Celadon Wares – A Marker for Technological and Aesthetic Achievement Reaching from Tang Dynasty China through Yi Dynasty Korea, and Beyond.

Kerri Buxton(USA)

Introduction: In choosing a topic regarding the history of ceramics, it seemed important to discuss objects which have profoundly influenced my ideas and work in clay. From my mid-teens and through my adult life I have spent time in museums, my long-time favorite being the Freer Museum of Asian Art at the Smithsonian which houses a phenomenal collection including many beautiful examples of ceramics, and celadons in particular. The resonance of these objects has driven a great deal of my curiosity over the years; a seed planted when I was young, has grown and flourished through travels in the U.S. and Asia seeking out additional sources of inspiration. That elusive convergence of material, technology, aesthetics, and culture has been fascinating to me; beyond purely decorative objects, these pieces contain generations of thought and directed intention resulting in form, surface, and cultural significance. Tracing the origins of celadon, it quickly became apparent that a fortuitous kiln event in one region, probably the result of the deposition of wood ash on the shoulder of a vessel, could become the spark of curiosity, which would become a well-developed technology, and two thousand years later, people are still exploring that 'same' phenomenal interaction of material and fire, attempting to capture the elusive blue-greens with their resonance to objects of antiquity. This paper discusses the celadons of China, and their impact on the ceramics of Korea, and briefly how those developments were then transformed and transferred to Japan, a continuum of ceramic development which remains a strong influence on artists working in ceramics today.

When speaking of ceramic history and the notable advancements made by ancient civilizations, 'Celadon' is consistently a unifying element across cultures and time periods as a pinnacle achievement. A convergence of technical virtuosity and aesthetic expression, Celadon is the name for both a glaze, and the wide range of ceramic ware of green hue associated with it. From the golden, golden-green, and olive tones of early Chinese Yueh/Yue'yao glazes, which are considered the first true celadons, through the pale gray to bluish greens of later Yueh, which were widely traded and coveted around the world, to the soft jade tones of Long'quan / Lung'chuan wares, and are considered the height of Chinese celadon achievement, Chinese celadons influenced a world of imitation, and stimulated an intense desire to acquire and recreate their beauty in courts around the world, and in the process stimulated innovation and technical advancement in the potteries of those regions, notably in this paper, Korea.

Celadon, the glaze, reflects hundreds of years of collective knowledge, reaching progressive pinnacles of aesthetic and technical virtuosity: celadon, the category of ceramic ware, reflects a standard of excellence and beauty that was highly valued from its earliest incarnations in Yueh, located in Zhejiang Province in southeastern China, through what many consider to be its greatest refinement in South Cholla Province during Koryo Dynasty Korea. Originating in China, and spread through trade to Korea, Japan, Thailand, the Middle-East, and on to Europe, the name was originally applied to wares produced in the Long'quan kilns during the Song/Sung Dynasty. It

is now applied to ceramics dating long before, and long after: though there are glazes showing similar composition and color which date to the Later Han Dynasty period (25-250 AD), Yueh wares (produced during the late Tang through early Sung Dynasty) are considered to be the first wave of true celadons, and were highly desired in India, Persia, Turkey, Egypt, and throughout Asia from the 9th through the 14th centuries.

The origin for the name 'celadon' is unclear, a number of attributions exist, and discussed here are a few from the often-quoted author of "Celadon Wares," G. St. G. M. Gomperz. Desirable because of the beauty and refinement of their color, the most common reference is to the French association of the word 'celadon' with a character of the same name from the play 'L'Astree' by Honore d'Urfe in the 17th Century, coinciding roughly with celadons' arrived in Europe by way of India and Egypt - apparently, the character always wore grey-green clothing reminiscent of the glaze. Thailand, another country which produced celadons based on Chinese wares, considers the name to be derived from Sanskrit words meaning 'stone' and 'the act of wearing.' The combined word roughly means wrapped, encased, or clad in stone, and seems in keeping with the glaze's strong association with Jade, a stone of mystical qualities at that time. Another famous possibility is that the name is derived from Saladin, the Sultan of Egypt, who was reported to have sent forty pieces of Chinese celadon ware to Nur-ed-din, Sultan of Damascus, in 1171, as a gift of highest value No matter its actual origin, the association with the word, and the ware, was one of great preciousness and desirability.

