Glass Bowl Unearthed from Okinoshima Island

SUGIYAMA Shigetsugu
Emeritus Professor, Kokugakuin University

Abstract: A few fragments of a cut glass bowl have been unearthed from the Munakata Okinoshima Site No.8. They are believed to be parts of a bowl brought there in a complete form. The cut glass products as vessels in the ancient Japanese archipelago are classified into two categories: the imported articles and those made of lead glass (mostly small-sized ones) produced domestically after the seventh century. The imported articles are mostly cut glasses considered to have made in Persia. They are different from twenty-some samples from the Shilla. Probably they have different routes of transportation. In addition, the articles were either unearthed from tombs (grave) and at ritual sites or handed down in temples (including treasures in the Shōsōin treasure repository), and their usages were limited. What was placed in the precious container called “Tamamohi” dedicated to the gods?

Keywords: glass bowl; cut glass; ancient ritual; Tamamohi

1. Glass Bowls Unearthed from the Ritual Sites

(a) Glass bowl and Site No.8

The first investigation was conducted in 1954 on Site No.8 in the shade of a northwest surface of the huge rock which is situated in the north of the sites group as No.D huge rock (megalithic group), and from the cross-shaped trench there, one fragment was unearthed and in the following second investigation, another fragment was discovered in the distant southwest part of the small rock situated centrally. In the subsequent investigations, contrary to the expectations, “the remaining fragments of the glass bowl weren’t discovered after all” (Munakata Shrine Revival Association 1961: p.234) And the two fragments from the first and second investigations “are jointed by an identical piece (substance) made of glass with a pale greenish hue and numerous air bubbles. On the outer surface of the vessel measuring 3 mm in thickness, round relief patterns with approximately 2.8 cm in diameter and 3 to 5 mm in height are cut out. The diameter of the top-side of a round relief pattern is slightly smaller than that of the bottom-side attached to the vessel and the top-side of the round pattern is concave like a concave lens. At a distance of 7 mm from one of the round relief pattern which remains intact, small parts of a round relief pattern are remained in two places. Given the distance between these round relief patterns, streaks sweeping in one direction on the inner surface of the vessel and the curve form of the broken pieces, they are presumed to be parts of a glass bowl with an upper row of nine round facets and a lower row of seven round facets. The round relief patterns which remain intact belong to the lower row and the lower part of the round pattern is thicker (5 mm) than the upper back (3 mm). The diameter of the upper end of the bowl of the existing fragment is measured 11 cm approximately, and the diameter of the whole bowl would have been measured around 12 cm” (Munakata Shrine Revival Association 1958: p.221) according to an archaeologist HARADA Dairoku and he placed the reconstruction picture of the object in the article.

Naturally, they gained recognition among the experts on ancient glasses and FUKAI Shinji introduced this reconstruction picture in the report and described that the glass bowl was made by mold blown technique and patterned with concave (hollow) round facets and as a similar example, he cited the bowl unearthed in spring of 1961 from the tomb, which was attributed to the Parthia or Sassanian Persian period in the Alborz Mountain Range in Gilan province situated northwest of the Iranian Plateau [FUKAI 1962]. After a review of several other similar examples, he stated that if the diameter was 12 cm as mentioned in the investigation report, it would have been an artifact larger than the above-mentioned artifact from Gilan measuring 9.5 cm in diameter. Regarding the height of the vessel, he also stated that “Probably the bowl was decorated with two rows of wheel-cut facets and it is estimated that the total height including the pedestal was about 6.5 cm. Therefore, it is also estimated that the item was a glass bowl with a horizontally flat pedestal support.
"shorter than the artifact (8.0 cm in height) unearthed from Gilan province" (FUKAI 1962; p.208).

Although it is a fragment of less than 5 cm in height and width, as part of a cut glass decorated with the wheel-cut facets made by mold-blown technique, it is the only existing, one-of-a-kind artifact on the Japanese archipelago, which deserves attention.

Figure 1 (right) A bowl unearthed from the Munakata Okinoshima Site No.8 [Munakata Shrine Revival Association 1958]
Figure 2 (left) A bowl unearthed from Kamigamo [FUKAI 1968]
b) Site No.8 and faceted glass beads

The Site No.8 is where long-term investigation was conducted on a continual basis, and there were several other issues. One of them is that it is a huge rock prominently located along the route leading from Okitsu-miya to the lighthouse. In addition to the excavation by high school students, it is subject to illegal digging and theft due to its location and therefore it appears to be ransacked considerably. As far as the author can see from the condition of unearthed relics appeared in the investigation report, the relics are classified into three groups, which are as follows. The first group is concentrated in the cross-shaped trench and its western part that was surveyed in the first investigation, the second group is found in the area around the central small rock and the third group is found in the southwest of the site. The southwest part seems to be overlapped with Site No.7 to some extent. Among them, one fragment of the glass bowl was found in the northeast group (the first group) and another fragment was found in the central group. In the northeast group, in addition to a piece of mirror with images of dragons around the knob seat, a piece of small silver bead and 13 pieces of faceted glass beads were found as one-of-a-kind relics. Although silverware or silver and copper products are often found in mound tombs as grave goods from the fifth century, only a few silver ingot or silver granules have been discovered. Except for the silver granules dated to the fourth century found at Nangō-ōhigashi site in Gose city, Nara prefecture, they are mostly around the second half of the seventh century, including a round bead without a hole which appears to have been hung from the belt unearthed from tombs dated to around the middle of the seventh century, such as the Ishinokarato tomb in Nara prefecture etc. and a silver plate (also presumed as a golden plate and made in the reign of the Emperor Temmu: 673 to 686) unearthed from the Ōshima-Izumihama ritual site point C, Tōkyō metropolis.

