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**Abstract:** This writing investigates three selected questions related to the production of Arita 有田 ceramics wares. The first question is how coal-firing was introduced to Arita as an alternative to wood-firing. The second issue looks at the role Arita porcelain plays in regional history. The third question examines how certain factories in Arita came to produce standardized Western-style bone china wares as well as traditional local designs concurrently. To investigate these questions, the nature of the fieldwork in this project can be summarized into three categories. First, it involves collection of secondary texts and material artifacts in Japan and Hong Kong related to Arita-yaki (Arita-fired porcelain wares). Second, I carried out fieldwork observation studies in Japan. In Japan, I concentrated on galleries, museums and studios that display or make Arita wares. Third, I carried out unstructured interviews with potters, collectors and gallery owners in Arita as well as contemporary potters with experience in Japan on porcelain-making for comparative perspectives. I spent two summers (July to August) in 2011 and 2012 and three weeks in the spring of 2013 for this research in Japan and research work in Hong Kong in the period between 2011 and 2013.

**Keywords:** energy Arita, porcelain, blue-and-white, Japan

**Energy Fuels in Making *Sometsuke* 染付:  
Fieldwork Investigation of the Evolutionary History of Arita Porcelain Wares'  
Kiln-firing Process and the Role of Its Products in the Region.<sup>1</sup>**

Lim Tai Wei

## Introduction

This writing investigates three questions related to the production of Arita ceramics wares. The first question is how coal-firing was introduced to Arita as an alternative to wood-firing. The second issue looks at the role Arita porcelains play in regional history. The third question examines how certain factories in Arita came to produce standardized Western-style bone china wares as well as traditional local designs. To investigate these questions, the nature of the fieldwork in this project can be summarized into three categories. First, it involves collection of secondary texts and material artifacts in Japan and Hong Kong related to Arita-*yaki* (Arita-fired porcelain wares). The sources of textual collection in Japan are the Kyushu University library, secondhand bookshops in Arita and Fukuoka, reading library in the Fukuoka Art Museum, resource space in Fukuoka Asian Art Museum (FAAM), public online resources at the Fukuoka City Museum, pamphlets in tourist information counters in Arita and Fukuoka and the Kyushu National Museum. I also researched online resources for narratives about the history of Arita, particularly on the energy history of the ceramics-making process. The material artifact observations in Japan are focused on private collections and pieces displayed at museums and galleries. In Hong Kong, the sources of this textual collection are the academic libraries, local museums, commercial bookshops and media resources (particularly Asahi Shimbun 朝日新聞, Nihon Keizai Shimbun 日本経済新聞 and South China Morning Post). The sources for the artifacts collection include porcelain shops and galleries in Hong Kong. Second, I carried out fieldwork observation studies in Japan. In Japan, I concentrated on galleries, museums and studios that display or make Arita wares. Some of these institutions that I visited

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<sup>1</sup> The origin of this project first started in Gakushuin University where I received a fellowship to research on the subject matter and some findings from this research was published in English in the *Sino-Japanese Studies* journal. For the Fukuoka component of this comparative paper, I was awarded the competitive Hop Wai grant for the research project proposal tentatively titled *A Comparative Study of Energy Use in Jingdezhen and Arita Porcelain-Making Regions: A Historical Overview and Historiography of Kiln Modernization and Aesthetic Innovation of Export Wares*. The Hop Wai Grant is a seed grant for further research in a larger grant project. It partially funded research for this writing.

were the Kyushu Ceramics Museum (KCM) as well as the museums named above. Cumulatively, their displays and narratives present institutional perspectives on pottery-making. Third, I carried out unstructured interviews with potters, collectors and gallery owners in Arita as well as contemporary potters with experience in Japan on porcelain-making for comparative perspectives. I spent two summers (July to August) in 2011 and 2012 and three weeks in the spring of 2013 for this research and research work in Hong Kong in the period between 2011 and 2013.

Before starting the discussion, I would like to clarify the use of the term ‘Arita’. An anonymous reviewer for this writing pointed out that confusion arises in the use of the terms ‘Arita’ and ‘Imari 伊万里’. In Japan, the term ‘Imari’ designates all early Edo 江戸 porcelain production in Arita and (in the West and now among Japanese scholars also) a particular style of Arita ware with a blue, red, green and gold color scheme made from the late 17th century onward (and represented in the soy sauce bottle in the picture below). In addition to this important terminological differentiation offered by an academic reviewer, I will include a practitioner’s viewpoint here as well. Shimura Gorō 志村五郎, an expert collector of Arita porcelains discusses the differences between the two terms in some detail. He pointed out:

In brief, Imari is the name of the type of porcelain made in various kilns around Arita, which have produced porcelain since the early seventeenth century. The porcelain pieces were brought from the kilns to the port of Imari, loaded on boats there, and transported to various parts of Japan, and also to foreign countries, and eventually the name of the port became the name of the wares.<sup>2</sup>

He distinguishes Imari from “ko-Imari 古伊万里” which is a term for Imari porcelain made before 1880 and carries a specific style.<sup>3</sup> In his view, the term “Arita” is the most challenging to define. He noted the following:

I hesitate to say no categorically [to calling present-day Arita wares Imari], but clearly a better name for them is Arita [referring to present-day Arita wares], not Imari. But what about the Arita porcelain made in the late nineteenth century? There is no clear-cut answer. It depends on the type of ware. The pieces made in Arita before the Meiji Restoration (1868) are certainly Imari, and even those made somewhat later, up until 1880, can be called, and in fact are called, Imari by most collectors and dealers, if not scholars, provided they do not deviate from the

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<sup>2</sup> Shimura, Goro, *The Story of Imari* (Berkeley California: Ten Speed Press), 2008, p. 4.

<sup>3</sup> Shimura, Goro, *The Story of Imari* (Berkeley California: Ten Speed Press), 2008, p. 4.

styles established before 1868.<sup>4</sup>

In fact, during my fieldwork in Japan, gallery owners, collectors, potters and tea ceremony practitioners all had their own minute variations in explaining the terms. Local community institutions in Arita adopted their own reductionist approach in this definitional debate. The Arita Tourism Association simply defines Arita wares as "porcelain baked around Arita-cho, Saga"<sup>5</sup>. While the definitional debate is important, it falls outside the scope of this writing. For this writing, I use "Arita" consistently as the place name and the general name for all the products of that place.

In this study, I limited the visual and observation study to blue and white wares only, particularly from the Arita region. The reason for doing this is because blue and white wares are perennial favorites of porcelain consumers and collectors. They are found in households and commercial establishments in large numbers. They are easy to spot, especially in shops, galleries and other commercial establishments. Arita porcelains are recognizable with their stylized drawings and vessel construction, particularly for traditional designs. Many of them have marks found beneath the porcelain wares and some of them have stickers which indicate the "Arita" label. Porcelain from Arita are also extensively used in Japan and exported overseas. I also conducted my fieldwork in Arita as well as Fukuoka in the Kyushu region. While the distribution of Arita wares is nationwide, Arita blue and white wares can be found in the immediate macro-region which Arita is located and are probably endearing to the Japanese people and consumers who live in the region of Kyushu since it is an internationally-recognized symbol of Saga Prefecture and the Kyushu region itself. Perhaps, it is because of proximity factors, that I was able to locate many Arita ware collectors easily.

### **Energy transition of wood -> coal and oil (heavy oil and kerosene) -> gas and electricity**

Scholarship and practitioners widely acknowledged Hizen 肥前 (present-day Saga 佐賀 and Nagasaki 長崎) as the original site of Arita production. In fact, when I made a presentation on Arita wares in Tokyo in the summer of 2011, I was advised by senior scholars to look directly at Nabeshima 鍋島 wares made in Hizen and elevate it to the same pedestal in studying Arita porcelain as the pre-1868 Arita wares in studying

<sup>4</sup> Shimura, Goro, *The Story of Imari* (Berkeley California: Ten Speed Press), 2008, p. 4.