Celadon glazes were highly prized inside China and abroad, with the earliest examples reserved only for the nobility of Yueh. Pi-se'or Mi-se', as they were called, meant 'secret color' and they were admired for their resemblance to jade which was long regarded in China as the most precious of all materials. At their best, celadon glazes have the look and feel of precious stone. Early Yueh celadons were generally golden-green to gray-green in color, and were semi-transparent over shallow carvings or stamped impressions, with the glaze pooling into the recesses and enhancing the textures and patterns under the glaze. They were also dense, and high-fired; something not yet achieved consistently outside China. Celadon made in the Sung Dynasty continued the tradition of the Yueh ware, reaching their pinnacle at Long'quan, where the glazes, in contrast to those created of Yueh, were typically applied very thickly over quiet restrained forms with the color and form dominating any type of body decoration. Long'quan ware, called ching-tzu (green porcelain) by the Chinese, is usually a cloudy bluish-green of greater intensity with a slightly crackled or crazed surface. The color intensity of Long'quan ware is due to the thick application of glaze which creates added depth.

Iron is the secret to celadon's beautiful color; low percentages of iron in the glaze and the claybody are transformed and turn the glaze green when fired in a reducing kiln atmosphere - 'reduction' is a state within a kiln when there is insufficient oxygen to fully combust the fuel. The flame consumes all of the oxygen available and seeks more from the glaze, the clay, and all sources inside, and then moving outside the kiln - that consumption of oxygen from the claybody and the glaze is what causes the color development. When fired in an oxidizing kiln - an environment of excess oxygen - the resulting glaze would be a range of shades from gold, to golden tan, to brown, which is closer to the color of iron in the natural world (which is an oxygen environment). It was a remarkable achievement for potters two thousand years ago to achieve a controlled kiln environment at such high temperatures (1250-1350℃); it is this development of kilns and firing techniques that allowed them to control the atmosphere inside the kiln for long periods of time, possibly up to 100 hours or more - a signal feat in the creation of celadons, and an indicator of the advancement of ceramic technology. This advancement in kiln and firing technology needed to happen for celadon to be produced in other countries, as well, and try as they might, it was not until the migration of Yueh potters from China that the technology spread.

The high quality of Sung Dynasty pottery is a result of the gradual accumulation of knowledge about how to solve technical problems through the refinement of materials, and in particular the refinement of firing techniques. Control of the kiln atmosphere would have been, at best, approximate; with a large percentage of each kiln lost to failure, either through temperature or atmospheric variation. Even within a single kiln which reached a high temperature, a large number of wares, maybe even most, would fail to achieve the highly desired 'over-all' green color or survive intact. The high loss rate, as reflected in shard piles at ancient kiln sites, made 'perfect' vessels rare, likely adding to their mystique. Celadon was ascribed legendary properties, and like jade, was believed to protect the owner from danger by indicating the presence of poison in food. Middle-Easter rulers believed that jade would crack or discolor in the presence of poison, and it was hoped that celadon wares would behave in similar ways.

Color development in celadon glaze is dependent upon the composition of both the clay and the glaze; it has been shown that in Korean celadons in particular that there is a strong body/glaze interface where substantial color development takes place; in those cases, it is not added iron in the glaze, rather, it is iron migrating from the body into the glaze that is responsible for much of the glaze character. This body/glaze interface seems to be responsible for the clarity of Korean celadons. Additionally, the slight color variations between gray-green, and blue-green, and golden-green - specifically, the contrast between Northern Song celadons (Yao'zo kiln) which are more olive in hue, the Yueh celadons which range from gray-green to blue-green, the Long'quans which are blue-green, and Koryos which are blue-green to gray green - are the result of the naturally occurring presence of varying percentages of titanium in the local materials. Higher presence of titanium moves the glaze toward green, a lower presence of titanium moves the glaze toward blue. Pottery-stone deposits in the southern peninsula of Korea show low titanium percentages similar to those found at Yueh. The basic components of ancient celadon are lime, potash, feldspar, silica, and iron, which result in glazes that may be semi-opaque like the Sung Dynasty celadons found at Long'quan, to the almost completely transparent, such as those created during the Koryo Dynasty. Application, as mentioned earlier, also changes the character of the glaze. Thicker glazes intensify the color, and according to Nigel Woods, Long'quan celadons, which are extremely thick, were applied in successive layers and re-fired to low temperature in between in order to build a thick enough layer to achieve the desired color, but which would not crawl in the final firing. Thinner glazes were applied in precise thin layers for greater clarity and transparency, allowing the claybody and any patterning under the glaze to show through in greater detail.

