

The Stacked Casting Method In China's Hsin Dynasty

by
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At least some of the more unusual coins in China's history were produced using stacked molds instead of the more familiar coin tree process. They were the 500 cash, which more resemble a key blank than the familiar cash coin. They were issued by the emperor Wang Mang (7-22 AD), who usurped power using his capacity as regent during the Western, or Former, Han Dynasty (206 BC – 6 AD). Wang Mang, the nephew of the wife of the Han emperor Ch'eng Ti (32-7 BC), was elevated to a position of authority along with many other members of the wife's family in the Han capital of Ch'ang An. After a brief retirement, he conspired with his aunt and returned to power when his son-in-law, the Han emperor P'ing Ti (1-5 AD), was placed on the throne. Wang Mang poisoned P'ing Ti on New Year's day in 5 AD and became the assistant emperor to the young replacement, a child of two. Two years later, Wang Mang became the full emperor.

Declaring himself Emperor of a new dynasty, the Hsin (which actually translates to "new"), he quickly introduced reforms based on historic models. These included not only abolishing slavery and land reform, but also the introduction of both income taxes and price controls, policies which had been discarded long ago and mainly served to unite the upper classes against him. Not only did his reforms encompass old laws and institutions, however, but also included a return to older coinage styles.

One style of his new coinage was based on the discontinued sword (knife) money. The appearance of the new coinage was broadly similar to the knife coins, but was modified to a point somewhere between art deco and abstract. Two denominations of this new knife coin existed. One is catalogued by Fredrik Schjoth in *CHINESE CURRENCY* as S-119. It was inlaid with gold (called "tso" which means ornamented) and had the denomination, 5,000 cash, in characters on the blade. The other, catalogued as S-116 and called a Ch'i knife (translation of the two characters on its cash-coin-like handle), was made of simple copper and had the denomination 500 cash on the blade. Both were introduced in 7 AD and withdrawn in 10 AD, with each now quite scarce as a result.

Even in 7 AD the coin casting process employed several methods. Most readers are familiar with so-called cash trees, which have a number of cash coins attached on "stems" to a central core. "Mother" or "seed" coins made from bronze, copper, or even stone were pressed into a flat mold matrix, which hardened to form the impression into which the molten metal was to be poured. Once cast, the coins were broken from the branches, smoothed with a scraping tool, if necessary, and issued for circulation. The stems and cores resulting from the molten metal cooling and solidifying in the gutters were remelted.

Less common, and probably less familiar to readers, was a stacked mold process. Production of the Hsin Dynasty's S-116 (Chi knife, value 500 and noted above), the S-120 (Ta Chuan Wu Shih, value 50, introduced in 7 AD), the S-145 (Ta Pu spade, value 1,000, issued in 14 AD), as well as the S-257 (Wu Shu issued from 100 BC – 600 AD) are known to have used the stacked mold process in addition to the cash tree process.

The stacked mold process uses a "mother mold" instead of individual mother or seed coins as in the cash tree process. Two types of mother mold are known. One is a single mother mold which contains either one or two positive images of both the obverse and reverse. An article by Wang Zonq-fa in *China Numismatics* ("Discussion of the shapes of currency (molds) with reverse in Wang Mang's Hsin Dynasty", 1987, volume 1, pages 58-60, in Chinese) discusses this style and provides rubbings of molds used to produce S-116, S-120 and S-145 (see Figures 1, 2, 3). The other type of mother mold actually requires two molds, one with obverse positive images and the other with reverse positive images. These were used to manufacture paired casting molds.

The single mold process uses a bronze mother mold shaped like a shallow saucer, an example shown in the photograph (see Figures 4 & 5), to create the casting molds. One mother mold would be used to make a large number of casting molds. Within the saucer is seen a positive image of the obverse of S-116 and a positive image of the reverse of S-116. The two are connected with four gutters which carry the molten metal to the impressions. In the center, where the gutters cross, is a circular gutter. This is used in one of two ways, as will be explained later. Instead of having the mold pressed into the wet matrix material, as is the case with individual coins in the cash tree process, the wet matrix material is packed into the dished side of the mold, smoothed level across the top, and allowed to harden into casting molds. An alignment guide is at the top inside edge of the mold, visible as an indentation, which is intended to preclude the accidental 180 degree rotation of the casting molds with the resultant waste.

Casting molds would be stacked into some sort of vertical holding device. The bottom casting mold would have its circular gutter left intact, while all those casting molds stacked above it would have the circular gutter drilled or punched out. Using the alignment guide, the molds would be paired up face to face and stacked back to back.

Once the proper height was reached, molten metal would be poured into the circular center hole using some form of funnel and fill the coin cavities and gutters (see Figure 6). When the metal cooled, the coins would be removed, shaped if necessary, and circulated.

The stacked mold process had a number of disadvantages. As Wang Zong-fa noted in his *China Numismatics* article, referring specifically to the Ch'i knife (S-116), the stacked mold process didn't always result in neat and tidy coins as mistakes in stacking and mold alignment could result in defective coins. Other problems existed as well. The casting molds used in the single mold process would have to be made from the same mother mold, while those used in the two-mold process would have to be from a paired set. Different mother molds would have slightly different internal dimension, gutter placements, and the like which could result in wastage. Consequently, production rates would be slower than the money tree method as individual two-coin or four-coin casting molds would have to dry, tying up the mother mold, whereas the money tree method could have a single casting mold for greater numbers of coins drying at the same time.

