Classification of Myanmar Celadon Bowls, particularly centred on Collected Finds of Twante Kilns

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1 Introductiion

Twante whose old name is Tala or Dala is situated 20 miles southwest of Yangon, southern Myanmar. It was a prominent town as ancient earhtern ware tradition in Myanmar history until present time. There are found unglazed ware with various designs, opaque white glazed wares, white and green glazed ware, and celadon ware as surface finds along the tributary stream and on the bank of Tuntay canal and also found until around the adjacent regions of its vicinity. Among them, the most finds are celadon wares, and it could be found the materials of celadon kilns as surface finds. More than hundreds kilns were discovered in Twante and the region of its vicinity. Two kiln sites were excavated in 1999. The two kilns of TTE 1 and TTE 2 which situated in Kyauk-pyar-san- Kangyigone of Tuntay had yielded from layer 2 a considerable number of celadon wares and consisted of different sizes of plates and bowls and toys, by numbering altogether more than 2300 pieces. Plates and bowls were made by potter-wheel, and toys were made by hand (Myo Thant tyn, 1999).

One more site of Payargyi kiln was excavated by Daw Baby and group, Department of Archaeology, Ministry of Culture and with the collaboration of Japanese glaze technician, Mr. Tsuda Takenori in March 2002. The most discovery of the kiln are glazed bottles, more than 90 bottles were uncovered in layer 4 together with glazed supports and with a few sherds of plate and bowl.

The celadon bowls used in this study were collected from the 19 kilns located around the Twanty region (Table 1).The classification of this research is particularly emphasised on the collected celadon bowls from Twante kilns, and it aims to identify with Myanmar trade celadon bowls from Khawr Fakkan and Julfar site.

This classification of celadon bowls was adopted by traced redrawing from the celadon wares collected from Twante kilns that stored in Archaeology Department of Kanazawa University from the exploration research of Twante Kilns directed by Prof. Sasaki Tastuo (Sasaki et al.2004)

This research intends to reveal the history of Myanmar ceramic clearly and its chronology, and relationship with abroad at the ancient time. For the purpose, the trade ceramics unearthed from the sites of Julfar, Hulaylah and Khaw Fakkan, Islamic period are reliable to construct correctly the Age of Myanmar ceramic.

2 Making technique of Myanmar celadon bowls of Twante kilns

Fabric (*1) - The clay paste used in making Myanmar celadon bowls of Twante kilns are commonly rough and the fabric colours are gray (HUE 10YR-5/1,6/1), light gray (HUE 10YR-7/1) and light brownish gray (HUE 10YR-6/2). The fabric colours would probably be slightly changed depending on using material, the firing temperature and atmosphere condition while these were burning. The unglazed parts of interior part of base inside foot-ring were with a little changing colours of light gray (HUE 10YR7/2), light reddish brown (HUE 2.5YR 6/4), reddish brown HUE 5YR 5/3, pale brown (HUE 10YR 6/3), light brownish gray (HUE 10YR 6/2) and light yellowish brown (HUE 10YR 6/4).

Glazing- Transparency glaze was applied on the both sides of interior and exterior part. Commonly, interior part of foot-ring is unglazed. Actually, glazing is weak around the part of foot-ring at the exterior although it was surely glazed with thickly until the end of waist part. The common colour of glaze is olive green (HUE 5Y-5/3) and there were also found the colours of pale

Name of Place	Kiln's name	Notation	Abbreviation	Latitude	Longitude
TWANTE	Phalet-Kyi kiln	TWNT PYG	TP-5	N16° 39 4"	E95°57´29"
TWANTE	U-Kalar-Gyi No. 1	TW– UKG – 1	UKG	N16°34´34"	E95°59´26"
TWANTE	U-Kalar-Gyi No.2	TW– UKG – 2		N16°34´37"	E95°59´25"
TWANTE	U-Kalar-Gyi No. 3	TW– UKG – 3		N16°34´37"	E95°59´25"
TWANTE	U-Kalar-Gyi No. 4	TW– UKG –4		N16°34´35"	E95°59´24"
TWANTE	U-Kalar-Gyi No. 5	TW– UKG –5		N16°34´32"	E95°59´17"
TWANTE	U-Kalar-Gyi No. 6	TW– UKG – 6		N16°34´31"	E95°59´17
TWANTE	U-Kalar-Gyi No. 7	TW–.UKG – 7		N16°34´33"	E95°59´15"
TWANTE	U-Hla Kyi No.1	TW– UHK –1	UHK	N16°37´16"	E95°58´17"
TWANTE	U-Hla Kyi No.2	TW– UHK –2		N16°37´16"	E95°58´19"
TWANTE	U-Hla Kyi No.3	TW– UHK –3		N16°37´15	E95°58´20"
TWANTE	U-Hla Kyi No.4	TW–UHK –4		N16°37´15	E95°58´21"
TWANTE	U-Hla Kyi No.5	TW–UHK –5		N16°37´15	E95°58´21"
TWANTE	Ma Mya Nyein No.1	TW–MMN–1	MMN	N16°37´15	E95°58´28"
TWANTE	Ma Mya Nyein No.2	TW–MMN–2		N16°37´16	E95°58´27"
TWANTE	Ma Mya Nyein No.3	TW–MMN–3		N16°37´15	E95°58´32"
TWANTE	U-Kyauk Khe No.1	TW–UKK–1	UKK	N16°37´35	E95°59´09"
TWANTE	U-Kyauk Khe No.1	TW–UKK–2		N16°37´35	E95°59´11"
TWANTE	Nat-Ye-Twin		NYT		