Also, there are few similar examples of faceted glass beads, which present a green hue due to the lead glass and undergo silvering. One familiar example is, however, the beads wrapped around the bottom of the coronet placed on the “statue of Amogha Paaza” at Sangatsu-dō (Hokke-dō) in Tōdai-ji Temple.

With all these facts, it is reasonable to think that the relics from Site No.8 were not gathered there from the one-time ritual, but collected from several rituals. The adjacent Site No.7 also contains relics dated to the Late Kofun period, however, considering the combination of flat pendant horse harness ornaments and crupper bosses, at least 6 sets of horse trappings were supposed to have existed by HARADA Dairoku [Munakata Shrine Revival Association 1958]. Crupper strap dividers with spangles are known in the Kannonyama tomb in Gunma prefecture, Kinreizuka tomb in Chiba prefecture, Fujinoki tomb in Nara prefecture etc, and the former two tombs are keyhole-shaped tombs with round square mound dated to the newest period, around the third quarter of the sixth century. In the past, the author believed that the relics found at Site No.7 were from the one-time ritual but it appears appropriate to think that they were gathered from several rituals.

Also, although the concentration of the small glass beads suggests the possibility that they were hung from a tree branch, they look too compactly concentrated. The dispersion of mortar-shaped steatite beads at Site No.21 were initially predicted that strands of mortar-shaped beads hung over a tree branch were dispersed, however, from the massive illegal digging of relics including fragments of mirror, we can’t simply conclude that they were left as they were after the ritual was performed. In case of Site No.7, it has been estimated that the ritual was performed at the point and the small glass beads were hung to the right and left of the site, however the alternative view is that the beads in a sack were placed there. Also there is a possibility that it was roughly determined where to place horse equipment and ironwork and so on within the site. A saddle which is decorated and dedicated at the Kasuga Festival at Kasuga Grand Shrine in Nara prefecture is stored again in a divine storage once the festival is finished. And every year, the saddle is placed at the same place at the festival. The author thinks that if those ritual articles were placed for several ritual occasions, they would be placed with an overlap at the predetermined place.

(2) Glass bowl picked from the shrine grounds of Kamigamo Shrine

It is a fragment of a glass bowl picked by BANDŌ Zempei at the back (north side) of the main hall of Kamo-wake-ikazuchi Shrine in 1964.

The report describes that “the archaeological site of Jōmon period isn’t limited to the golf course area but
is extended to near the ground of the main hall. In order to make a thorough investigation of the
distribution range of the fragments of pottery, the author closely examined the bamboo grass bush to the
north of the ground of the main hall.

This bamboo grass bush is located in an area called Omaedai on the outside of the earthen fence
surrounding the ground of the main hall. Behind the main shrine, along the northern side of the earthen
fence, there is a corridor about 3m in width and outside the corridor, there stretches out the remains of the
ruined old earthen fence. The remains of the earthen fence are the irregular laying-up of clay and tiles,
which are about 2.5 m in height and 2-3 m in width at present. (*snip*). The author picked a fragment of a
vessel coincidentally on the occasion of the collapse of the fence on Jan.3, 1964. At first the author
considered it to be a fragment of Sue ware, but the washing at a later date revealed that it was a fragment
of a glass vessel.” (*snip*) “2. The unearthed fragment of the glass vessel. This is a more or less
rectangular shape with measurement 6.0 cm by 4.2 cm at present. As the broken surface is weathered to the
same degree as the two sides of a fragment, it appears that the breakage occurred in very ancient times. It
is an opaque white glass with a very light blackish brown hue. When the author compared this with several
glass vessels displayed at Tōkyō National Museum in May 1965, the observation shows that its color tone
was more similar to that of a faceted glass bowl unearthed from the tomb of Emperor Ankan than the
Niizawa-senzuka tomb group No. 126 tomb. (*snip*) Regarding the pattern on the surface of the glass
vessel, part of the round pattern in relief is existent. If the author gives a explanation placing the remaining
half of the round pattern in relief at the lower left, a unit design is composed of a round pattern in relief and
a thick groove surrounding it, and there appears to be, above the unit, another round pattern in relief and a
groove separated by a 3 mm flat belt on the narrow part (the rest omitted)” [BANDO and MORI 1966].

The reconstruction picture of this glass bowl was drawn by MORI Kōichi in the document and besides this,
there is a reconstruction by UMEHARA Sueji [UMEHARA 1967]. Also, there is another reconstruction by
FUKAI Shinji [FUKAI 1968], and according to the reconstruction of the whole image by FUKAI, it is
assumed to be a double-decker pedestal style bowl measuring about 9.3 cm in total height whose rim about
11.4 cm in diameter, decorated with 6 double round facets about 5.8 cm in diameter.

In the journal, along with the explanation about the bowl, written materials on the items excavated from
Gilan province in the northwest of Iranian Plateau as well as classification of the cutting method are
presented as will be discussed hereinafter.

Regarding this discovery point, MORI Kōichi states that “the point where the fragment of this bowl was
picked is located about 25 m north-northeast of the main hall of Kamo-wake-ikazuchi Shrine, and we can
easily guess that this is a holy place for performing rituals in ancient times. Moreover, before the early
years of Tenpyō period, the shrine was actively used for congregation of a number of rituals and it was so
flourishing that the government often needed to restrict those activities” and noticed that the site had
features similar to the Okinoshima Site No.8 [BANDO and MORI 1966].