<sup>5</sup> Arita Tourism Association, "What is Arita-yaki?" dated 2011-2013 [downloaded on 26 May 2013] in the Arita Tourism Association website, available at <http://www.arita.jp/e.ew.hp.transer.com/aritaware/>



the development and origins of porcelains in Japan. Another group of senior scholars and ceramicists at the same seminar disagreed with this view and recommended looking at Karatsu 唐津 instead as the early samples of proto-porcelain, even before the emergence of the so-called pre-1868 Arita wares, as the most important study of Japanese porcelains and their origins. These are all important viewpoints but a detailed discussion of the relationship of Nabeshima and Karatsu ceramics are outside the scope of this writing. I will differentiate them from Arita wares here. In their most fundamental definitions, ‘Nabeshima’ wares refer to wares made from the lineage of its first namesake who lived from 1536 to 1616 and built his ceramics industry with the artisanal inputs of Korean potters who were brought back by Toyotomi Hideyoshi 豊臣秀吉’s invasion of the Korean peninsula.<sup>6</sup> ‘Karatsu’ wares were made in the Hizen location (present-day Nagasaki and Saga prefectures) and were labeled as ‘Karatsu (*karatsu-yaki*)’ during the Edo period and shipped out from the Imari port.<sup>7</sup> Both are located in the pre-modern Hizen prefecture. All are contributive to the evolutionary history of Arita wares in terms of design innovation, stylistics and firing experience. What I am concerned about in this writing is their fuel use.



Photos from my fieldwork in Japan: I carried out observation studies in former highways that led to Karatsu and found that it was lined with galleries, pottery-makers and antique shops.



<sup>6</sup> Ōhashi, Kōji 大橋康二 and Matsuo Hiroya 松尾宏也, *Gamabetsu Gaido Nihon no Yakimonono Imari Arita* 窯別ガイド 日本のやきもの 有田・伊万里 (Japan: Tankōsha 淡交社), 2002, p. 82.

<sup>7</sup> Ōhashi, Kōji 大橋康二 and Matsuo Hiroya 松尾宏也, *Gamabetsu Gaido Nihon no Yakimonono Imari Arita* 窯別ガイド 日本のやきもの 有田・伊万里 (Japan: Tankōsha 淡交社), 2002, p. 82.

Photo from my fieldwork in Japan: a contemporary reproduction of a proto-porcelain Karatsu wares. This is an example of a proto-porcelain ware resemblance with a grey clay body but covered in a crackled glassy transparent glaze. To achieve this kind of glassy translucent slip glaze, temperatures of at least 900 to 1300 degree Celsius are needed.

The first differentiation in energy use in pre-industrial pottery-making history is between Neolithic open firing and pre-modern kiln-firing. Open firing is primitive in two ways: first, heat escapes into the air and the firing process is subjected to unpredictable and uncontrollable weather conditions. Potters needed to wait for dry weather before firing their wares. More developed primitive societies fired their potteries by encasing the clay vessels in mud presses to trap the heat in the mud structure with a hole for releasing gaseous emissions during the baking process. These primitive firing methods were the main method of firing ceramics in Neolithic societies in Northeast Asia and may still found in some tribal societies in Africa today. But even the more advanced mud-pressed primitive kilns are less heat-retentive than pre-modern *noborigamas* 登り窯 lined with insulating red clay or red clay bricks.

The post-Neolithic period oversaw the conceptual development of closed chamber firing technology, a step forward from the open firing found in primitive societies. One of the first primitive enclosed kilns was the beehive kiln, still in use today in some industrializing or pre-industrial societies for firing bricks, traditional ceramics or making charcoal. These beehive kilns typically had an opening at the top for light hot air draft to escape while drawing in heavy cooler air through another opening at the bottom. Due to pressures for producing greater quantities of ceramics products, Chinese proto-industrial complexes started developing a multi-chamber climbing kiln built on a slope so that light hot air draft can be drawn up the slope inside the interconnected chambers. The Japanese adapted this design and called it *noborigama*. In my fieldwork, I came across the *noborigama* in a miniaturized model display in the Kyushu Ceramic Museum (KCM) and in a map encountered in my textual research work.

The model of the *noborigama* that I observed at the Kyushu Ceramic Museum had 15 beehive interconnected chambers built on a slope (climbing kiln) and its open cross-section featured miniaturized models of about 44 pottery wares placed in each chamber for firing which means each firing session can handle about 660 items in total. In the age of proto-industrialization, to meet demand from domestic consumers and foreign export markets, the ceramics industries fed these kilns with increasingly amount of firewood, bringing about the real danger of forest depletion and eventually motivating the authorities to control timber resource use in some pottery-producing

areas. In my textual research work on secondary resources located in the Fukuoka City Museum, I read about an important cultural treasure in the Saga prefectural museum (*Sagaken jyūyō bunkazai* 佐賀県重要文化財), a detailed map that depicted Hizen's 'national production' (Hizen *kokusanbutsuzukō* 肥前國産物図工) which showed a timber-fired multi-chamber kiln with kiln hands supervising a firing process.<sup>8</sup>

Besides *noborigama*, *anagama* 穴窯 is another pre-modern timber-fired kiln that I encountered in my fieldwork in Japan. *Anagamas* have a tunnel design instead of a beehive shape but worked on the same principle of leading hot air draft through a tunnel kiln and up a chimney. Both *anagama* and *noborigama* that I encountered in my fieldwork had the commonality of having its interiors lined with red clay or bricks. They help to retain the heat from the firing process inside the chamber for energy efficiency. I came across a specially-reconstructed *anagama* kiln in Izumi City where the owner used fireproof bricks to line the kiln walls to retain heat within the firing chamber. Red clay called *tombais* were used to line the walls of *noborigamas* that can withstand 1300 degrees Celsius or more and after firing, wood ash adhere to these clay materials. The label 'red' is a generic description as the clay color comes in a variety of red, yellowish and orange tones, for example, the brick that I collected in my fieldwork is closer to yellowish in color (refer to photo below). *Tombai* units can be in the form of unsymmetrical stone-shaped pieces or uniformly-shaped brick units. I came across a *tombai* wall artifact in my fieldwork observation at the Arita porcelain park (photo appended later in the section below).



Photo author's own: a reconstructed traditional *anagama* at Izumi City in Kyushu. The body is made of pressed clay, earth, soil, rocks and mortar. The *tombai* bricks lining the kiln walls are clearly visible at the entrance opening.

<sup>8</sup> Ōhashi, Kōji 大橋康二 and Matsuo Hiroya 松尾宏也, *Gamabetsu Gaido Nihon no Yakimonono Imari Arita 窯別ガイド 日本のやきもの 有田・伊万里* (Japan: Tankōsha 淡交社), 2002. p. 85.

Designs, shapes and forms for kilns changed with the availability of standardized fireproof red brick units for constructing modern kilns that are sometimes symmetrically squarish, rectangular or elongated oval. In my fieldwork in Kyushu, I came across two such kilns, one mothballed in Arita and another one in Northern Fukuoka which is timber-fired and used by a potter making individual creative products. The procedure of inserting red pine wood to fire pottery pieces with openings to adjust level of oxygen inputs and outputs and an outlet for release of hot air draft is the same as a traditional *noborigama* but the main difference between the two is the ease of construction. The square or rectangular-shaped modern kiln is built by stacking one brick on top of the other using standardized units while traditional *noborigama* involved pressing earth, clay, soil, mortar or mud to construct the wall of a kiln, a time-consuming and laborious task. Energy use per unit basis in a *noborigama* is likely to be similar to a modern kiln since fireproof bricks or clay is used to line the walls of both kinds of kilns.