Table 1 The kilns of collected celadon bowls used for classification in Twante Township (Adopted from Sasaki et al.2004:150)

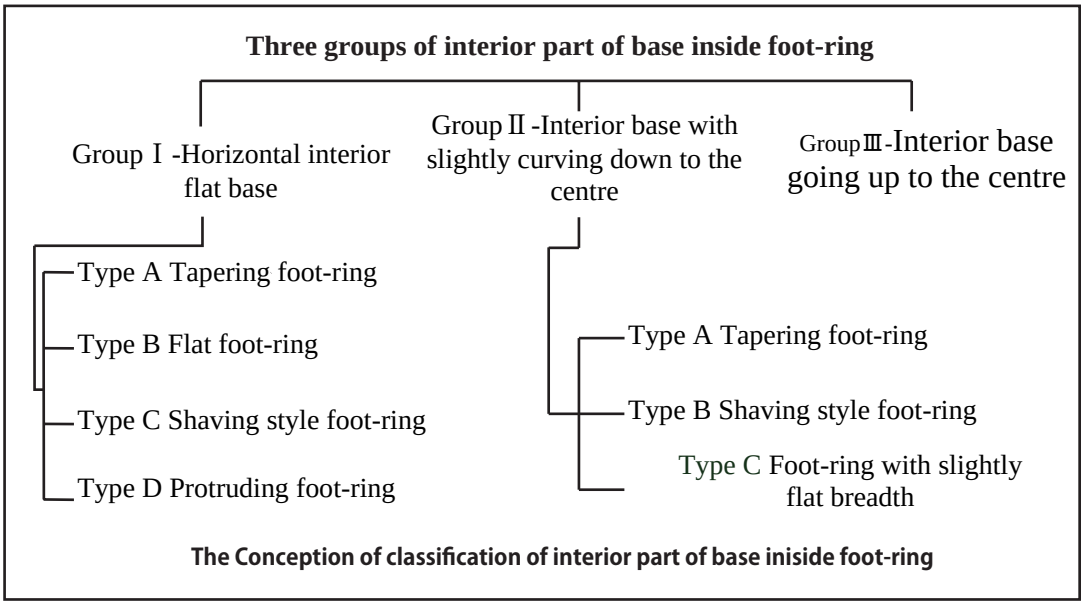
olive green (HUE 5Y-6/3), olive-gray (HUE 5Y-5/2), light olive-gray ((HUE 5Y-6/2) and light olive-brown (HUE2.5Y-5/4).

There was found that glaze was applied until the lower part of interior foot-ring in a few bowls (fig.4.c (TW.UKK2-1), fig.2.f (NYT) and fig.5.g (PYG)). It was glazed the whole part on both of interior and exterior and until the interior part of base inside foot-ring in the bowl of figure8.a (TW-UHK1-1). But a little part of glaze at the interior part of base was disappeared.

Firing method- The makers fired these celadon bowls in commonly piling up on each other placing on the stands of firing support. The stand of firing support was set inside the foot-ring in commonly. There were found that different sizes of supports were used appropriately. The disc of firing support was placed under the foot-ring of bowl (fig.1.b). Moreover, it was found that the mouth was put upon the disc of support facing each other.

3 Classification of Myanmar celadon bowls(*2)

There were commonly found two types of mouth styles such as straight mouth and everted mouth in Myanmar celadon bowls. In this study, the classification of Myanmar celadon bowls is basically centred to the differentiated parts of interior base



The Conception of classification of interior part of base iniside foot-ring

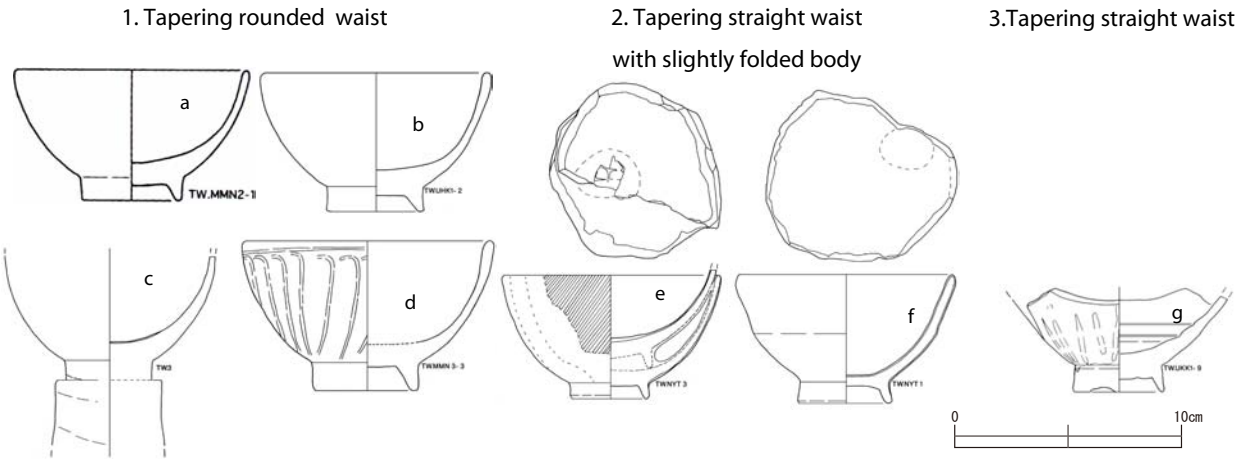


Figure1 Type A, Tapering foot-ring with three types of waist in Group1(Scale:30%)