In addition, MORI suspected in the same report that the glass bowl reportedly unearthed from the tomb of
Emperor Ankan might have been introduced to Seirin-ji Temple constructed by Kawachi-no-Aya （西文）
Clan, descendants of Wani （王仁） who became naturalized citizen of ancient Japan from Paekchae of
Korea . Considering the glass bowls inherited in Shōsō treasure repository, it can be said that some bowls
weren’t buried but introduced into Japan .

(3) Glass bowl unearthed from Jike Site in Ishikawa prefecture

The Jike Site in Ishikawa prefecture is located along the Sea of Japan, to the west of Ouchi-gata Lagoon
and was formed on a sand dune which grew to be enclosing Ouchi-gata Lagoon, situated around 1 km
southeast of Keta Shrine. Although it was discovered during the prior survey of the road construction and
since then small-scale point investigation has been conducted in the surrounding area, the whole picture
hasn’t been clarified yet. The investigations have been conducted on the sand dune from the ritual division
of the northwest part to Sunada division of the southeast part, along the Noto Expressway. There is an
embedded-pillar building remains group in the northwest part and another group in the central part.
Although there are pit dwelling remains from the prior period, it seems to have been the area where the
Shintō priests lived, evolving from the seventh century to the eighth and ninth centuries. The site contains
25 small-size mirrors ranging from small mirrors decorated with marine mammals and grapevines to undecorated mirrors, and many other relics including a Nara-style three-colored small jar, metal belt fittings including rectangular-shaped belt plaque and roundish belt fittings, bronze coins minted by the central government such as “Wadō-kaichin”, “Nyōeki-shimpō”, “Jingū-kaichin”, “Ryūhei-eihō” and “Fuju-Shimpō”, bladed weapons such as sword, metal fitting of a decorative sword called “kazari-tachi” and beads. In its surroundings, there are a kiln sites group and salt production sites where relics including ironware were unearthed.

From the pit dated to the latter part of the second quarter of the eighth century situated to the south of the site, a fragment of a glass vessel less than 2 cm on a side was discovered. “Wadō-kaichin” was unearthed along with this, and a glass crucible was also unearthed nearby. A passage from the report states that “A fragment of a glass vessel unearthed from SBT04 in the southern half of Sunada division is an important material among the materials unearthed from the Jike Site and be it ever so small, it is indicated that it might be a fragment of the base of a small bottle made of Roman glass. A glass crucible was also unearthed from the surroundings of SBT04 and SBT28 in the northern part of Sunada division and it is believed that there was a glass workshop in Sunada division during the second quarter of the eighth century” [Hakui City 2010].

Regarding the fragment of a glass vessel, “A small piece of a glass vessel is unearthed from the cover soil of SBT04 (11A8). It is a triangular fragment with sides measuring 1.4 × 1.4 × 1.6 cm. On the slightly curved surface, there are three minuscule round projections 1 mm in diameter and 0.5 mm in height approximately, and seven minuscule millet-like projections less than 0.5 mm in diameter and less than 0.2 mm in height. The thickness of the container wall is 1.2 mm. The glass surface presents yellowish ash gray hue and one end of the triangle shows a conchoidal fracture. According to the instruction of EMOTO Yoshimichi, the glass vessel is made from soda glass. Also according to the instruction of YOSHIMIZU Tsuneo, it is highly possible that the fragment is a portion of the part near he bottom of a Roman small glass bottle and what appears to be the projections might be air bubbles. EMOTO Yoshimichi at the National Research Institute for Cultural Properties offered a helping hand for analysis of the glass vessel. Also, YOSHIMIZU Tsuneo gave me instructions by actually observing the glass.” [KOJIMA 1988]

In addition, the green glass glaze left on the inside of the glass crucible is made from lead glass according to the analysis by EMOTO Yoshimichi.

And as a conclusion following the above-mentioned passage, KOJIMA says as follows: “It is identified that both SBT28 unearthing a glass crucible and SBT04 unearthing a glass vessel date back to the Jike III-1 period (in the middle of the eighth century). Also, SBT04 and 11A7 from which the bottom part of a crucible was unearthed are grids which lie next to each other. In other words, when glasswork craftsmen dispatched from the capital were working on the glasses, the Roman glass vessel existed in the Jike Site. While there is a possibility that the glass vessels were stored for ritual use, there is also the possibility that the craftsmen brought the pieces of broken glass to use as materials for glasswork (cullets). Although it is doubtful that the fragments of soda glass vessels could have served as the materials for lead glass that had been produced in crucibles, the author is attracted to the Cullet theory. In order to produce glasses on the Jike Site, the materials were necessary and it is possible that the craftsmen brought the fragments of glass vessels as cullets along with crucibles from the capital. The glass beads without holes unearthed from the ritual division show some convincing evidence that they were parts of the glass products produced in crucibles.”

Sorry to KOJIMA, the author claims that it is a small glass bottle associated with Keta Shrine. Furthermore, the author doesn't believe that the small pale-blue glass beads unearthed from the ritual division were produced in the crucibles. Regrettably, there are no analytical values of the glass beads. The glass production usually means making lead glass on the archipelago in this period. However, it is believed that the raw materials of the glass products such as those unearthed from the Miyajidake tomb in Fukuoka prefecture were imported.

Measuring only 1.2 mm in thickness of the container wall, it seems unlikely that this glass vessel could be a big vessel. However, the author believes that it is a little different from the glass bottle from Ōbishi Island in Okayama prefecture or a reliquary container made from green glass as described herein below.
About 800 meters to the east-southeast of Keta Shrine, there are the remains of Yanagida-shakode ruined temple, which is thought to have been built at the end of the seventh century, no later than the beginning of the eighth century. It seems unlikely that the said glass vessel was the reliquary container associated with this temple.