In one of its open-air displays, the Arita porcelain park reconstructed kiln chamber walls by integrating *tombai* red clay from damaged *noborigamas* with recycled kiln materials (porcelain stands and saggars) (see photo below). Today, in smaller electric and gas kilns, instead of *tombai*, insulation blankets, foam, canvas or sponge with even more effective heat-retaining properties line the kiln walls to keep the heat from escaping, saving energy in the process and making firing temperatures more precise.



Photo author's own: this is a Japanese example of a modern brick kiln. Items are inserted through an opening that is blocked up by bricks. Note the symmetrical and angular kiln structure.



Photo author's own: this is an example of the fireproof brick that I acquired in my fieldwork.



Photo author's own: A reconstructed kiln chamber walls by integrating *tombai* red clay from damaged *noborigamas* with recycled kiln materials (porcelain stands and saggars)

The next milestone innovation came in fuel use. German scientist Gottfried Wagener came to Arita in 1870 for about 4 months to introduce modern ceramics-making technologies from Germany.<sup>9</sup> Potters in Arita learnt how to construct a coal-fired flat-standing kiln in Arita, a technology that became a national standard for commercialized kilns in the second part of the Meiji period.<sup>10</sup> Miyachi Hidetoshi 宮地 英敏's informative paper *Regional Bias in Japan in Introduction of Coal Kiln* suggested the proliferation of coal kilns may be due to the lower labor and material costs in building such kilns and its construction accelerated in the pottery-making region of Seto 瀬戸 during the Taishō 大正 period (1912-1926).<sup>11</sup> Seto became an experimental test-bed for Japan's modern ceramics-making industries by installing the country's first electric motors, filtration systems, coal-powered furnaces (1902) and modern training facilities. With assistance from industrialization, its modern ceramics production

<sup>9</sup> Arita Tourism Association, "What is Arita-yaki?" dated 2011-2013 [downloaded on 26 May 2013] in the Arita Tourism Association website, available at <http://www.arita.jp.e.ew.hp.transer.com/aritaware/>

<sup>10</sup> Arita Tourism Association, "What is Arita-yaki?" dated 2011-2013 [downloaded on 26 May 2013] in the Arita Tourism Association website, available at <http://www.arita.jp.e.ew.hp.transer.com/aritaware/>

<sup>11</sup> Miyachi, Hidetoshi, "Regional Bias in Japan in Introduction of Coal Kiln" dated 30 September 2008 in the Kahaku Japanese government website [downloaded on 26 May 2013], available at <http://sts.kahaku.go.jp/tokutei/pdfs/0418.pdf>, unpaginated.

eventually overtook Arita in terms of volume. It quickly became a model example for other pottery-making industrial regions in Japan. Arita, on the other hand, was relegated to the role of a catch-up latecomer. An official report from the ministry in charge of commerce and trade compiled in 1930 detailed Arita's progress in building coal-fired kilns during the late Taisho period:

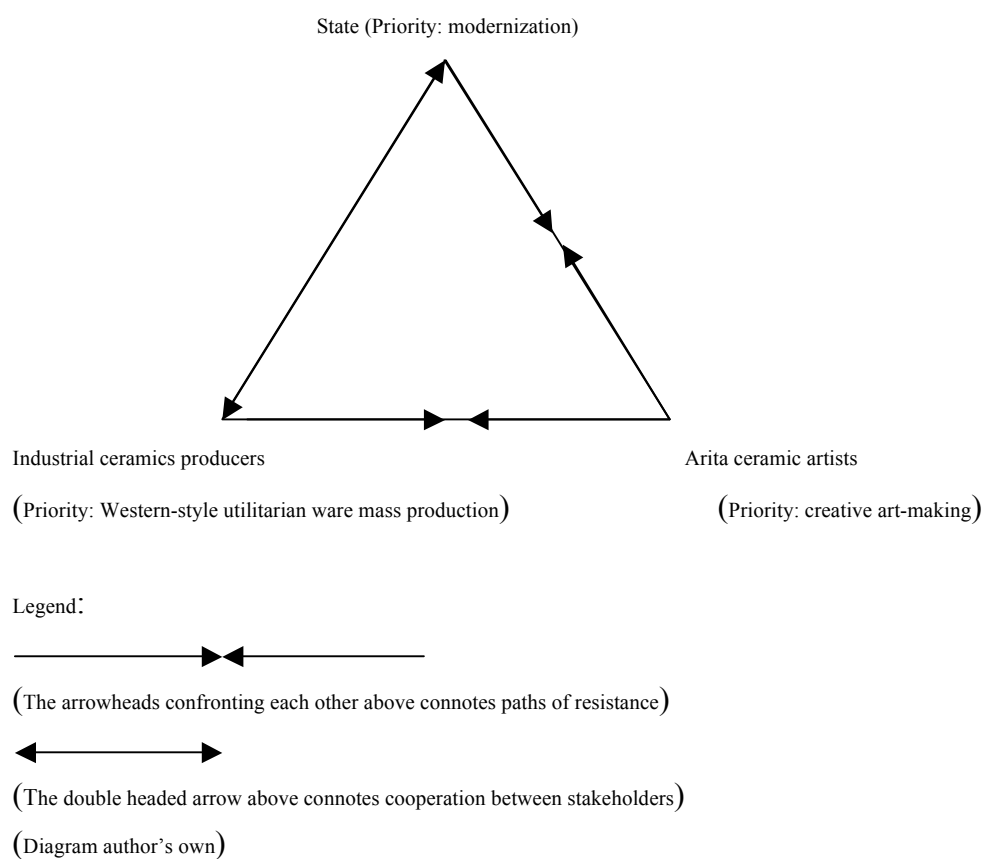
There are many round kilns as well as old kilns [in Arita], and the fuel used were pinewood and thin wood mainly from the prefecture and its neighboring areas. Recently [1928], the prefectural authorities started encouraging the construction of coal-fired kilns. And as a result of providing subsidies of 500 yen for building each and every kiln, the trend towards using coal-fired kilns progressed and increased gradually.<sup>12</sup>

Despite the fact that there was resistance from artisans in Arita against coal-fired kilns who argued it did not complement the mainly fine arts production in that region, the number of coal-fired kilns gradually proliferated due to strong encouragement and guidance from the authorities, the lowered costs of building such kilns and the pressure to produce higher-quality products.<sup>13</sup> (See the triangular relationship below.) Generally, the unpredictability and manual nature of kiln firing in timber-fired *noborigamas* were far too unpredictable for managing mass production, particularly in producing export wares that required greater uniform quality and standardization (more detailed discussion later in the text). Timber-fired kilns also in general also had more defects in its products due to the challenges in controlling the temperature and oxygen inputs.

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<sup>12</sup> Miyachi, Hidetoshi, "Regional Bias in Japan in Introduction of Coal Kiln" dated 30 September 2008 in the Kahaku Japanese government website [downloaded on 26 May 2013], available at <http://sts.kahaku.go.jp/tokutei/pdfs/0418.pdf>, unpaginated.

<sup>13</sup> Miyachi, Hidetoshi, "Regional Bias in Japan in Introduction of Coal Kiln" dated 30 September 2008 in the Kahaku Japanese government website [downloaded on 26 May 2013], available at <http://sts.kahaku.go.jp/tokutei/pdfs/0418.pdf>, unpaginated.