The Chinese made green glazed ceramics from the 4th century (though earlier examples have been found, they are precursors to celadon) to the 18th century and beyond. The Koreans, in contrast, made celadon, or Koryo cheong'ja, for a relatively short period of time - from the 10th to the 14th centuries. It is reported that the technology to produce Korean celadon came directly from China when the State of Wu-Yueh was swallowed up by the Sung Empire in the year 978. The local kilns lost their noble support and potters left the Yue/Yueh/Yue'zao kilns and migrated to Korea, Japan, and Indochina (now Southeast Asia) . Wu-yueh and Korea were both strongly Buddhist states, and were known to each other through frequent transit by Monks across the short distance of the Yellow Sea to the southern tip of Korea. Koryo Dynasty Korea was ruled by devoutly Buddhist Kings for almost five hundred years, and the artwork of the time reflected those values. Buddhists burials included luxurious items for the elite, and the Korean court commanded local potters to make work replicating, if they could, the expensive Chinese imports. This demand created a thriving kiln complex environment in the southern region of Korea, though potters were little more than slaves.

With the advances of Korean ceramics, the elite of Korea accepted local wares, and often owned a

mix of Chinese and Korean wares - the best of which come from kilns located in Cholla Province where emigrating Yueh potters found a continuation of the geology from their home in China. The geologic formation, which made Chinese celadons possible, dives beneath the Yellow Sea and re-emerges at the southern tip of Korea. The clay deposits there had the correct iron content to influence the glaze toward green, and the glaze materials, largely pottery-stone/ porcelain-stone/do'sok, contained low levels of titanium, again, which moved the green toward blue. The Koryo period corresponds to China's Sung and Yuan dynasties, and the pottery of this period is closely related to that of the Northern Chinese wares made at that time. Early Koryo stonewares/ porcelainous-stonewares were glazed with a celadon reminiscent of the color and quality of Yueh ware, deep jade green, and having similarly incised surface patterning. The Korean wares show a variety of form, surface, and decoration with a thinner glaze application than their Chinese counterparts. The best Koryo celadons were created by the Kangjin potters of South Cholla province, and their 'designs' reflected their daily lives. They were peasants with shamanistic beliefs, and incorporated their closeness to nature into the forms and designs of their wares. The resulting vessels show delicate carvings which reflect a close observation of natural things. Moving beyond the Chinese works that inspired them, Korean potters created a technique called sanggam, which is an inlaid 'slip' pattern that shows though the transparent glaze in the finished wares. The earliest inlays were restrained and sparse using only white slip. Later designs became more complex, eventually covering entire surfaces with alternating patterns. A Korean innovation, sanggam is a process where the surface of the clay is 'engraved', and the recesses filled with a contrasting color, and then smoothed before a thin layer of a very transparent celadon is added. Once thought to be filled with either white or colored black slip, Pamela Vandiver, while doing research on shards, found that the inlaid areas were filled with finely ground quartz to achieve the white, and finely ground magnetite to achieve black, a fact that explains the lack of color migration from the 'slip body' into the glaze, which one would expect with high concentrations of iron. Sanggam was later adopted by the Japanese, and is most famous by their name for it - mishima. The inlaid celadons of the Koryo period are precise and show a great attention to detail. Controlled application of glaze was essential in order to strike the balance between color and pattern; the glaze needed to be thick enough to develop the desired pale blue to gray green color, yet thin enough not to obscure the pain-staking inlay beneath the glaze. In addition to sanggam, Koreans developed other slip techniques to decorate the clay as well, some wares were decorated with white or black slip by painting, or by coating the surfaces with slip and then incising back in to reveal the claybody. Some show direct painting with iron or iron bearing slip which gives a deep red brown to black brush mark. The Koreans also introduced copper into their oxide brushwork, and were among the first to use copper as an underglaze to create red as a detail in celadon work.

Cultural-shifts impact a region's aesthetics, and an almost complete change occurred in Korean ceramics when the capital was moved from Kaesong in the south to Seoul in the middle of the peninsula. The once pervasive Buddhist influence was removed, and Confucianism became the governing philosophy of the country. According to Confucian demands, the Yi/Choson court wanted a new kind of ceramics more in keeping with the values of modesty, humility and simplicity espoused by Confucianism and the government. Unnecessary use of color and decoration was seen as improper and unpleasantly emotional; consequently, celadon fell out of favor and nearly disappeared, as stark white porcelains or baek-ja (dressed in white) became a reflection of court values. In addition, Confucian ethics commanded a highly structured and rigid class system, which meant that court wares were forbidden to common Koreans. Because of these restrictions, another kind of ceramics called punch'ong / bunch'ong / buncheong became popular after the fall of Buddhism. Translated as 'dressed blue green pottery' punch'ong, while mostly brown, was closely related