Incidentally, although some say that the rituals of Keta Shrine were performed mainly in the ritual division or the Sunada division in those days, the central part of the shrine was in the location where the building of the shrine is situated at present since then and it is different from the area of this Jike Site where a group of Shintō priests resided. Although some rituals would have been performed there, it seems unlikely that the rituals of Keta Shrine as a whole were performed in the Jike area.

(4) Ōbishima-Sunominami Site

Ōbishima Island in Kasaoka city in Okayama prefecture is situated in the middle part of the Seto Inland Sea, the west part of the Kasaoka Islands dividing Mizushima Sea and Bingo Sea. At high tide, two currents crash together in this place and at low tide they ebb away in both directions. The population of the island is about 140. There is a sand spit extending from the eastern part of the island toward Ōbishima and the ritual artifacts were discovered from the starting point of the sand spit. The surrounding area abounds with huge stones. In 1962, the relics were discovered from the grounds of an elementary and junior high school and after that the investigation was conducted by KAMAKI Yoshimasa from Kurashiki Archaeological Museum and others. The items excavated include 3 hachiriyō mirrors with octagonal-lobed rim (in the shape of a water chestnut flower), 1 hakkamirror with a frame of eight petals, 1 fragment of other mirror, more than 22 copper bells, metal belt fittings, accouterments of sword, ritual mirrors, coins (42 “Wado-kaichin”, 5 “Mannen-tsūhō”, 22 “Jingū-kaihō”, 12 “Ryūhei-eihō”, 8 “Fuj-Shimpō”, 4 “nyōeki-Shimpō”, 1 “Jōwa-shōhō”, 3 “Jōgan-eihō”, 5 “Engi-tsūhō”, 1 “Kengen-taihō”, etc.), 13 or more Nara-style three-colored small jar, green-glazed stone ware, stone belt fittings, 3 or more small glass jars, Sue wares, 3 or more sets of miniatures of stove, 2 glass ear ornaments 1 glass round bead, 1 jasper cylindrical bead, etc. The small glass jars unearthed are not in a complete form and three fragments including a rim, owned by the Agency of Cultural Affairs, present a green hue and are weathered, and there are three fragments including a rim and one piece of a trunk, owned by Kasaoka city. No base part of a small jar has been found.

Also, two items which are considered to be cylindrical glass items or ear ornaments lack the upper side part, which is like a trumpet in shape. They might be attached to the base of the small jar.

The body diameter of the jar is from 3 to 4 cm and the short rim edge is slightly curved inward and it appears that no lid is attached. All of them are supposed to have been made of lead glass.

In this site, a three-colored small jar was contained in a big pot of Sue ware and the usage of three-colored small jars attracted attention. Although author has mentioned this site as the ritual sites on the island within the Seto Inland Sea in the past, the author still believes today that the presence of the small jar contained in a big pot and the existence of sets of miniature stoves and part of a costume such as sekaitai beltsuggest that they were associated with a purification ceremony in which these articles were respectfully brought to the middle of the sea and left there after the ritual instead of floating them on a river.

The author guesses that these small glass jars were the ones offered as redemption along with Arayo and Nigiyo (clothes offered to the gods) just like the Nara-style three-colored small jars.

2. Glass Bowls Found in Other Places than the Ritual Sites in the Archipelago

(1) Glass bowl reportedly unearthed from the tomb of Emperor Ankan

It is a glass bowl known to be owned by Seirin-ji Temple in Osaka around the Kansei era in Edo period, which went missing later and then was rediscovered or became widely known in 1955 after the war. It is now owned by Tōkyō National Museum.
In the article of “Seirin-ji Temple in Furuichi district” in the “Kawachi Meisho-zue (Collection of pictures of places of interest in Kawachi province)” published in Kyōwa 享和 1 (1801), it is described that eighty years ago (probably during the Kyōho 享保 era) when the area was hit by a flood, it caused mudslides at the tomb of Emperor Ankan and from there many articles including cinnabar and a glass bowl was also unearthed. The finding was also mentioned in “Shūkozu” and “Kōko-nichiroku” by FUJIWARA Sadamoto (aka TOU Teikan) and “Ichiwai-ichigen” by ŌTA Shokusanjin, etc. The circumstances of the rediscovery are described by ISHIDA Mosaku [ISHIDA 1950] and also mentioned by FUJISAWA Kazuo [FUJISAWA 1950] and UMEHARA Sueji [UMEHARA 1951].

The glass bowl is very similar to the cut glass bowl preserved in Chūso (middle section) of the Shōsōin treasure repository in terms of the size, style and materials. It is a transparent glass with pale brown tinge, measuring 11.9 cm in mouth diameter, 8.6 cm in height, 3.9 cm in bottom diameter and 0.4 cm in rim thickness. The numbers of five-rowed facets from the top is 18, 18, 18, 7 and 1 (bottom). This glass bowl has one row fewer than that of Shōsōin and has smaller round facets and due to the spaces between each facet they do not form hexagonal patterns. It is said to be made of alkali soda glass. It had been split into 10 fragments and they were glued together with Japanese lacquer. Incidentally, there is a problem with age determination by supposing to be unearthed from the tomb of Emperor Ankan and as indicated above, MORI Kōichi had doubts and proposed that the bowl wasn’t unearthed but inherited to Seirin-ji Temple originally.

