Technological parallels between Chinese Yue wares and Korean celadons

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The grey-green Yue wares of south China (made from the 4th to the 11th centuries AD) and the bluish-green Koryŏ celadons of south Korea (made from the 11th to the 14th centuries AD) are two of the most distinguished productions in the history of world ceramics. The Yue kilns provided some of the first Chinese stonewares to meet with imperial approval, as well as establishing a domestic and export industry of unprecedented scale between the 9th and the 11th centuries AD. The development of Korean celadons owed a great deal to the Chinese Yue tradition in terms of forms and manufacturing methods; but Korean potters took the Yue style to new heights through their use of subtle bluish-green celadon glazes plus complex and ambitious designs.

These fine Korean celadon glazes, once described as showing as many colours and qualities as the sea itself, were often used over white and black inlaid patterns. The inlaid style of Korean celadon ware appears to have started production in the mid-12th century and flourished in the later Koryŏ dynasty (918–1392). A more rustic version of the tradition continued well into the Chosŏn dynasty (1392–1910), usually employing stamped rather than carved designs.

That significant historical and stylistic parallels exist between Yue wares and Korean celadons (particularly between the 9th to 11th centuries) has long been appreciated by students of Eastern art; but it is only recently that the technological relationships between Chinese Yue wares and Korean celadons have been properly investigated and understood. These new insights have come from four programmes of analytical research: carried out in Korea from 1981 (Lim, 1986), at Oxford University from 1982 (Hatcher et al, 1985; Tite and Barnes, 1992), at the Smithsonian Institution, Washington DC from 1986 (Vandiver, 1989; Vandiver et al, 1989), and at Chung-Ang University in Seoul from 1991 (Choo, 1995).

Taken as a whole, this detailed work has shown how closely related Chinese Yue wares and Korean celadons are in their essential body compositions and also in their general production technologies. It has also helped to explain the
vital differences that exist between the glazes used in China and Korea for celadon wares. The present paper is intended as a résumé of this scientific work, beginning with a sketch of the historical and technical backgrounds to the two materials.

YUE WARES

Of the two stoneware traditions (Yue and Koryŏ celadon), Yue ware is by far the older, with its technical roots reaching deep into China’s Bronze Age, the Shang dynasty (16th–11th c. BC), making Yue wares direct successors to some of the world’s oldest glazed stonewares. In developing and adding to the Yue tradition, Korean celadon potters were building upon an East Asian stoneware technology that – by the 10th century AD – was already at least 2000 years old.

Yue ware origins

The origin of glazed stoneware in China is a well-researched subject, particularly through the work of Li Jiazhi of the Shanghai Institute of Ceramics. Professor Li has studied the evolution of Chinese stonewares for some 40 years, paying particular attention to the wares of Zhejiang province in southern China, one of the birthplaces of Chinese high-fired ceramics. In recent papers, Li and his colleagues described some examples of southern Neolithic wares, south Chinese unglazed, stamped stonewares, and south Chinese glazed stonewares – which were made from essentially similar raw materials (Li, 1986; Li et al, 1989; Li et al, 1992). Many of these late Neolithic and early Bronze Age ceramics were fired and cooled in reducing atmospheres, which gave a cool greyish cast to the wares. Reduction firing may well have been adopted by Chinese potters to improve the fired strength of their wares through the fluxing effects of ferrous oxide (FeO) above about 900°C – an approach still used in China for the production of grey bricks and roof-tiles.

Following these developments, unglazed grey stoneware became south China’s main Bronze Age stoneware type, with some examples showing thin glossy patches where fluxes present in fly-ash (produced by wood-firing) reacted with the clay surface at high temperatures to provide natural glaze effects. From these accidental patchy glazes, it would have been a short step for south Chinese potters to begin applying wood ashes direct to their wares before firing in order to achieve controlled and deliberate ash-glaze coatings (Zhang, 1986).

This deliberate application of wood-ash glazes occurred quite early in the Shang dynasty; and a number of early Shang stonewares, beaten with cord-wound paddles and glazed thinly and evenly outside, can be seen in Chinese collections such as that of the Shanghai Museum. Sherds of similar wares have been found at Shang sites at Jiaoshan and Wucheng (Jiangxi province), Yixing (Jiangsu province) and at Jiangshan (Zhejiang province) (Li et al, 1992). Even so, despite the potential usefulness of this technology, fully-glazed Shang stonewares seem to have accounted for only a minute fraction of Shang ceramic production (fig. 1).