to the Koryo celadons - with a twist. Made of essentially the same materials, though of coarser grain, what had previously been a pristine expression of elegance for elites in the court, was translated swiftly and spontaneously for the commoner. Punch'ong was an inexpensive version of the elaborately inlaid celadon wares, and was produced by quicker methods which made it affordable. Instead of rich layers of glaze fired in reduction to create pristine pale blue-greens, this work was haphazardly finished with very thin layers of glaze, and fired quickly in a mostly neutral kiln environment, and to a cooler temperature in order to produce the wares cheaper and faster. The resulting earthy browns and tans were of a much freer nature, and the highly controlled inlays and crisp curved forms of Koryo were transformed into swift and organic surfaces on the roughly imperfect forms of punch'ong. 'Poor', these objects had only the thinnest layer of 'celadon glaze', and even that scant layer eventually disappeared. More important than glaze became the free and spontaneous use of slip - often a thick white liquid hastily applied and resulting in a distinctive surface. Hakeme is a name given by the Japanese, and which refers to vessels which have been brushed inside and outside with rough brush strokes made with straw, the resulting pattern is spontaneous and rough, and captures the swift gesture of the mark maker. These irregular marks were considered by the Japanese to be superior to the sterility of smooth lines. This 'naturalism', important to Japan's tea ceremony, and a natural expression of the shamanistic potters, is also reflected in other slip decoration techniques of the time - inlays were created with quick rough strokes, or unstructured stamping, and surfaces were frequently painted with bold strokes of unrefined iron. The nature of this new work was raw and earthy. It was purchased mainly by the middle class who had not been able to afford celadons, and who were not allowed to purchase the newly important white wares, Baek'ja.. The meticulous inlays became crude textures stamped with wood into the wet clay and then quickly filled. Later, the quickly brushed white slip took the place of glaze, and even the incising was eliminated, as entire vessels were simply dipped in slip with the addition of a swift drawing or brush stroke applied over the top. Eventually, as in the case of Ido wares, highly valued by the Japanese for Tea Ceremony, the only decoration is the character of imperfect glazes and their haphazard application which occasionally reflect the finger marks of the potter, left as empty space on the body of the ware.

Toward the end of the 16th century, Japan invaded and conquered Korea under War-Lord Hideyoshi and treasures were taken back to Japan, among them, Korean ceramics. It was not the crisp perfection of Koryo celadons, but the roughly imperfect peasant wares of the Yi Dynasty that the Japanese valued so highly. . The invasion destroyed the region's kilns and punch'ong production stopped. Ido wares made briefly in the 15th and early 16th century came to Japan from Korea; it is with some irony that contemporary Koreans note that this ware, so highly valued in Japan, was unrecognized and considered of little value by its native land, and that without the Japanese invasion, and consequent kidnapping of Korean potters, the art-form would likely have died out completely and been lost. The Korean potters, like the Yueh potters before them, took their techniques and technology with them to Japan, and like the Koreans, the Japanese potters built up the new knowledge and technology with new innovations and aesthetic standards of their own. The noborigama, a multi-chambered wood-fired kiln central to contemporary wood-fire aesthetic around the world, and almost exclusively associated with Japanese bizen-yaki, and mingei aesthetics, is in fact a Korean translation of a Chinese kiln developed for Celadon wares. Korea's jangjak'gama, or noborigama as the Japanese call it, is today fired fully open, as it was in punch'ong times, for swift firing in a neutral (oxidizing) atmosphere; in Japan it is fired with a restricted fire-box, for long firings designed to accumulate the maximum wood ash deposit on reduced ware. These kilns, with their origins in China, and their heyday in Korea, and which are synonymous with Japanese wood-fire aesthetic, are never fired for reduction and ash accumulation inside Korea, except by those trained outside the country, or by foreigners - a fascinating example of the ebb

and flow of technique and aesthetics.

To the casual eye, there may seem to be no relation between the elegant celadons of Long'quan, and roughly imperfect wares of Korean peasant punch'ong, yet each finds its origin in the innovation and advancement achieved in ancient China, and each is also connected to the other wares mentioned - from the earliest celadons of China through their advancement in Korea, and then their transformation into punch'ong, and later Ido, ceramic development is a wave of achievement and ever expanding influence, and the woven interconnections are fascinating to discover.