Japan's transition to oil use for kiln firing probably became widespread after 1945. Seto became an important site for postwar ceramics mass production with the use of oil. Yamashita Eiichi 山下英一's informative article *Vocational Education in the Industrialization of Japan* noted that:

...the main fuel for ceramic firing had been coal until heavy oil came to be used after World War II. Thus the town of Seto was so full of soot and smoke that it was said that even the sparrows in Seto was black.<sup>14</sup>

In my fieldwork, I have yet to come across detailed data related to the scale and extent of heavy oil or kerosene use in Arita in the postwar period. This will be a follow-up writing for the next project. Because coal and solid/liquid fossil fuels were more efficient in burning than wood, kilns grew larger in size with greater ceramics-holding capacities particularly useful for firing industrial ceramics in large quantities to achieve economy of scale. To understand the difference between the

<sup>14</sup> Yamashita Eiichi, *Vocational Education in the Industrialization of Japan* (Tokyo: United Nations University Press), 1987, p. 93.

caloric values of wood and coal, I turned to primary literatures by international organizations (IOs) involved in assessing the caloric value of wood firing. The Food and Agriculture Organization (FAO) explains the caloric value of wood in its report *Energy conservation in the mechanical forest industries*:

The heating value of wood depends very much on the species and the part of the tree being used and varies between 17 to 23 MJ/kg of bone dry wood; generally softwoods have higher caloric values than hardwoods, with an average value of 21 MJ/kg BD for resinous woods and 19.8 MJ/kg BD for other woods being used. In fact, there is very little variation in the heating values of the wood substance itself, being some 19 MJ/kg BD, as it is, in fact, the variation in resin content, with a calorific value of 40 MJ/kg BD, which accounts for the differences in values between the species.<sup>15</sup>

The Japanese red pine used for kiln firing is a type of softwood. Compare the caloric value of wood with that of charcoal, coal and heavy oil in the table below:

Comparing the caloric value of wood with charcoal, coal and heavy oil.

Fuel	Lower heating value kJ/kg
*Wood	13-15000 (or 13-15 MJ/kg)
*Charcoal	29-30000 (or 29-30 MJ/kg)
**Coal (crushed)	25000 (or 25.0 MJ/kg)
***Hard coal	29300 (or 29.3 MJ/kg)
***Natural gas	37300 (or 37.3 MJ/kg)
**Heavy oil	40600 (or 40.6 MJ/kg) used in Seto after 1945
**Light oil	40700 (40.7 MJ/kg)
***Kerosene	46500 (46.5 MJ/kg) kerosene used in smaller contemporary kilns in Japan
***Propane	50000 (50.0 MJ/kg)

(Source for \*: Food and Agriculture Organization (FAO) of the United Nations (UN) Forestry Department, "Gasification fuels" in Wood gas as engine fuel in the FAO Corporate Document Repository [downloaded on 25 May 2013], available at <http://www.fao.org/docrep/t0512e/t0512e0b.htm> (unpaginated online copy))

Source for \*\*: Food and Agriculture Organization (FAO) of the United Nations (UN) Forestry Department, "Energy use of peat" in

<sup>15</sup> Food and Agriculture Organization (FAO) of the United Nations (UN) Forestry Department, "The potential for wood residues in energy generation" in *Energy conservation in the mechanical forest industries* in the FAO Corporate Document Repository [downloaded on 25 May 2013], available at <http://www.fao.org/docrep/T0269E/t0269e08.htm> (unpaginated online copy)



the FAO Corporate Document Repository [downloaded on 25 May 2013], available at <http://www.fao.org/docrep/x5872e/x5872e0b.htm> (unpaginated online copy)

Source for \*\*\*: Food and Agriculture Organization (FAO) of the United Nations (UN) Forestry Department, "Appendix IV" in Energy conservation in the mechanical forest industries in the FAO Corporate Document Repository [downloaded on 25 May 2013], available at <http://www.fao.org/docrep/t0269e/t0269e0c.htm> (unpaginated online copy))

A larger holding capacity meant that firing more ceramics in one session helped to save energy costs. Many oil and coal-fired ceramics were not only restricted to artistic and/or utilitarian wares but also extended to industrial products like roof tiles, electrical parts components and other modern applications. But the age of industrialization with its accent on modernization theory's emphasis on quantitative production output was soon mitigated by its environmental consequences. From the table above, it is possible to detect how kiln technology development mirrored the increasing caloric value of fuels deterministically until the use of natural gas which represented progress based on a different benchmark (please refer to the flow chart of fuel use below). According to Tolliday and Yonemitsu 米光, the gas and electric kiln revolution in energy fuel use in the ceramics-making industry arrived in the 1960s:

“Producers began to move from wood-fired to coal-fired to oil-fired kilns, which had higher rates of successful firing and which could be used twice as frequently (though many of the new kilns were very polluting). In the late 1960s and early 1970s, gas and electric kilns came in which were cleaner and even more effective. While only 50 – 60 per cent of ware came out successfully from wood-fired kilns, gas-fired kilns averaged 95–97 per cent. Wood fueled kilns could only be fired two or three times per month while gas-fired shuttle kilns could be fired 10 –12 times per month and gas-fired tunnel kilns daily.”<sup>16</sup>

The 1960s coincided with the rise of the environmental movement. High-profile environmental incidents represented by Chisso 窒素 and the Minamata 水俣 as well as Niigata 新潟 mercury poisoning galvanized civil society groups (including housewives concerned about their families' health) to agitate for better environmental conditions in the period of economic fast growth. Even though gas had lower caloric value than oil or coal, it was cleaner with virtually no emissions. The availability of this technology introduced environmental consciousness into the minds of potters in Japan.

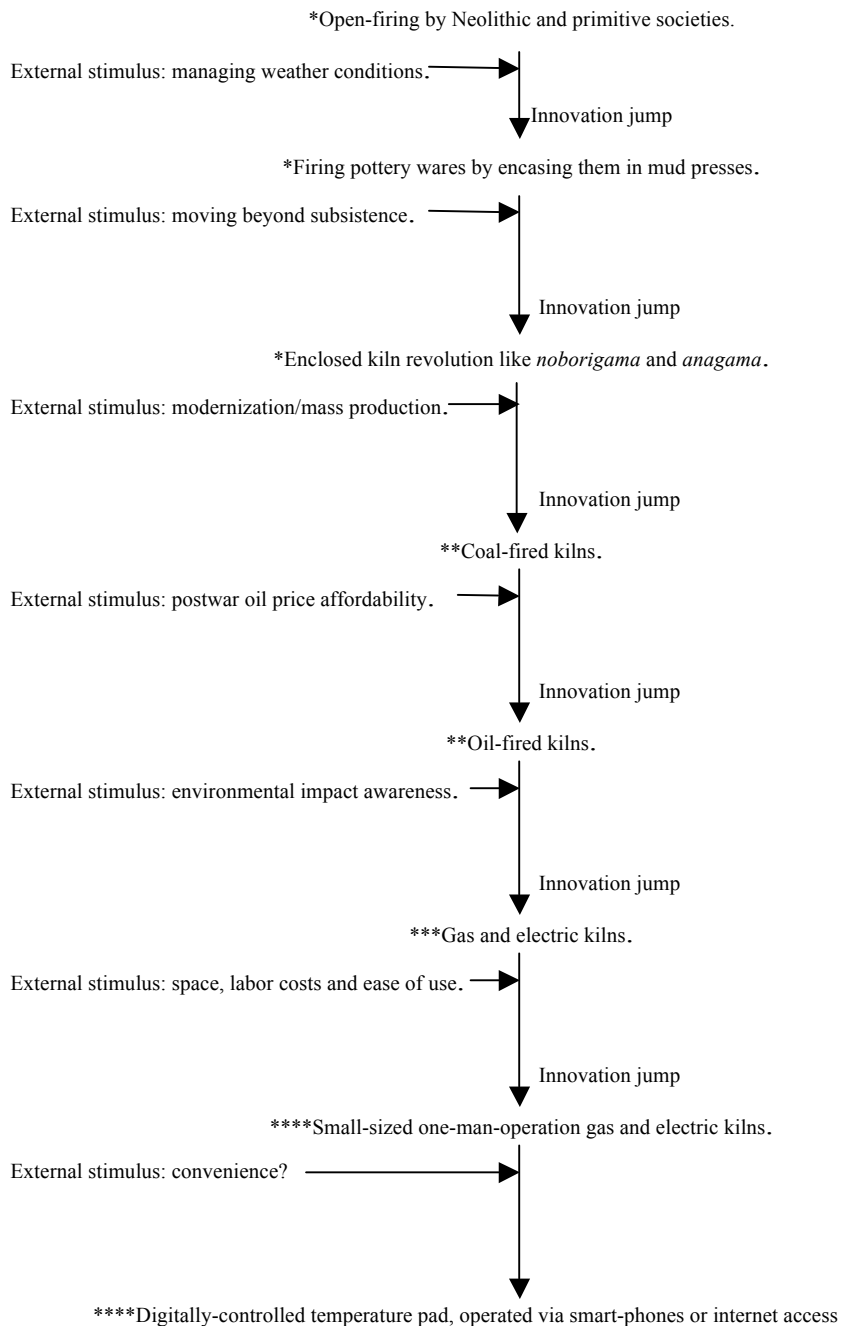
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<sup>16</sup> Tolliday, Steven and Yonemitsu Yasushi 米光 靖, "Microfirms and Industrial Districts in Japan: The Dynamics of the Arita Ceramic-ware Industry in the Twentieth Century" in *The Journal of Japanese Studies*, Volume 33, Number 1, Winter 2007, (Society for Japanese Studies), p. 51.