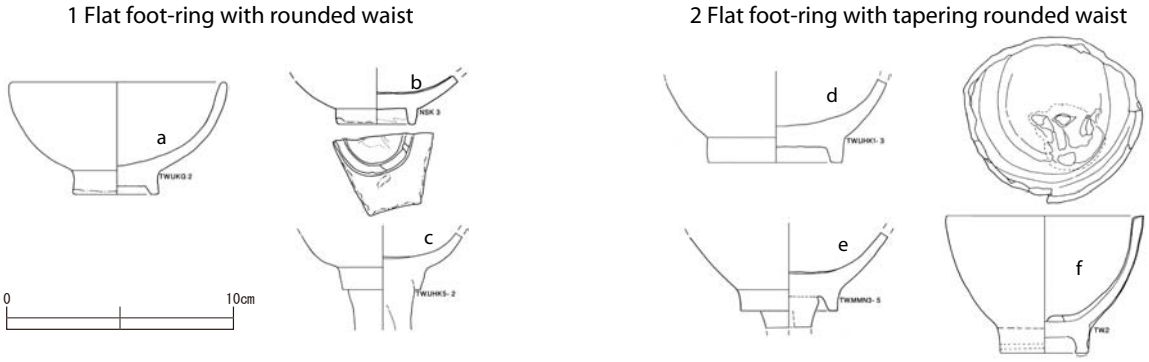


Figure2 Type B, Flat foot-ring of Group1 (scale : 30%)

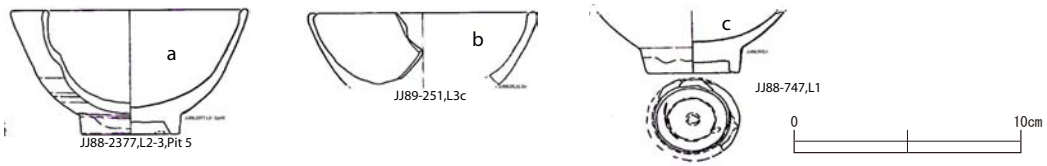


Figure3 Type B, Flat foot-ring of Group1 from Julfar site(scale : 30%)

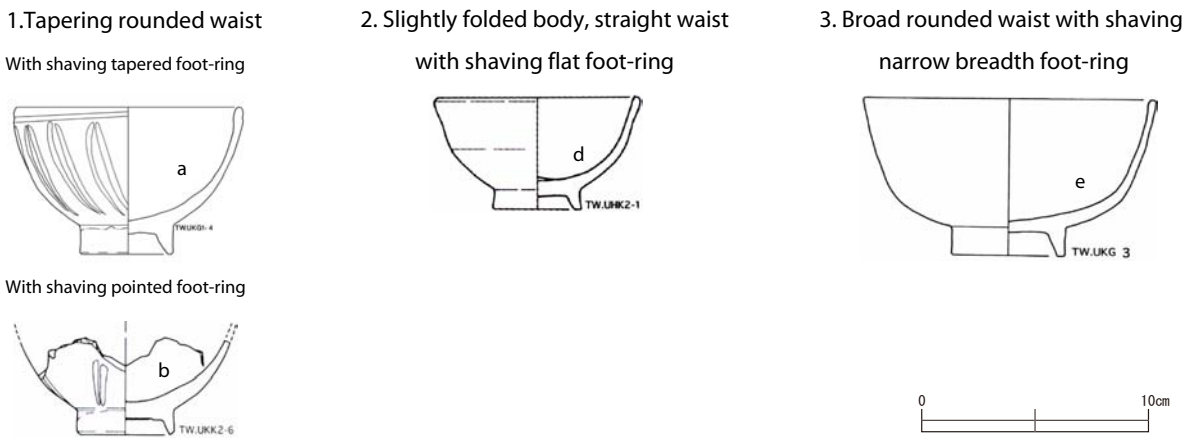


Figure4 Type C, Shaving style foot-ring of Group1(scale : 30%)

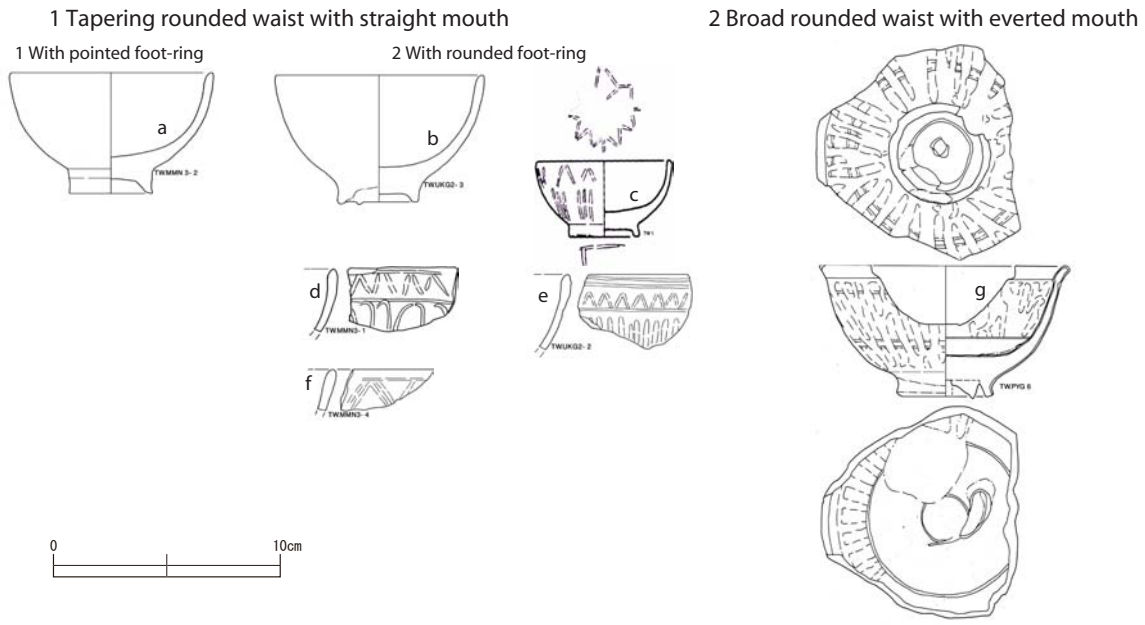


Figure5 Type D, Protruding foot-ring of Group 1(scale : 30%)