(2) Cut glass bowl in the Shōsōin treasure repository

Quoting a passage written by TANIICHI Takashi, “It is made of transparent glass with a slightly pale brown tint and formed with the glassblowing technique. The rim shows roundness due to fire polishing around the rim. The fire-polishing method proves that a ponte (holding rod) was used for glassmaking and a trace of ponte at the center of the base was vanished by cutting facets after a process of gradual cooling. The facet-cutting is applied using a grinder with curvature radius of 3.5 cm. The bowl is composed of 6 rows of facets numbering 18, 18, 18, 18, 7, 1 from the top and the facets present hexagonal pattern in a place where the facets are overlapped densely. (The rest is omitted)” [TANIICHI 1999].

Incidentally, it is believed that the glass bowl was produced in the center of Sasanian Persia such as Kish and because a similar style cut glass shallow bowl was also unearthed from the tomb of Wang Shi liang (entombed in 565) in Xianyang, Shanxi province in China, in 1988, the production date was identified as sixth century [TANIICHI 1999].

It is 12 cm in mouth diameter, 8.5 cm in height, 3.6 cm (3.9 cm?) in base diameter, weighs 485 g and is made out of alkali soda glass.

Six other glass vessels are known in the middle section of Shōsōin treasure repository, of which one is a fragment of a base of a bowl. Besides, there are some other fragments of a glass vessel. The following is a brief explanation about the articles in complete form.

1) Cobalt-blue glass cup

It is a cobalt-blue transparent glass, 8.0 cm in height, 8.6 cm in mouth diameter and is made by adding cobalt oxide and formed with the glassblowing technique. The rim shows roundness due to fire -polishing and is outward-flared. It has a slightly raised round base and the body part is decorated with three rows of loop patterns (0.35 cm in diameter) made with a blue thread. The number of loop patterns is 8 in the upper neck part, 8 in the middle row and 6 in the lower row. The joints of the loop patterns all point downward. A pedestal made of gold-plated silver is attached to the glass body.

2) Glass bottle

It is 27.0 cm in height, 14.0 cm in body diameter, and 8.0 cm in base diameter and weighs 633 g. It has a low bellied form with its maximum body diameter lied at one-third height from the bottom. Above a tapered neck, the rim of a pouring spout is everted The handle is attached to the middle part of the body and arched over the neck. The color is transparent white.
3) Glass pedestal dish

It is 10.5 cm in height, 29.2 cm in mouth diameter, 6.6 cm in length of the pedestal, 12.1 cm in base diameter and weighs 1,225 g. It is a light brown transparent glass. The dish part and the pedestal part are joined together by glassblowing. The lip of the dish part is round and curved outward and the inner base is wide and flat. The pedestal is hollow and is slightly curved, spreading toward the bottom and the bottom is folded out shortly. Due to weight of the dish part, the joint surface is projected into the inner bottom part.

4) Twelve-lobed oblong drinking cup of green lead glass

It is 22.5 cm in major axis, 10.7 cm in minor axis and 5.0 cm in height and weighs 775 g. It is said to be the only glass vessel made of lead glass stored in the Shōsōin. It has convex and concave fluted bands on the inner and outer surfaces. The outer convex section is carved with herringbone patterns. It is transparent with greenish tint and is supposed to be cast by a mold.

5) Cobalt-blue glass jar

It is 9.0 cm in height, 11.7 cm in mouth diameter, 8.3 cm in body diameter, and 4.5 cm in base diameter and weighs 118 g. It is a blue glass spittoon made by adding cobalt oxide. It has a low-bellied shape with its maximum body diameter lied at the lower part and the largely flared-out rim is attached above the narrow neck. It is cobalt-blue with a tinge of red-purple in color and made of alkali lime glass. According to “Tōdai-ji Bettō Shidai (History of Tōdai-ji Temple administrators)”, Taira-no-Munetsune offered a cobalt-blue glass spittoon to Tōdai-ji Temple in the Chian治安 1 (1021). If it was the same as this jar, it was delivered to Shōsōin during the eleventh century.

3) Glass vessels unearthed from the Niizawa-senzuka tomb group No. 126 tomb

Cut glass bowls brought to Japan range from a hemispherical bowl unearthed from the Niizawa-senzuka tomb group No. 126 tomb in Nara prefecture to the cut glass bowls as imperial treasures stored in the Shōsōin and apart from them, there are glass plates, bottles and cobalt-blue glass dish decorated with circle patterns etc.

Of the articles dating back to the earlier times, there are a bowl and a plate unearthed from the Niizawa-senzuka tomb group No.126 tomb in Nara prefecture. This mounded tomb is somewhat unusual in the tomb group. It has a rectangular shape which is long in the east-west direction, measuring approximately 22 m (long side) by 16 m (short side) and only 1.5 m in height. There is a rectangular burial pit at the western half portion which is elevated and a wooden split-log coffin is placed into the center of that. Many relics were found in and around the coffin. Outside the coffin, a straight sword and a bronze hinoshi (iron) and several lacquered platters were found and inside the coffin, there were metal fittings with openwork carving made of pure gold which appear to be the metal fittings on a crown. On both sides of the head portion, there was a pair of gold spiral pendants in which glass rods were stored. According to the report, the rods have a shape like jitō (traditional earring) and one side is thicker, measuring about 9 cm in length and 6-7 mm in thickness. They are severely weathered. On the left side of this head portion, there was a dark-blue glass picture plate, and a transparent cut glass hemispherical bowl was placed on the plate. In addition, many gold and silver finger rings, gold and silver bracelets, a set of gilt bronze metal fittings for leather belt with pendants with openwork carving, jade comma-shaped beads, gold and silver round beads and glass round beads which contain gold leaves, glass beads with vertically-striped pattern and other glass beads were unearthed. Also, there is a small-size bronze mirror 65 mm in diameter. Although the patterns on the back of the mirror are not clarified, it is an exceptional article to some extent.