Besides ethical production, electric and to a lesser extent gas kilns also impacted on productivity and manpower use. Fuels usage was coupled with less product defects since electric and gas kilns came with more precise temperature controls. Wastage both in terms of energy use and clay therefore is minimized. Electric kilns did not require a chimney discharge since there is very little gaseous emissions. Gas kilns on the other hand require a chimney for discharges from pressurized gas tanks and to release excess pressure. Electric and gas kilns also do not emit bad smell like oil, kerosene, coal or charcoal-fired kilns. Because gas and electric kilns required less manpower to operate and small versions commanded less space, more individuals could engage in ceramics-making activities on a part-time or full-time basis. The ease of use also meant that they could fire their ceramics more frequently. The development of these mobile easy-to-use kilns mitigated increasing labor costs as postwar Japan's economy matured. With the increase in yen value after Japan became a developed economy in the postwar years (especially after the 1985 Plaza Accord), the practice of using *kamataki* 鎌瀧 (specialized kiln hands) became less feasible so the one-man-operation (OMO) format of electric and gas kiln firing became a useful solution to reduce production costs. In my fieldwork, the only complaint that I learnt from potters using electric kilns is that their results are too predictable, preventing any accidental glazes that are unexpectedly creative or aesthetically pleasing.

To summarize the evolution of fuel use, I created the flowchart below:

Flow chart of fuel use in the Japanese ceramics-making industry.



\*Represents innovation in spatial structures. Fuel use remains the same with use of timber. Technological change is mainly in the form of an enclosed chamber preventing heat from escaping from the kiln during firing. Conform to the requirements of sedentary lifestyles.

\*\*Represents innovation in fuel use. Moving towards greater caloric value and firing larger volumes by using solid/liquid fossil fuels. Local consumers as well as collectors and consumers worldwide have access to affordable Arita porcelains. Conform to the

age of proto-industrialization. Proto-industrial porcelain production came into being in mainland Northeast Asia during the Sung, Yuan, Ming and Qing dynasties and spread to Japan. Mass manufacturing techniques in the modern period made ceramic products even cheaper after Japan learnt these techniques from the West.

\*\*\*Represents innovation in environmental improvements. Gas and electricity have little or no gaseous emissions. Innovation in precise temperature controls to save energy and also minimize product defects. Conform to the needs of the post-modern age and its notion of environmentalism.

\*\*\*\*Represents innovation in ergonomics, ease of use and precise firing controls. Conform to the requirements of the contemporary digital age.

The last three stages of fuel revolution represented a milestone from the production perspective. The fuel evolution in gas and electric kiln usage now made ceramics production accessible to amateurs and professionals alike. In terms of technical skills, this development placed ceramics production means within reach of many more craftsmen or would-be artisans (professional full-timers or part-time amateurs). Because of technological improvements in lowering the costs of production, ceramics-making has proliferated to a larger cross-section of socioeconomic classes. Not all kilns in Arita are involved in the mass production of standardized wares or engage in individualistic creative art-making. Many kilns continue to use a combination of precise-firing technology (electric or gas, for baking purposes) and then integrate it with traditional fossil-fuel use in the main firing process.

When I carried out my fieldwork in Japan, I collected secondary literatures specifically on kiln-related subject matter to study the evolution of fuel use in the ceramics-making industry. I learnt that firing Arita porcelains in the contemporary context involved two rounds of firing. The first round involves baking clay in an oven (probably electric kiln) to dry up the moisture in wet clay and it takes 8 to 9 hours at the temperature of 900 degrees Celsius.<sup>17</sup> Designs are then drawn and wares glazed for the main firing (*honyaki* 本焼) which involves the labor-intensive management of pinewood for about 40 hours at 1300 degrees Celsius.<sup>18</sup> Wares produced this way are still handmade (hand-painted and traditionally fired using pinewood (*akamatsu* 赤松 or red pine) and they are made with standardized quality and patterns but in numbers not on the same scale as standardized Western printed table wares. It is a form of intermediate production process with sufficient manual inputs by hand but integrated with technologies to make the baking process more precise and efficient. It neither resembles

<sup>17</sup> Ōhashi, Kōji 大橋康二 and Matsuo Hiroya 松尾宏也, *Gamabetsu Gaido Nihon no Yakimonono Imari Arita 窯別ガイド 日本のやきもの 有田・伊万里* (Japan: Tankōsha 淡交社), 2002. p. 63

<sup>18</sup> Ōhashi, Kōji 大橋康二 and Matsuo Hiroya 松尾宏也, *Gamabetsu Gaido Nihon no Yakimonono Imari Arita 窯別ガイド 日本のやきもの 有田・伊万里* (Japan: Tankōsha 淡交社), 2002. p. 68

the hi-tech precise firing entirely based on electric kilns that I observed in Hong Kong nor a fully traditional manual-firing process that I observed in the Izumi City *anagama*. It was an optimal fusion of a technological approach with techniques and kiln technologies indigenized from centuries of contact with mainland continental East Asian influence and modern Western inputs. This fusion of best practices leads to the regional role of Japan's ceramics-making industry in the East Asian region and beyond.

### **Role in the region**

Japan's attempts at indigenizing historical influences from continental East Asia and then the West after the Meiji Restoration 1868 is well-known to students and scholars studying Japan but, surprisingly, when I tried to search for theoretical literature related to the idea of 'indigenization', whether in terms of technology or design of ceramics, I was unable to locate such works easily. The critical research questions that I had in my mind were whether "indigenization" is a form of ideology, philosophy, applied methodology, value system, technology or developed theory. As I went through the existing literature related to this topic, I realized that it was none of the above but, rather, an eclectic collection of wide-ranging ideas that were not necessarily coherent or deterministic. It is an evolving discourse which complements Japan's culture of continuous improvements and constant innovation.