inside foot-ring with various styles of foot-rings and also with other different shape of body.

It could be commonly classified as three groups of interior part of base with different types of foot-ring styles as the following diagram:

There could be sub-classified with different styles under the types of Group Ⅰ and Group Ⅱ.

3.1 Group 1 Horizontal interior flat base

3.1a Type A Tapering foot-ring with three types of waist (figure1)

Four types of foot-ring were included in Group 1of horizontal interior flat base. It could be also sub-classified into other different styles of waist and mouth in these four types of foot-ring.

Type A of group 1 is with tapering foot-ring. The interior part of base is ordinarily thick (fig.1.a,b,c,&d), and there was also found with a little thickness (fig.1.e&f). There were two types of mouth styles such as tapering mouth and slightly thick-rounded mouth.

And three different types of waist were found in this type. Actually there is commonly found the first type of tapering rounded waist (fig. a, b, c, d and e). The second type of bowl in figure1.f is with slightly folded body from tapering straight waist. In the third type of figure 1.g, the tapering straight waist is seemed gradually going straight to the wide mouth.

As decorated design, single curved lotus petals and vertical lines were incised on the exterior (fig.1.d and g)

3.1b Type B Flat foot-ring (figure2&3)

In commonly, the interior parts with flat foot-ring were also thick with slightly different thickness, and the waist is tapering and round. It would be possible that the type was with straight mouth, and such as the types of tapering straight mouth (fig.2.a) and blunt straight mouth (fig.2.f) were found. There were found that two different ratio of the measurement of mouth, height and base were found in this type. The whole body of type B-1 is almost round, the mouth is broad and the height is not very high. Although Type B-2 is also with rounded body, it is seemed that the part of waist is more tapered than of type B-1, because the mouth is narrower and the height is higher than of Type B-1. If it would be sub-classified in detail, two types of foot-ring were found in both of Type b-1 and Type B2. The breadth of foot-ring of Type B-1 is smaller than of Type B-2. The inside foot-ring of figure2.a, d, and e is slightly tapering to the end although the outer part is going straight to the end. And both sides of interior and exterior foot-ring in

figure2.b, c and f are entirely going straight until the end of foot-ring.

The same types of Type B-1 and Type B-2 of group Ⅰ were discovered in Myanmar celadon bowls excavated from Julfar site. It could be presumed that the shape of figure3.a, b and c are with the same type of Type B-2. But the straight mouths were slightly thick and round. The bowl, figure3.c of Julfar with entirely straight and flatfoot-ring was unearthed from layer 1 with the same type of figure2.f (Nat-ye Twin kiln of Twante). The support mark was remained inside the interior of foot-ring. The foot-ring of figure3.a of Julfar site is the same type of figure2.d and e (U Hha Kyi and Ma Mya Nyein kilns of Twante), and it was excavated from layer 2-3. There was noticed that all of this type of local kilns from Twante and from Julfar excavation were without decorated designs.

3.1c Type C Shaving style foot-ring with three types of waist (figure 4)

In type C of group Ⅰ, the interior foot-ring is slightly shaving to the end. But the end position of foot-ring is with different styles. Three different shapes of waist style were found in this type. Type C-1 is with tapering rounded waist, and the end position of exterior foot-ring is included in two types such as tapering foot-ring (fig.4.a) and pointed foot-ring (fig.4.b).

Type C-2 is commonly with the similar shape of Type C-1, but the waist part is slightly going straight to the folded body. And the breadth of foot-ring is flat and slightly protruding to the outside of exterior.

In Type C-3, the rounded waist is broad and gradually going straight to the rounded wide mouth. And the interior part of base inside foot-ring is not thick. The breadth of foot-ring is small with 5mm broad and 2cm high.

Lotus petals design depicting by facing each other of pair curved lines and pair vertical lines were incised as on the exterior of the bowls in Type C-1 (fig.4.a and b). There was found straight rounded mouth-rim in this type.

3.1d Type D Protruding foot-ring (figure5)

There were two types of waist part and two types of mouth-rim in Type D of group Ⅰ.

Type D-1 is tapering rounded waist, the interior part of base is thick, and the rounded mouth is slightly thick. The foot-ring of the bowl in figure5.a is with pointed end, and figure 5.b and c are with rounded end foot-ring. In type D-2 is with broad rounded waist and round-everted mouth. The breadth of foot-ring is flat and the end of exterior foot-ring is slightly raised up.

The designs of horizontal lines, vertical lines, slender shape and pointed end lotus patel were commonly incised as decoration on the exterior part (fig.5.c, d, e and f). The star shape zigzag incised design was rarely found in the bowl of figure5.c.

4 Group Ⅱ Interior base with slightly curving down to the centre

In Group Ⅱ, the interior part of base inside foot-ring is slightly curving down to the centre. Three types of foot-rings could be classified in commonly with different styles of shape and mouth.