The glass bowl “has a bowl shape as if the upper one-third of a sphere were cut off and a small mouth-neck portion that was folded in and then out were attached. It is barely blue but almost colorless transparent glass. Despite the cracks, the bowl had been buried in a complete form. Although uneven mouth causes the some difference in measurement, it measures 7.8 cm in mouth diameter, 8.7 cm in maximum body diameter, 6.7 cm in height and approximately 1.5 mm in thickness showing eggshell-thin glass body.” [Archeological Institute of Kashihara 1977] From the belly to base, there are 108 round facets arranged in neat rows.
According to TANIICHI Takashi, “Hemispherical cut glass bowl is the general term for a bowl that is molded into thin bowl shape by glassblowing and cut off at a position below the rim in which you make a recess and decorated by cutting facets on the surface of the body after the gradual cooling.” [TANIICHI 1985]

A concurrently unearthed plate is a navy blue glass, 14.1-14.5 cm in mouth diameter, 3 cm in height of the whole plate. The pedestal was formed from the main body and the outer bottom of the plate is lower than the pedestal. The inner surface is adorned with patterns all over including birds, trees and human figures as confirmed.

Incidentally, it is estimated that the bowl is made of soda-lime glass and the plate is made of alkali lime glass. [ODA 1977]

The tomb is supposed to date to the second half of the fifth century [Archeological Institute of Kashihara 1977].
(4) Glass vessels unearthed from the stone chamber in the square (“front“) part of the tomb of Emperor Nintoku

Two glass vessels, a water-white glass plate and a bright blue jar, were unearthed in 1872 and they were buried again.

"On September 7 in 1872, the starting point of the slope in the south of the tomb of Emperor Nintoku, so-called the Daisen-ryō, in Ōtori district in Izumi province was collapsed and the stone coffin inside the stone packing was revealed. In all directions of the stone coffin, several articles were placed including two glass vessels. One of them is a sort of jar in bright blue color and the other is a sort of plate in water-white color (the rest omitted)." [KUROKAWA 1910]

This set of glass vessels are same as those unearthed from the Niizawa-senzuka tomb group No.126 tomb and given that they date back to the close period, it is estimated that the articles were brought into the archipelago in a similar situation.

It is not known whether the jar unearthed from the square (“front”) part of the tomb of Emperor Nintoku was a cut glass or not and there is a possibility that it was not a cut glass if the jar was dark blue-colored. Considering the combination of two articles (transparent bowl and dark blue plate) unearthed from the Niizawa-senzuka tomb group No.126 tomb is opposite of that from the tomb of Emperor Nintoku, however, it is possible that they were brought to the archipelago together at the same time. It seems that there was a relationship between two figures buried in these tombs during their lifetime, to say the least.

(5) (Addition) Cinerary glass urn containing bones of Fumi-no-Nemaro

It has a nearly spherical body with a short, straightened-up neck covered with a lid with a sacred gem handle. It measures 17.2 cm in total height, 15.2 cm in body height, 16.5 cm in body diameter and 6.1 cm in mouth diameter. It is a green lead glass jar which was unearthed from Uchimaki village, Uda district in Nara prefecture. Although there are several cinerary urns made of green glass, there are few ones of this size. The epitaph unearthed simultaneously was inscribed that “General in the Jinshin era. Director of the Left Headquarters of the Imperial Palace Guards, with Senior Fourth Rank Upper Grade, Fumi-no-Nemaro-no-Imiki passed away on September 21 Keiun 4 (707) 壬申年将軍左衛士府督正四位祢麻呂忌寸慶雲四年歲次丁未九月廿一日卒” and it shows that he passed away in the Keiun 4 (707).

This glass jar dates back around the beginning of the eighth century.

Other cinerary urns include the one unearthed around the Miyajidake tomb in Fukuoka prefecture, which does not have a spherical body like that of Fumi-no-Nemaro but has a stout jar form measuring 11.2 cm in height. The rim is straight up and covered with a lid. It was placed in a jar cast in copper and the urn was put in two pieces of pot-type earthenware. Anyway, it is a rather large glass jar, different from the usual small-size reliquary container.

Among the well-known reliquaries, the container discovered from the foundation stone for the central pillar of the pagoda of the reported remains of Sūfuku-ji Temple in Shiga prefecture is a green glass vessel measuring 3 cm in height, 3.1 cm in body diameter and 1.5 cm in mouth diameter. This also has a nearly spherical body with a short, straightened-up neck with a gold lid. The Sūfuku-ji Temple is believed to have been founded in the seventh year of the reign of Emperor Tenchi (668) and this small glass jar is supposed to have been manufactured in the middle of the seventh century.

A reliquary that was discovered from the foundation stone for the central pillar of the five-storied pagoda of Hōryū-ji Temple in October 1949 and reburied later had been also placed in a gold ovoid container with openwork carving. The diameter of the gold container is deemed as 6.6 cm.