In the 17<sup>th</sup> century, Imari (now Arita) designers may have received influence from Jingdezhen 景德镇 in terms of early blue and white porcelain designs but the trans-boundary transfer of design ideas gave way to multi-directional interactions and exchanges, resulting in the emergence of indigenous unique Japanese designs. Japanese designs went on to inspire other ceramics makers in the region and beyond. Their prominence was especially pronounced during historical periods when it was able to fulfill export ware orders unmet by Jingdezhen in China. Meissen in Germany, Royal Copenhagen in Denmark, Delft in Holland, the Annamese ceramicists, the Okinawan porcelain makers, Spode and Wedgwood in the UK subsequently adapted their own blue and white designs from their interpretations of original Jingdezhen and Arita designs. The localized designs soon became distinguishable and unrecognizable from their original Jingdezhen and/or Arita inspirations.

Arita kiln's absorption, indigenization and application of blue and white porcelain-making culture from continental Asia (China and Korea) were not uncritically accepted and reproduced without resistance. There was dynamic reception on the part of Japanese potters and ceramicists who used their own knowledge to figure out ways to

continually improve, innovate and create new designs. The indigenization process was aided by the fact that Hakata 博多 in Kyushu was an important pre-modern trading metropolis. I carried out textual fieldwork on this subject at the Fukuoka City Museum (FCM) in Momochi 百道 as well as observation studies at the old district of Hakata. My textual collection fieldwork in FCM yielded the publication *Chūsei Nihon saidai no bōeki toshi* 中世日本最大の貿易都市 by Ōba Kōji 大庭康時 who defined Hakata's renaissance period specifically as *chūsei* 中世 (defined as AD663-1613 by the same author)<sup>19</sup> when it enjoyed the status of an *entrepot* trading center for goods moving throughout East Asia, including bilateral trade with China and Korea. My observation fieldwork in the historical Hakata area revealed how continental influences continued to be visible in the old Hakata area. For example, remnant of the Hakata wall built to defend against the Mongol attacks is still visible at the Shōfukuji 聖福寺 Temple. My observation studies at the Fukuoka City Museum also came across stacks of discarded Chinese Jingdezhen *Qingbai* 青白 wares that were either traded at Hakata, en route to other consumer markets or had defects and were thrown overboard. While the golden age of Hakata trading output is over, the Hakata terminal train station shows how the district remains an important in terms of people movement. The contemporary Hakata station also featured hand-drawn ceramic tiles from Arita.



Photo author's own: ceramic pieces and roof tiles are embedded into the remnant of the Hakata wall at Shōfukuji Temple built to fend off Mongol invaders from the continental mainland. It is a reminder of the historical trade relations between Hakata and its foreign neighbors.

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<sup>19</sup> Ōba, Kōji 大庭康時, *Chūsei Nihon saidai no bōeki toshi* 中世日本最大の貿易都市 (Japan: Shinsensha 新泉社), 2009, p. 17



Photo author's own: fieldwork observation: Arita ceramic tiles on the floor of contemporary Hakata station in Japan, a symbolic linkage between Arita and Hakata.

When modern Western technologies and knowledge were incorporated into the East Asian consumer markets, it produced new hybrid cultures that did not entirely imitate those of the original source of influence and are distinguishable with its fusion of new elements into traditional features. The hybrid cultures became autonomous entities with their own existence. I did an approximate physical count of all blue and white porcelains found in the Kyushu Ceramic Museum (KCM) and classified them into several categories based on forms and shapes (tabulated below). The displayed items at the KCM in July 2011 totaled approximately 173 Arita blue and white pieces, not including those integrating other types of glazes. These *sometsuke* pieces were mainly in the form of lidded vases, bowls, pots, plates, lidded containers, teapots, porcelain stands and vases. There were instances of hybrid pieces where Japanese Arita potters incorporated Western forms and shapes with an Arita porcelain body, tabulated below:

Table: Classification of Arita *sometsuke* wares in KCM into Western-inspired forms, shapes and styles.

Shape and form, genre	Quantity
Arita medicinal bottle (Shape and form similar to typical bottles used by Dutch dispensaries for carrying medicines)	1
Western-style tiles	3
Western-style pipe	1
Plate on silver charger (part of a Western dining set)	1

(Author's own table)

In terms of unique glazes with possible traditional continental influence, I spotted a piece that integrated blue and white *sometsuke* design with celadon glaze

generally associated with continental influence from Korea and China to create a unique Japanese pot. Celadon wares were made in the Chinese Sung, Yuan and Ming dynasties in voluminous proto-industrial quantities. KCM showcased Japan's porcelain-making skills in producing utilitarian but highly attractive and aesthetic wares for international consumers. In addition to hybridized wares, there were some examples of unique Japanese forms and shapes on display. I tabulated these items below. (I will discuss the implications of concurrently pursuing Western-style wares and traditional ceramics production by Arita potters in the concluding section of this writing.)

Uniquely Japanese designs belonging to the category of *sometsuke* Arita wares.

Traditional Japanese forms and shapes	Quantity
Kōgō 香合 or Japanese incense holder	2
Ritualized <i>mizusashi</i> 水差 (water dispenser) for Japanese tea ceremony	1
Boat-shaped sushi plate	1

Besides the KCM, in my fieldwork in Japan in 2013, I visited a folk ware showroom which featured local folk arts and crafts (*mingei* 民芸) of Northern Fukuoka Prefecture Kyushu. The ceramic bottle on display below was an exemplary example of a soy sauce bottle displayed at the Paris Exposition in 1900, used to bottle Yoshida 吉田 Company's soy sauce brew. The high-quality bone china porcelain container attracted my attention with its high quality aesthetic painting (finely-drawn for a common utilitarian mass-produced piece). It complemented the traditional features of the Japanese booth at the Exposition which also featured a traditional Japanese garden. The displayed item also reflected European demand for Arita wares in that particular synchronic period of history. A full detailed discussion about French and European aesthetic tastes for Imari wares in the 17<sup>th</sup> and 18<sup>th</sup> centuries are outside the scope of this paper but readers can refer to Imai Yuko's paper *Changes in French Tastes for Japanese Ceramics* for more detailed discussion in this area.<sup>20</sup> Here, only a brief treatment is provided. Western European tastes for Japanese blue and white porcelains and other traditional art forms eventually grew into an art movement, *Japonisme*. This art movement that features hybridized art integrating East-West influences was encouraged by interactions between Japan and the West in the early modern period after

<sup>20</sup> Imai, Yuko, "Changes in French Tastes for Japanese Ceramics" dated 2004 in Japan Review, 2004, 16 In the International Research Center for Japanese Studies website [downloaded on 14 Feb 2013], available at <http://shinku.nichibun.ac.jp/jpub/pdf/jr/IJ1603.pdf>



several centuries of *sakoku* 鎖国 (isolationism). During this period, traditional Japanese crafts and craft-making techniques were interpreted and adapted by European artists and artisans to create innovative art-forms. Many artistic and creative Japanese inspirations considered cutting-edge or refreshingly different by Western artists were based on humble handicrafts in Japan. The process elevated Japanese folk crafts (including Arita utilitarian wares) to avant garde artistic production.

The autonomy of the *japonisme* movement is discussed in Alicia Volk's important volume<sup>21</sup> *In Pursuit of Universalism* which argued that an art form acquires its own set of meanings and symbolisms after interpretations and re-interpretations by scholars, critics and artists. Tapping into European interests in Japanese crafts, Japanese exports to the West utilized Eurocentric Japanese designs for marketing purposes and artistic promotion. Utilitarian wares displayed at the Paris Exposition such as this soy sauce ceramic bottle were drawn with Japanese designs but have textual materials written in English on its surface. The gallery caption for the Arita soy sauce bottle indicates it is a gift of the 17<sup>th</sup> generation of Yoshida-ya (House of Yoshida<sup>22</sup>, a traditional soy sauce maker) to the *mingei* showroom.