4.1a Type A Tapering foot-ring

Type A of Group Ⅱ is with tapering foot-ring. It could be sub-divided into two kinds of foot-ring such as tapering pointed foot-ring and slightly protruded, tapering rounded foot-ring.

4.1a-1 Type A-1 Tapering pointed foot-ring (figure6)

In Type A-1 of group Ⅱ, the foot-ring is with tapering pointed end, and three kinds of waist were found. The first type is with tapering rounded waist (fig.6.a). The second type is with tapering straight waist, folded body and rounded straight mouth (fig.6.b). The third one is with broad waist with slightly thick and round-everted mouth (fig.6.d).

4.1a-2 TypeA-2 Slightly protruded, tapering rounded foot-ring (figure7)

The foot-ring of Type A-2 of Group Ⅱ is tapering

1. Tapering rounded waist　2. Tapering straight waist, slightly folded body with rounded straight mouth　3. broad waist with slightly thick & round-everted mouth

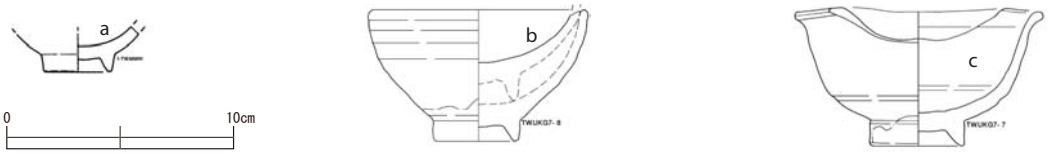


Figure6 Type A-1, Tapering pointed foot-ring of Group 2 (scale : 30%)

With broad waist and round- everted mouth

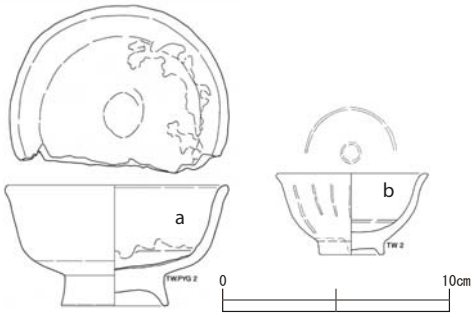


Figure7 TypeA-2 Slightly protruded & tapering rounded foot-ring of Group 2 (scale : 30%)

Slightly shaving inside foot-ring with rounded waist

With flat breadth foot-ring　With slightly pointed foot-ring

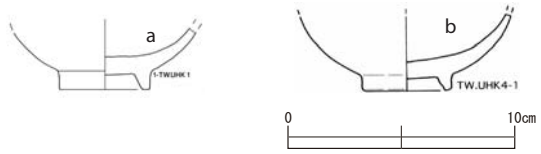


Figure8 Type B Shaving style foot-ring of Group 2 (scale : 30%)

1.Tapering rounded waist　2. Straight waist with folded body　3. Rounded waist

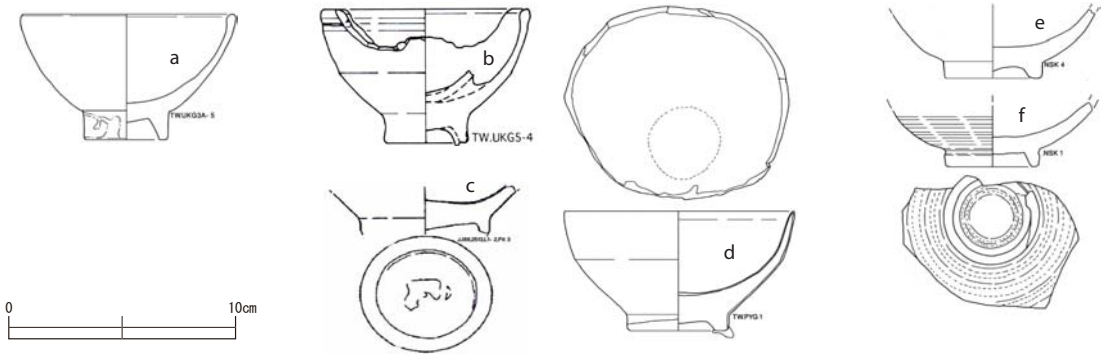


Figure9 Type C, Broad breadth foot-ring of Group 2 (scale : 30%)

Figure10 Flat foot-ring with tapering rounded waist and rounded straight mouth of Group 3(scale : 30%)

rounded foot-ring and slightly protruding outside with round-everted mouth. (fig.7.a and 7.b).

4.1b Type B Shaving style foot-ring (figure8)

In type B of group Ⅱ, the interior foot-ring is slightly shaving to the end with rounded waist. The end positions of interior foot-ring were two types of flat breadth foot-ring 9fig.8.a) and pointed end foot-ring (fig.8.b)

4.1c Type C Foot-ring with slightly flat breadth (figure9)

Three different types of waist style were found in Type C of Group Ⅱ. There were different sizes of breadth in foot-ring. Type c-1 is with tapering rounded waist and slightly thick and rounded mouth. The interior foot-ring is slightly tapering to the end and the exterior is going straight to the end with small breadth of 5mm (fig.9.a). In Type C-2 the waist part is going straight to the folded body with thick and rounded mouth. The breadth of foot-ring is flat with the end of exterior is slightly round (fig.9.b).

The bowl of figure 9.c was unearthed from layer 1 of Julfar site. It is with thick interior part of base inside foot-ring with straight waist with the same type of Type C-2.