Besides this, there are several articles deemed as reliquaries and they require further investigation since not all of them are made of green glass. However, the author will discuss this matter on another occasion due to their different dates of production. The only thing the author wants to mention here is that articles made with green glass by glassblowing have some relationship to the Korean Peninsula.
3. Conclusion

(1) Glass production and imports of glassware in the Japanese archipelago

Although it is not clear at what point in the Yayoi Period the production of glass beads in northern Kyūshū started, it certainly appears that up to around B.C. 200 in the Middle Yayoi Period, uniform comma-shaped beads had been produced in clay molds along with globular beads. A vast amount of flat glass discs with a circular hole in the center as well as mirrors and metal fittings discovered from the No.1 earthenware jar-coffin of the Mikumo-minamishōji Site dating to the second half of the Middle Yayoi Period are thought to be part of the grave goods sent from the continent soon after the announcement of death. In parallel, comma-shaped beads, cylindrical beads, globular beads, etc. are thought to have been manufactured in the archipelago.

Lead glass was used to make glass products in the Yayoi Period which is replaced by alkali glass in the Kofun Period when objects like comma-shaped beads were not necessarily formed in a mold and bracelets also came to be produced and in the sixth century, lead glass was used again to make glassware. Although this is mostly because the glass manufacturing relied on imports for raw materials, the volume of production across the country seems to have been considerable. It also appears that lead glass had remained as a major material from sixth century to the Nara Period. During the course of its development, the manufacturing of glass vessels by glassblowing in the archipelago started.

As for imports of the glass vessels, the earliest examples are the jar and plate from the Niizawa-senzuka tomb group No.126 as well as the jar and plate from the stone chamber in the square (“front”) part of the tomb of Emperor Nintoku. They are followed by thick cut glass bowls including one from the Munakata Okinoshima Site No. 8, one from Kamigamo Shrine in Kyōto, the glass bowl in the middle section of the Shōsōin, the bowl reportedly unearthed from the tomb of Emperor Ankan. They appear to also include the cobalt-blue glass cup with the loop patterns in the middle section of the Shōsōin. In addition, there is a group of the glass bowl and the glass pedestal dish in the Shōsōin and apart from them, there is the twelve-lobed oblong drinking cup of green lead glass. TANIICHI Takashi gives a detailed account of respective objects coupled with the results of excavations in recent years [TANIICHI 1999].

Come to think of it, four examples from Okinoshima, Kamigamo, the tomb of Emperor Ankan and the middle section of the Shōsōin are cut glass vessels. Furthermore, a jar from the Niizawa-senzuka tomb group No.126 tomb, which is called a hemispherical cut glass bowl by TANIIICHI Takashi, has five rows of round facets on the body. While the uppermost row, middle row and lowermost row remain unfinished the second and the fourth row have polished facets. The facets in the bottom remain scabbled as well. In other words, these articles are crafted with great skill. Although the one from the tomb of Emperor Nintoku is unclear, the fact that most of them are cut glass vessels attracts attention. In contrast to this, among twenty-some glass vessels in the Korean Peninsula centering on Gyeongju, Shilla, there are only one or two cut glass examples and those in the peninsula have clearly different features from those in the archipelago. It is uncertain whether it is due to requests from the demand side or differences in the supply side, differences in traders, or difference in the import routes. Although scholars of the past have paid attention to this problem, any appropriate conclusion has yet to be achieved.

If the articles unearthed from the square (“front”) part of the tomb of Emperor Nintoku and from the Niizawa-senzuka tomb group No.126 tomb were the products of the fifth century, it is worth paying attention to the circumstances around the fourth century. There are suggestive factors including an anecdote of a deity of Munakata wanted a female weaver from Wu about exchanges with the southern China in those days. As the so-called five kings of Wa’s bringing tribute to the Southern Dynasty, the exchanges between Wa (ancient Japan) and Liu Song evolved into the full-blown stage and the southern China culture must have had the strong influence on the archipelago afterward. Thus, it is possible that there was a different route other than a northern route via Shilla. However, regarding the glass articles uncovered from Munakata Okinoshima, Kamigamo and the tomb of Emperor Ankan and a white glass bowl stored in the Shōsōin, it is impossible to draw a quick conclusion whether they were from a southern route in an earlier period or from a different route in a later period.
Glass Bowl Unearthed from Okinoshima Island

Figure 5 (above) and Figure 6 (below) [Archaeological Institute of Kashihara 1977]
There has been an increase in the excavations of ancient glass bowls in China in recent years and it is becoming possible to connect these dots. Furthermore, as in the case of plate glasses from Miyajidake tomb in Fukuoka prefecture and those from the remains of Mireuk Temple in Ikseon in Paekche, imports of raw materials for green glass in large quantity started in the sixth century and products made of lead glass including globular glass beads became the mainstream in the archipelago. It means that the glass-blowing technique had become available for the first time in the archipelago manufacturing reliquaries or cinerary urns. As a result, glass beads came to be called “On-fukidama (blown beads)”.

Incidentally, YOSHIMIZU Tsuneo has been studying on many ancient glass vessels including those stored in the Shōsōin while working on reproduction of those articles. He advocates the theory that a cluster of glass vessels found in Shilla were brought via Datong in China [YOSHIMIZU 2001, YOSHIMIZU 2009]. The author finds this hypothesis quite convincing. On the other hand, as SUGAYA Fuminori stated by quoting a passage from the text by TANAKA Toshiaki, it appears that the Shilla in the middle of the fifth century was still under the strong influence by the Goguryo. This may explain why a large amount of glass articles from the end of the fifth century to the sixth century were collected [SUGAYA 2008]. In this view, the author asserts that aside from a route via Shilla, there was another route by way of the southern sea by which glass vessels were brought along with aromatic trees, etc., considering every glass vessel in the archipelago has high quality..