From Yueh Celadon, to Long'quan, to Koryo CheongJa to Yi/Choson Punch'ong, these wares reflect a cycle of acquiring and relinquishing control over the work. The long slow build-up of technology and sophistication from Han dynasty pre-celadons, through gaining skill in Yueh, and perfecting color in Long'quan, to the elaborate elegance and decoration of Koryo celadons, and then into a kind of deconstructive reduction of form and surface which was punch'ong, the vocabulary of this region's ceramics reflected the rise of control and then the release. Punch'ong would then be embraced by Japan, and lost to Korea, only to transform the ceramic traditions of Japan, who would present the evolution to the world as something distinctly Japanese. Without China, without generations of potters working to hone their skills with fire and clay, there would have been no perfection of blue-green Korean celadon, without Koryo there would have been no punch'ong without punch'ong, and on, and on. Historical wares are potent, not only for their beauty which is substantial, but for the wealth of knowledge, experience, innovation and culture that they document with their physical presence.

Bibliography

Asian Art Museum of San Francisco. 5000 Years of Korean Art. Samhwa Printing: Korea, 1979. Print.

Carty, William M. Effect of Firing Time on Glaze Chemistry: Deciphering Ancient Practice through Forensic Analysis. NCECA Research Paper, Glaze Doctor Panel Presentation, 2012. Digital File, Online Source

Cooper, Emmanuel. Ten Thousand Years of Pottery, Fourth Edition. University of Pennsylvania Press: Philadelphia, 2000. Print.

Covell, John Carter and Alan Carter Covell. The World of Korean Ceramics. Dae-Won-Sa: Honolulu, 1986. Print.

Gomperz, G. St. G. M. Celadon Wares. Frederick A. Praeger Publishers: New York, 1969. Print.

Grebanier, Joseph. Chinese Stoneware Glazes: Ancient Glazes Re-created for Today's Potter. Watson-Guptil: New York, 1975. Print.

Gwangju Joseon Royal Kiln Museum. Five Hundred Years of Joseon Ceramics. World Ceramic Exposition Foundation (WOCEF): Icheon, 2003. Print.

Gwangju Joseon Royal Kiln Museum. The Color and Shape of Color. WOCEF: Icheon, 2005. Print.

History and Civilization of China, The. Chinese Publisher: ISBN 7-5073-1360-3/K-.605 00360

Hoam Art Museum. Masterpieces of the Ho-Am Art Museum I: Antique Art 1. Samsung Foundation: Seoul, 1996. Print.

Kim, Jae Yeol. Handbook of Korean Art: White Porcelain and Punch'ong Ware. Yekyoung Publishing: Seoul, 2002. Print.

Kim, Jong Min, Publisher. World Ceramic Heritages: The East. World Ceramic Exposition Korea: Icheon, 2001. Print.

Lee, Sherman E. A History of Far Eastern Art, Revised Edition. Prentice Hall Inc.: Englewood Cliffs. Print.

McKillop, Beth. Korean Art and Design. Icon Editions, Harper Collins: New York, 1992. Print

Nam, Kimyoung. The Story of Korean Ceramics. World Exposition Foundation: Icheon, 2004. Print.

Pak, Youngsook, and Roderick Whitfield. Handbook of Korean Art: Earthenware and Celadon. Yekyoung

Publishing: Seoul,2002. Print.
Rawson, Philip. Ceramics. University of Pennsylvania Press: Philadelphia, 1984. Print.
Rhodes, Daniel. Stoneware and Porcelain: the Art of High-Fired Pottery. Chilton Book Company: Radnor, 1959. Print.
Savage, George, and Harold Newman. An Illustrated Dictionary of Ceramics. Thames and Hudson: London, 2000. Print.
Speiser, Werner. Art of China; Spirit and Society. Greystone Press: New York, 1960. Print.
Sullivan, Michael. An Introduction to Chinese Art. Faber and Faber: London, 1961. Print.
Tichane, Robert. Those Celadon Blues. New York State Institute for Glaze Research:New York, 1983. Print.
Wood, Nigel. Chinese Glazes: Their Origins, Chemistry, and Re-creation. A&C Black: Philadelphia, 1999. Print.
Yu, Weichao. A Journey Into China's Antiquity: Volume Two. National Museum of Chinese History, Morning Glory Publishers: Beijing. 1997. Print.
Yu, Weichao. A Journey Into China's Antiquity: Volume Three. National Museum of Chinese History, Morning Glory Publishers: Beijing. 1997. Print.
Zhejiang Chronological Porcelain. Chinese Publisher: ISBN:7-5010-1217-2
Zhejiang Provincial Museum. Perpetual Green Scenes: Charm of Zhejiang Celadon. Zhejiang Museum. Print.
Zhu, Boquia. Celadons from the Longquan Kilns. Chinese Publisher: China. Print.