<sup>21</sup> Refer to: Volk, Alicia, *In Pursuit of Universalism* (California: UC Press), 2010

<sup>22</sup> \*From my online research, a possible surviving entity of this company could be the Yoshidaya Shōyu 吉田屋醤油 Soy Sauce company now based in Yamaguchi 山口 prefecture that was established in Jan 1897 (or 30<sup>th</sup> year of the Meiji period). Given that it is a family business and the 17<sup>th</sup> generation still identifiable, the company is likely to be operational. A Yamaguchi-based company is the only surviving traditional soy sauce manufacturer with the Yoshida namesake. Another company with this name distributes soy sauce mainly to the US market. Information about this company can be found in: Yamaguchi prefecture Shunan Industrial Company Database, "Yoshida-ya shōyu" dated 2011 in the Yamaguchi Prefecture Shunan Industrial Company Database [downloaded on 15 Feb 2013], available at <http://www.shunan-marketing.jp/detail.php?cci=1&manage=2412> and Ameba Japan, "Yoshida-ya shōyu" dated 5 Feb 2011 in the Ameba website [downloaded on 15 Feb 2013], available at <http://ameblo.jp/yoshidaya-soysauce/>. This

Caption (photo author's own). The bottle is high-fired (1200 degrees Celsius and above) blue and white porcelain base with overdrawn enamel gold and red stylized patterns and floral designs. The design is typical of Arita bottle design which was also mentioned in my previous paper (see the *Sino-Japanese Studies* journal article<sup>23</sup> listed in the bibliography). Such bottles were also typically used to hold pharmaceutical medicinal products and alcohol in the past. In this picture, the bottle is sitting on a traditionally blue-dyed mat which is associated with the term *sometsuke*. Dated back to 1900, the bottle's year of manufacture corresponded with the immediate post-peak period of *japonisme* movement in Europe. According to Imai Yuko 今井 祐子, the height of this movement was in the 1870s and 1880s.<sup>24</sup>

After observing and classifying hybridized wares at the KCM and folk galleries, in the absence of existing theoretical literature on the idea of indigenization in the ceramics industry, I proceeded to characterize Arita's process of 'indigenization' in the following three ways. First, at the broadest level, it is a form of East-West hybridity. Arita porcelains combined porcelain design influence from continental Northeast Asia with Japan's interpretation of modernity and the use of Western technologies and technical knowhow. It adapts and indigenizes traditional designs from China for example and tailor-made these products for Western European customers while adding its own design inputs into the process starting from the early pre-modern stage. In the modern and contemporary settings, Japan developed its own unique idiosyncratic styles that were emulated by others. Second, Arita porcelains represent functional adaptation. Traditional porcelain shapes found in Jingdezhen were modified to suit different functions in the household or commercial establishments. Some of these shapes were adaptations of traditional porcelain wares catering to Western aesthetic tastes and household use. Third, Arita indigenization is constantly dynamic, always evolving and non-static. It is reactive to environmental factors, such as fashion trends, fresh innovative ideas about the use of porcelains and the evolution of production technologies. A good example of innovation found in KCM is four *sometsuke* ceramics toilet components in its washroom: toilet bowl, tissue dispensers, wash basin and lidded trash bin.

The KCM highlighted another important point. Its displays of export wares, unique pieces and mass-produced export wares collectively represented the export history of Arita wares. From regional distribution, producers start to spawn national and international distribution networks, eventually manufacturing Arita-style products

<sup>23</sup> Please refer to: Article removed for review.

<sup>24</sup> Imai, Yuko, "Changes in French Tastes for Japanese Ceramics" dated 2004 in *Japan Review*, 2004, 16 In the International Research Center for Japanese Studies website [downloaded on 14 Feb 2013], available at <http://shinku.nichibun.ac.jp/jpub/pdf/jr/IJ1603.pdf>, p. 110.

overseas (more on this in the concluding section). The last step of overseas production represents the ultimate globalization of Arita porcelains, where some porcelain manufacturing facilities no longer need to be located in Arita and work is subcontracted to kilns in China and Thailand. With its retailing, production and museum spaces, Arita as a 'total' concept resolved a common challenge faced by artists and their communities by spawning a comprehensive creative and production ecological system based on specialized labor (skilled in fuel extraction and management of the firing process). These hard and soft infrastructures took centuries to build by accumulating human and financial capital to gain legitimacy as an internationally-recognized ceramics production center. Given the integrated East-West influences in its products, is Arita hybridized culture considered unique or globalized? While Arita wares enjoy global consumption, blue-and-white porcelains whether from Arita or Jingdezhen are not yet part of a "global multicultural"<sup>25</sup> since they do not incorporate multi-ethnic components and they were not sufficiently globally distributed in the pre-modern period. But, when designs are reproduced overseas, they incorporate "vernacular interests", "nativism" and "local software"<sup>26</sup> when blue and white porcelain begins to be manufactured in different parts of the globe outside Arita and Jingdezhen in locations such as Delft, Meissen, Copenhagen or the US where they are designed and produced locally with vernacular sensitivities. The global and regional roles of Arita wares has created a two-tracked product development based on different directions for the future: one road leading towards continued production of traditional Japanese-style ceramics wares that indigenizes foreign influences and another heading towards manufacturing standardized uniform Western-style table wares with Japanese sensibilities.

### **Bone china and local designs**

Related to the discussion of Western-inspired wares discussed above, this section looks at how certain factories came to produce bone china instead of the standard Arita porcelain based on local clay. It is related to energy use because precision firing makes the production of thin, standardized utilitarian porcelain wares possible. Japan probably reached a leading position in marketing, distribution and retail sales of high quality bone China wares in the postwar period of the 20<sup>th</sup> century. Arita

<sup>25</sup> The subject of this writing: Pieterse, Jan Nederveen, "Global multicultural: Cultures, transnational culture, deep culture" in the Jan Nederveen Pieterse website [downloaded on 20 March 2013], available at [http://jannederveenpieterse.com/pdf/Global\\_multi.pdf](http://jannederveenpieterse.com/pdf/Global_multi.pdf)

<sup>26</sup> Pieterse, Jan Nederveen, "Global multicultural: Cultures, transnational culture, deep culture" in the Jan Nederveen Pieterse website [downloaded on 20 March 2013], available at [http://jannederveenpieterse.com/pdf/Global\\_multi.pdf](http://jannederveenpieterse.com/pdf/Global_multi.pdf), pp. 10-11.

porcelains, including bone China fine porcelains, continue to be highly sought-after by consumers acquiring utilitarian ware but, in terms of branding, Arita wares compete with other Western-style fine bone china makers in Japan such as Noritake (an internationally-recognized brand), Fukagawa 深川 (a purveyor of fine porcelain for the imperial household), Koransha 香蘭社<sup>27</sup>, etc. These specialized bone china fine porcelain makers successfully captured a niche high-end market who could afford such table wares.

Most Arita kilns cater to a pluralistic range of porcelain consumers and collectors, not only focusing on high-end fine bone china products but also manufacture affordable daily wares. The informative journal article *Microfirms and Industrial Districts in Japan* on the case study of Arita industrialization by Steven Tolliday and Yonemitsu Yasushi argued Arita only absorbed Western technology to improve its artisanal craft products but did not participate in manufacturing Western-style utilitarian wares or industrial products.<sup>28</sup> This was Arita potters' attempt to maintain their own identities in design and functional concepts. Below are some pictures of affordable Arita wares made for the middle-class consumers in Japan. As high quality porcelains with traditional Arita designs, they are not high-end delicate thin bone china products but are aesthetically pleasing for daily use in households and restaurants. They are also sturdy enough to survive daily use, dishwasher use and daily scrubbing without chipping easily.