The bowl of figure9.d is also the same type of figure9. b, but the mouth is with pointed end, and the size of breadth of foot-ring is a little bigger and flat with slightly rounded end at the exterior foot-ring (fig.9.d, PYG kiln).

Type C-3 is with rounded waist, and two kinds of foot-ring were found (Nat-si Kyaung kiln). The breadth of figure9.e is slightly round and broad. But the end of exterior foot-ring in figure9.f is raised up and round.

Although single lines and circles were incised both on both of the exterior and interior in figure7.b, most of them are with undecorated design.

5 Group Ⅲ Interior base going up to the centre (figure10)

The type of interior part of base inside foot-ring of Group Ⅲ was slightly curving from the end of interior foot-ring to the centre. Actually, this type is rarely found in Myanmar celadon bowls. The type of Group Ⅰ with horizontal flat interior part of base and Group Ⅱ, interior part of base with curving down to the centre were commonly found.

6 Myanmar celadon bowls from the excavation of Khawr Fakkan site (figure11)

The excavted Myanmar celadon bowls from Khawr Fakkan site were excavated from layer 3.There were found three types of mouth styles such the styles of slightly thick and rounded straight mouth, rounded mouth and tapering pointed mouth among five fragments of mouth and body parts of Myanmar celadon bowls unearthed from Khawr Fakkan site. The fabric of body is with dark-gray colour and olive gray colour glaze was thinly applied on both sides in commonly. The incised designs were drawn at the exterior part.

In the bowl of figure11.a (KFN-T-531), long slender floral leave design was incised on the exterior surface.

The bowl of figure11.b (KFN-T532) is with the design of thin and short slender vertical floral leave and horizontal line near the mouth of exterior part.

The lotus petal design with pointed end was incised on the body of exterior part figure11.c (KFN-T-537).

In the celadon bowl of figure11.d (KFN-T-533), horizontal curving short lines were incised before glazing at the exterior part of near mouth.

The bowl of figure11.e (KFN-T-539) is a small bowl without design.

The similar patterns of figure11.a, b and c from Khawr Fakkan site were found in the celadon bowls of figure 5.c, d, e and f from Twante kilns. But the design of figure11.d with curving incised lines slightly like fret design (雷文) could not yet been identified with the finds of local kilns.

7 Chinese celadon bowls from Japan archaeological site (figure 12)

Chinese celadon bowls have been unearthed profusely

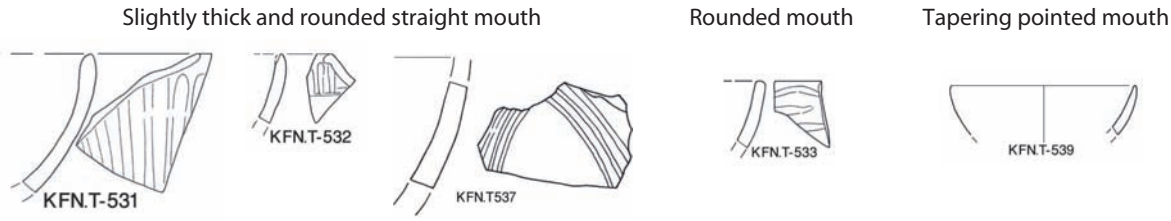


Figure11 Three ytpes of mouth-rim of Myanmar celadon bowls from Kahawr Fakkan site

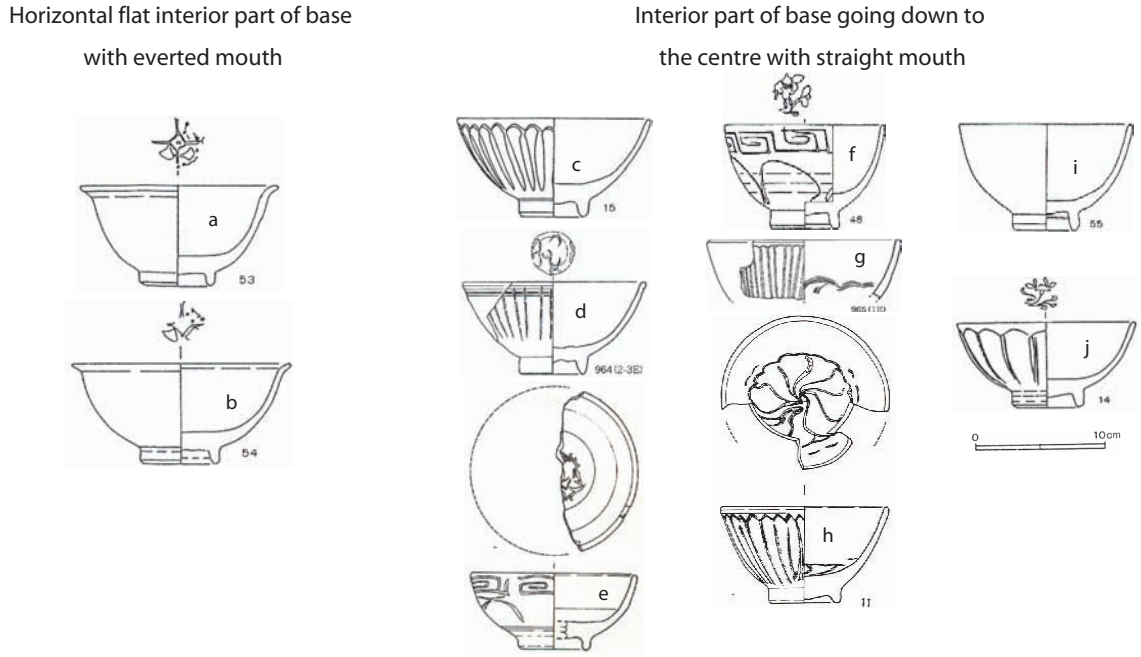


Figure12 14-16 century A.D Chinese celadon bowls excavated from Japanese archaeological site
a,b,f & h (上田 1982)；c,d, i & j (福岡市教育委員会 1982)；e&g (福岡市教育委員会 1988)