(2) Glassware in the ritual sites

The usage of ancient glass vessels in the archipelago are classified into the following three types: 1) grave goods as in the case of the square (“front”) part of the tomb of Emperor Nintoku, Nizawa-senzuka No.126 tomb, 2) those used in the ritual sites such as Munakata Okinoshima Site No.8 and Kamigamo and 3) those preserved in the Shōsōin. It is not clear whether the articles reportedly uncovered from the tomb of Emperor Ankan should be included in the grave goods of 1).

The glassware whose excavation situation is obvious is limited to that of the Nizawa-senzuka No.126 tomb, however, it is impossible to make a judgment from only one example whether the glass vessel would be a sort of spittoon or something like a small jar of Haji ware for special-purpose or like a stone lidded vessel found in mounded tombs of the Early Kofun Period.

The glass vessels as treasures in the Shōsōin of 3), which are stored in the middle section, are furniture of Tōdai-ji Temple and some of them were offered to the Shōsōin in different times. Among them, the white glass bowl is identified as an imported article in the sixth or seventh century, although it is different from those uncovered from Okinoshima and Kamigamo in the method of manufacture. While there are some items stored in the Shōsōin whose original purpose of use and usage were elucidated, it is not clear how the glass vessels were used.

There is a drawing indicating the usage of glass vessels and TANIICHI Takashi discussed this in his writing: “Regarding the Buddhist wall paintings in East Asia, there are studies and reports by scholars including An Jia Yao on Mogao Caves in Dunhuang and Blain, D. on the ancient wall painting of the image hall at Hōryū-ji and fortunately, the author had opportunities to conduct investigations on glass vessels drawn on the wall paintings at Mogao Caves in recent years.

According to the investigation by the author, the number of drawings including glass vessels on the walls identified is 80 in 50 caves. There are a variety of shapes of the glass vessels in the drawings including dish, platter, bowl, lidded vessel and bottle. (fingers or patterns on clothes behind a vessel are portrayed as if they were seen through the glass).” In the following part, individual drawing in the caves is presented and discussed [TANIICHI 1993].

The wall paintings at Mogao Caves in Dunhuang are introduced by dividing the historical periods into Sui, early-Tang, prime-Tang, middle-Tang, late-Tang, Wudai, Sung, Xi-Xia and Yuan. Although the usage of these containers aren’t explained in detail, from the passages such as “plants and flowers put in the container” and “method of representing ornamentals in the containers” with the pictures presented, many of them were considered to have been used as flower vases.
Regarding the ancient wall painting of the golden hall at Hōryū-ji Temple, it is described that “in a painting drawn on the wall No.1, a platter placed on the right-hand palm of the left flanking attendant Bodhisattva for the main Buddha is expressed as a transparent container with double rim and plants are put inside the container” [TANICHI 1993, p.182]. In the picture, you can see a flat plate. Following that, “a transparent glass container of the Type II bottle with grainy patterns is expressed on the right-hand palm of the right flanking attendant Bodhisattva and at the root of the neck a loop with decorative patterns is attached” and you can see a small jar with a lid on the palm. Also, it is described that “Aside from the glass vessels, the transparency is expressed in a sacred gem placed on the left palm of the main image of Buddha on the wall No. 10 (considered to be Bhaiṣajya-guru. However, it isn’t clear whether it is a representation of a glass item or not.” Considering a sacred gem placed on the left palm of Bhaiṣajya-guru is conventionally supposed to be a medicine bottle it appears that this one was also a representation of a small glass jar. It is remarkable that artifacts such as a jar and a dish on the images of the palms of Bodhisattva are depicted as glass objects.

Going further into the past, among the human figurine haniwa, some haniwa considered to be shamaness with a sash on have a sword in their hands, however, others hold a dish or a bowl with both hands as an offering. This represents their respect toward a person buried in the tomb who is a central figure and receives a ritual service. There is an anecdote in the “Kojiki” about Emperor Yūryaku that goes like this: When the Emperor held a banquet (Toyo-no-akari) under the lush zelkova tree (Momoe-tsuki) in Hatsuse, Mie-no-Uneme (maid-in-waiting from Mie) offered a dish to him and accidentally poured sake into the cup without noticing a zelkova leaf falling in the cup. She was about to be killed as punishment for her act but escaped death by reciting a poem. The poem which the Uneme recited, the responding poem by the Empress and the poem recited by the Emperor are known as “Amagatari-uta” that appears to have been often recited whenever the banquets were held. Thus, it seems that the acts of dedicating drinking cup were conducted occasionally.

There is another anecdote in the “Kojiki”: when Yama-sachihiko arrived at the palace of the sea god, he waited for the sea god’s daughter (Toyotama-no-hime) sitting on a sacred Japanese Judas tree (Katsura) planted by the well near the gate of the palace of the sea god (Wadatsumi-no-kami). The maids-in-waiting who came out to draw water from the well spotted him. Yama-sachihiko begged for some water. One of the maid-in-waiting poured water in a container (Tamamohi 玉器) and extended it to him. Yama-sachihiko, instead of drinking the water, picked up a bead worn around the neck, put it in his mouth and spat it out in the container. Then this bead stuck on the container and was impossible to be unstuck. The maids-in-waiting brought it to Toyotama-no-hime. This anecdote in “Kojiki” tells of a special (unusual) act of dedicating water in the Tamamohi and putting a bead worn around the neck in the Tamamohi.

Rare glass vessels brought from far-distant foreign countries were dedicated symbolically at the rituals as special containers.

The author states that these foreign glass vessels were used in the first-rate rituals in those days such as those performed in Munakata Okinoshima No.8 Site, Kamigamo Shrine in Kyōto and also were dedicated to the Great Buddha at Tōdai-ji Temple later. They must have been the “Tamamohi” mentioned in “Kojiki”.

554