(Photos: author's own. These plates function as platters for sashimi and sushi displays. They are also commonly found in Japanese households. Printed, not hand-drawn and mass-produced, they function as

<sup>27</sup> While Koransha and Fukagawa are located in Arita, they are typically autonomously classified as an independent genre of its own in the porcelain typology. Producing stylized thin-body fine bone china porcelain, it has a distinctive style of its own with strong Western influence that is distinguishable from the typical Arita wares.

<sup>28</sup> Tolliday, Steven and Yonemitsu Yasushi, "Microfirms and Industrial Districts in Japan: The Dynamics of the Arita Ceramic-ware Industry in the Twentieth Century" in *The Journal of Japanese Studies*, Volume 33, Number 1, Winter 2007, (Society for Japanese Studies), p. 47.

aesthetically pleasing wares for the average consumer. Their texture resembles soft paste porcelain bodies instead of the brittle and delicate high-end bone china of Western-style standardized table wares.)



(Photos: author's own. The left photo is an example of a higher-end hand-drawn Arita tea cup. The photo on the right is by drawn and fired by the same artist and it depicts a *sansui* 山水 (landscapes with mountains and rivers) scene.)

Contrast the modestly-priced Arita wares above with expensive high-end bone china porcelains below.



(Photo: author's own: An old mid-20<sup>th</sup> century Fukagawa bowl with the unique company icon at the bottom (Fukagawa Mount Fuji mark) which is a symbol of the porcelain maker. The Fukagawa brand is now associated with the highest grade of fine bone china porcelain in Japan.)





(Photo above: author's own. The photo shows a pair of Western-inspired gold-rimmed Koransha stem-cup wares acquired by the author in Arita.)

Both Koransha and Fukagawa wares above show at least three similarities. There are clear signs of Western influence in the two examples. They have thin and smooth bone china porcelain bodies, characteristic of high-end Western-style porcelain wares. The drawings on both wares are highly stylized and symmetrical with high-quality finishing. Many Arita wares are not confined to only making such fine bone China wares. One can commonly find Arita wares with stout and thick ceramics bodies and highly-stylized designed but hand-drawn with well-practiced strokes rather than flawless symmetrical prints. There are three possible explanations for the prevalence of traditional thick-bodied Arita utilitarian wares that are mass-produced in modest quantities and with slight variations. First, this genre of porcelain wares is familiar to Japanese consumers. They remind consumers nostalgically of older Arita wares made before 1868 or the advent of uniform standardized bone china wares. Second, they serve specific functions. The cup below serves to warm hands during winter but there are other functional examples like *choko* 猪口 cups for holding soba soya sauce or the teapot with an inverted cup for serving *dobin-mushi* 土瓶蒸し (consommé soup with a dash of citrus). While these functional wares cannot be found in Western tableware traditions, they are ubiquitously used throughout Japan, in restaurants, households, commercial outlets and a variety of commercial locations in my fieldwork observation in Japan.



(Photo author's own: I took a picture of an Arita tea cup with stout and thick ceramic body and hand-drawn lines. It was found in a restaurant establishment during my observation fieldwork in Japan. The thick stout body retains heat from the green tea to warm hands during Japan's winter time. The white porcelain body also contrasts with the jade green color of the tea water.)

In concluding this section, from my fieldwork, I am able to spot two broad categories of ceramics wares. The first category consists of the standardized Western-style fine bone china wares exemplified by Koransha and Fukugawa. The second category consists of Japanese porcelain makers producing traditional-style pottery, some of them may indigenize Western influences but always done in its own unique styles. Tolliday and Yonemitsu classified traditional pottery-making regions into 11 major locations: Hasami 波佐見(Nagasaki), Imari/Arita (Saga), Bizen 備前 (Okayama 岡山), Kutani 九谷(Ishikawa 石川), Mashiko 益子 (Tochigi 栃木), Hagi 萩 (Yamaguchi), Kasama 笠間(Ibaraki 茨城), Mino 美濃 (Gifu 岐阜), Seto (Aichi 愛知), Kyo 京/Shimizu 清水 ware (Kyoto prefecture), Tsuboya 壺屋 ware (Okinawa 沖縄).<sup>29</sup> Collectively, they continue the relevance of traditional Japanese designs and feed global demand for traditional Japanese ceramics. In addition to these 11 production sites, in my conclusion section below, I will discuss a new discovery, which is the manufacture of Arita-style (*Arita-fū* 有田風) ceramics outside Japan, which may bring global recognition of Arita wares to another level by introducing its production overseas and not only merely exporting them.

<sup>29</sup> Tolliday, Steven and Yonemitsu Yasushi, "Microfirms and Industrial Districts in Japan: The Dynamics of the Arita Ceramic-ware Industry in the Twentieth Century" in *The Journal of Japanese Studies*, Volume 33, Number 1, Winter 2007, (Society for Japanese Studies), p. 43.

## Conclusion

In this writing, I argue that indigenization cannot be possible without the help of improved production technologies. In the case of Arita, mass manufacturing ideologies, technologies and techniques made the mass production of modernized Western-style utilitarian wares possible. The production of large numbers of wares with roughly the same specification requires more efficient sources of fuels but, at the same time, the process generates polluting emissions. The rise of environmental consciousness influenced fuel use and kiln technologies to evolve and change. Without an entire ecosystem to produce, market, design, fire, distribute, display and sell Arita wares, it would not be possible for Arita porcelains to enjoy leading porcelain producer status in the world, with indigenized traditional designs or cutting-edge creative designs.

*An emerging kind of hybridized and globalizing Arita ware?* I will discuss an observable trend in my fieldwork observation studies with regards to Arita ware production in this concluding section. In my fieldwork visits to the discount 100 yen stores in Fukuoka, I came across “Arita-style (*Arita-fū*)” wares made in other Asian countries.



(In this picture, the author was gifted with a high-quality Arita-style design mug cup manufactured in China. For the non-specialist, it is quite unlikely for observers to be able to tell the difference between this Arita-style (*Arita-fū*) cup and an Arita-produced ware. It is a testimony to Arita’s enduring popularity overseas and confirms the fact that there is large consumer demand for Arita-style products both within and outside Japan. A near-term follow-up study in this area is useful. Photo: author’s own.)



The following pictures below are Arita-style (*Arita-fū*) wares that I collected in my fieldwork in the 100 yen shops in Japan. Most of them are either made in China or Thailand:



(Photo and collection: author's own. Arita-style (*Arita-fū*) wares made in Thailand or China found in the 100 yen shops in Japan during my fieldwork)

From the economic point of view, this development represents a logical continuation of the process started in the 1960s when Japanese wages increased and the yen value gradually strengthened, making the manufacturing of lower value-added products unfeasible in Japan. Like other similar price-sensitive industries, the production of Arita-style wares was subcontracted to other Asian economies. From my fieldwork collection of “Arita-style” wares not made in Japan, two countries, China and Thailand stand out as prominent alternative manufacturing centers outside Japan for such wares. These wares are unlikely to compete directly with Arita wares in Japan’s domestic market, given Arita potters’ constant design innovation and technological inputs. They may serve as an important unintended function of promoting awareness of Arita designs outside Japan, particularly to emerging markets where the pricing of authentic made-in-Arita wares remains out of reach to most consumers.

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