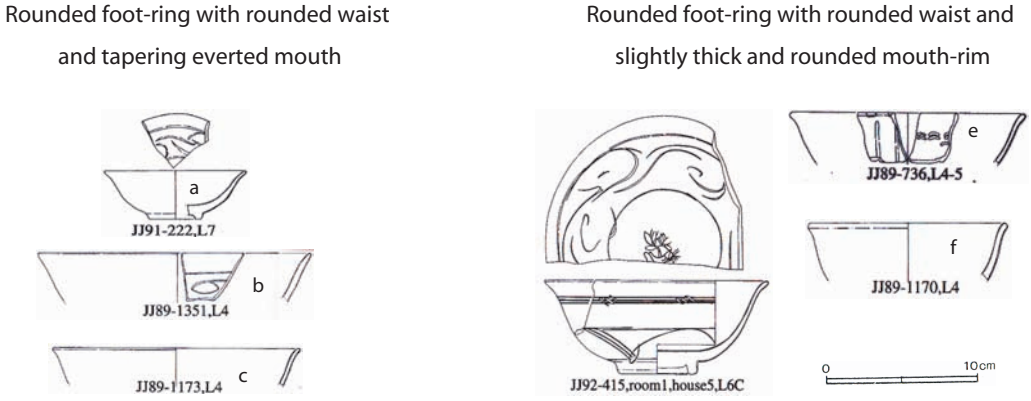


Figure13 Chinese celadon bowl of Ryu kiln unearthed from Julfar site (Adapted from Tatsuo Sasaki 2006)

in many archaeological ceramic sites. The Chinese celadon bowls of figure 12 were uncovered from Kitan Strait (紀淡海峡) and Hakata in Japan. The bowls of figure12.a, b, f and h were from Kitan Strait (紀淡海峡), and figure c, d, e, g, i and j were unearthed from Hakata.

There were commonly found that various floral patterns were stamped at the centre of interior and the incised fret design (雷 文), different patterns of lotus petals, arabesque design were on the exterior.

Glaze was applied on both sides until the interior part of base, and it was also found in commonly that the interior part of base inside foot-ring was shaved after glazing. The two types of interior parts of base inside foot-ring were generally thick, and with straight interior base with tapering everted mouth-rim, and the interior part of base inside foot-ring curving down to the centre with tapering rounded straight mouth. The interior of foot-ring were commonly shaved, and the types of tapering rounded foot-ring were found. The waist part is commonly with tapering rounded shape, and the shape of slightly straight waist with folded body is also found (12.h).

8 Chinese celadon bowl of Ryu kiln unearthed from Julfar site (figure 13)

Chinese celadon bowl of figure13 excavated from Julfar site were withthick rrounded foot, rounded waist and with two types of everted mouth.such as tapering everted everted mouth-rim (fig.13.a, b and c) and slightly thick and rounded everted mouth-rim (fig.13.d,e and f). There were excavated from layer 4, layer4-5, layer 6 and layer 6 and layer 7.Stamp and incised designs were decorated on the exterior and interior part.

9. Potter's marks with Pyu alphabet of Myanmar ceramic (figure14 & table 2)

Different incised marks, the symbols of kiln's maker were found at the interior part of base inside foot-ring in Myanmar ceramic particularly in white glaze wares and celadon wares in Twante kilns, and also collected from other kilns of Bago, Myaungmya and Kyaik-ma-yaw. The symbol marks of figure 14.a, b and f are celadon bowls, figure14.e is celadon dish, and figure 14.c is white glazed bowl.

Dr. Myo Thant Tyn reported that most of the marks of kiln's symbols were incised marks among 171 symbols, exception two kinds of painting mark. Among these symbols, the first group of 49 % are with the incised marks of straight line, cross lines, dots, curve, and circles, the second group of 41 % are with old Myanmar alphabets of Pyu ethnic about from 4th to 7th century A.D, and the rest are with circles and dots marks (Myo Thant Tyn, 2004).

10. Dating of Myanmar ceramic particularly for celadon ware of previous researchers

The excavated Myanmar celadon bowls of Julfar site are from the surface to layer 4, and were unearthed at layer 3 from Khawr fakkan site. It became clear that Myanmar ceramic was largely trade to United Arab Emirate in the 15th century. According to the Petrographical Analysis, there were found two groups of quartz size, minerals include in the clay paste, such as larger quartz size group and smaller quart size group in Myanmer celadon wares from Julfar site. The samples of Twante kilns are very similar to the larger size group of Julfar site, and the smaller quartz size group was presumed from other Myanmar kiln site (Hanae SASAKI and Tatsuo SASAKI 2002).

According to the Myanmar excavator of Twante kilns, the Age of Myanmar celadon was estimated from 15th to 17th century (Daw baby, 1999). With the accordance of Myanmar stone inscription and potter's marks from Myanmar glazed ware including white glazed wares and celadon, Myanmar glazing art was introduced since about 7th century Pyu age (Myo thant tyn, 2004).

