisonne Beads. Bead Collector Network, 23 May 2013; http://beadcollector.net/cgi-bin/ anyboard.cgi?fvp=/openforum/&cmd=iYz&aK 93634&iZ z=93634&gV=0&kQz=&aO=1&iWz=0

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