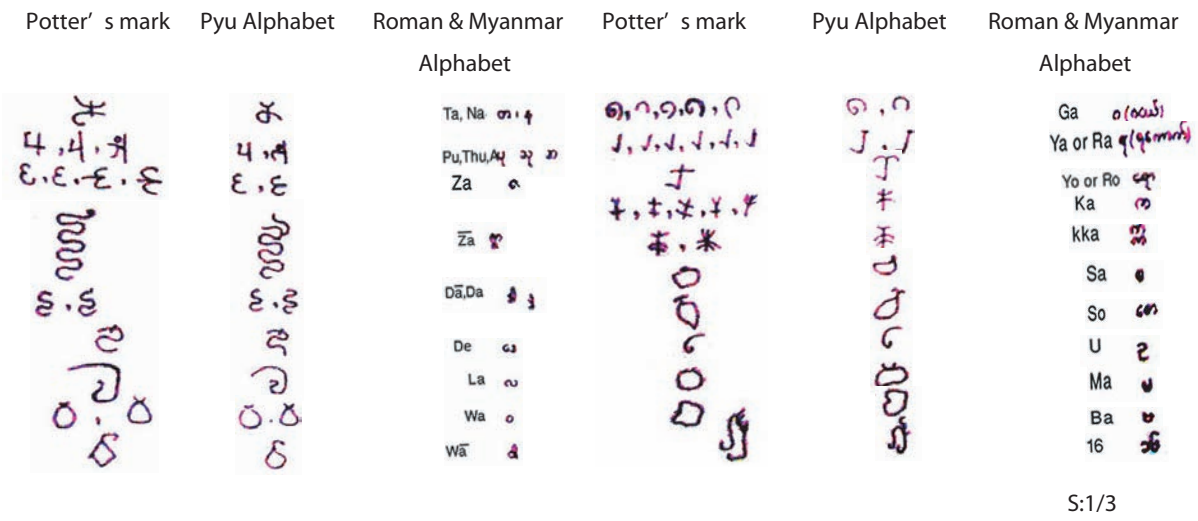
11 Observation on the comparative classification of Myanmar celadon

Both of the same technique and different method had been used in Myanmar celadon bowls of Twante kilns. For example, it was found the same condition firing method of piling upon each other in the kilns of Natye-twin and U Kalar-Gyi compound (fig.1.e and 6.b). The stand of firing support was put inside the foot-rings in ordinary and it was also found that the mouth of bowl was converted on the disc of firing support by face to face (Fig.14.g). The makers used different sizes of support. The small disc of firing support was placed on the bigger size of foot-ring in the kilns of U Hla Kyi compound and Ma Mya Nyein compound in figure 2.c

a (celadon bowl) b (celadon bowl) c (white glazed bowl) d (celadon bowl)

e (celadon dish) f celadon bowl) g (celadon bowl) S:1/3

Figure14 Potter's marks with Pyu alphabet of Myanmar ceramic (Adopted from Sasaki et al. 2004)



S:1/3

Table 2 Potter's marks with Pyu alphabet of Myanmar ceramic (Adopted from Myo Thant Tyn 2004)

and 2.e. The bigger support was put on the small foot-ring in the unknown kiln of Twante (fig.1.b).

The similar glazing method was used in different kilns, and most of the collected Twante celadon bowls were without designs.

The shape of Myanmar celadon bowls of Twante kilns were commonly similar to those of Chinese celadon bowls unearthed from Japan site and Julfar site. But the used materials, glazing and making technique were different. The fabric of Chinese celadon is like stone-ware and the fabric of Myanmar celadon is like earthern ware although firing temperature is higher than Myanmar earthern ware. Only incised designs of straight lines, lotus petals and floral design were simply decorated in Myanmar celadon bowls, but in Chinese celadon bowls, various kinds of incised and stamped designs were profusely decorated.

12. Conclusion

The foreign scholars of Scott and Hardiman estimated

that perhaps glazing came from the Chinese through Shan people (Scott and Hardiman 1900-1901). But it has to be considered because of present condition of this research, glazing style and drawing method design were clearly different. It could be possible that shape and design of Myanmar celadon were partially imitated to Chinese ware, but the glazing technique and pattern of design in Myanmar celadon bowl were with its own style and different with Chinese ware.

Chronologically, according to the prediction of Myanmar ceramic chronology of Twante kilns from the above mentioned researchers, it would be prolonged Myanmar glazed ceramic age since from 7th century to 17th century.

In this research, there were found the similar shapes and some of design such as incised circles, lotus petals and straight lines between Myanmar collected celadon bowls and Chinese celadon dated 14th to 16th century unearthed from the archaeological sites of Julfar and Japan. According to the comparative classification of technique and the historic evidence from kiln symbol marks of Pyu alphabet from celadon wares, it would be presumed that the Age of Myanmar celadon would have been initiated around 14th century or before 14th century to the long period without changing making technique. It has controversy to link the age between about 7th to 14th century of Myanmar celadon, and the connection of Pyu and potters of Twante kilns. Actually, Pyu kingdom had been concluded about 9th century. And Pyu ethnic group was already vanished since 14th century AD according to the lecture of Dr.Than Tun.

For the present, the accomplished research and new evidences are required from unexcavated ancient kilns of Myanmar. It is also an important role to fill up the missing link of Myanmar ceramic Age by continuing research the new discovery of old glazed kilns of Martaban jar, white and green glazed ware, opaque white glazed ware kilns and the classification of them. As the matter of these facts, I would like to pursue as much as possible in my research.

Note

*1. the colors of fablic are based on a Munsell color system.

*2. The drawings of Myanmar collected celadon bowls from Figure 1 to 10 were traced redrawing by author from Sasaki et al. 2004)

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