The effort expended in removing coins from the stacked mold process would be much greater than the money tree process. The money tree process would result in a product easily lifted as a single unit from the casting mold, ready for final processing. In the case of the stacked mold process, however, once the metal had cooled and hardened, the plane of the coins is perpendicular to the direction of the central core. This holds the (now useless) casting mold material in place and requires that it be physically removed in order to free the coins.

The stacked mold process probably did not last long. Pieces of clay mother molds for S-116 500 cash, which would have been used to produce money trees, were noted in the February, 1988 Spink-Taisei auction in Singapore. This indicates the money tree process was used for S-116 even though the issue was only three years. Indeed, the stacked mold process is so unwieldy that it would almost appear to have *not* been the preferred way for mass producing the various coins noted above. Was it an alternative method introduced (and quickly discarded) by Wang Mang because it had been referenced in historical times? Could it have been the mother molds for the stacked mold process were

given to Wang Mang's loyal supporters to gain favor or as rewards for their support? Information on the reasoning was not discovered in the research for this article.

EPILOGUE: Wang Mang not only caused misery through excessive taxation and bad laws but also had to contend with external aggression as well as natural disasters, severe famine and internal unrest in many locations in the empire. These combined to bring about his downfall in 22 AD and execution in 23 AD. One rebel group, the "Red Eyebrows," pushed for power from their base in Shantung Province and captured the Imperial City of Ch'ang An. By that time, however, a successor Han Dynasty had been established in Lo Yang, a city 60 miles to the east of Ch'ang An. The new dynasty was called the Eastern Han Dynasty (25 – 221 AD). The brief existence of Wang Mang's Hsin Dynasty, together with a 60-mile separation of capital cities, explains why there is a Western and an Eastern Han Dynasty in China's history.

Figures:



Figure 1

S-116 (Chi Knife, value 500)

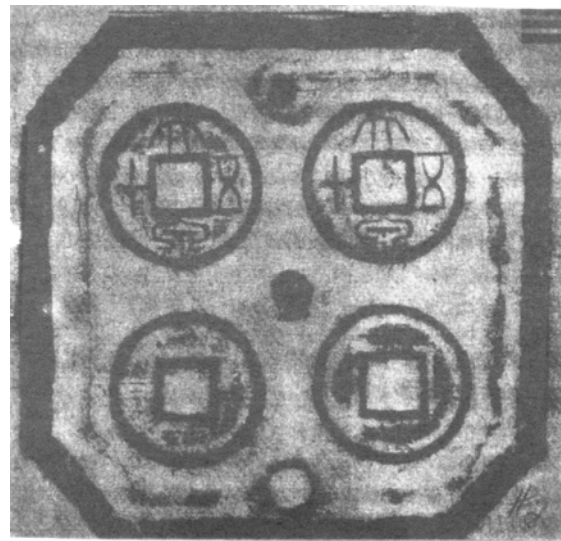


Figure 2

S-120 (Ta Chuan Wu Shih, value 50)

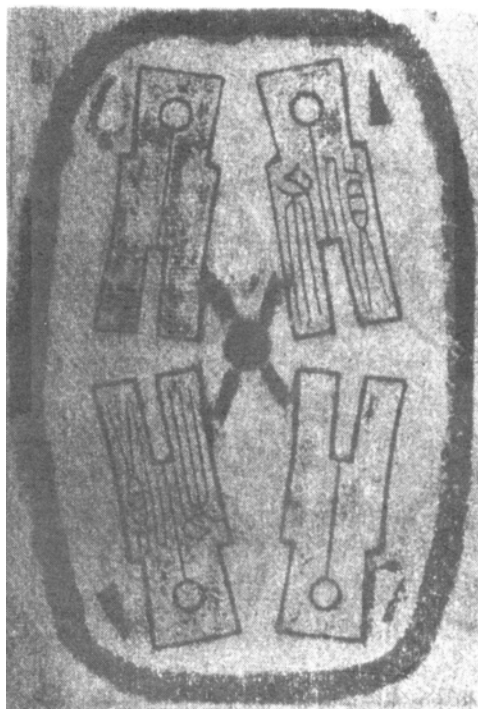


Figure 3

S-145 (Ta Pu spade, value 1,000)



Figure 4 – Hsin Dynasty

Top of S-116 Mother Mold. Characters written in classical Chinese style on top of mold. Characters are TA CH' IEN LI WAN.



Figure 5– Hsin Dynasty

Inside of S-116 Mother Mold. Inside "saucer" showing S-116 500 Cash obverse & reverse connected by "gutters"

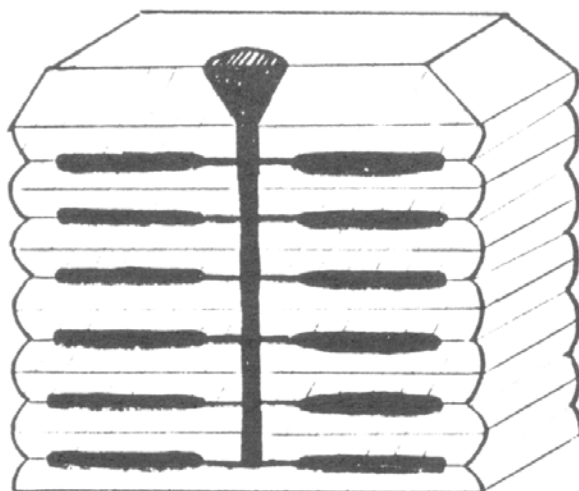


Figure 6

S-116 = Hartill 9.13

S-120 = Hartill 9.1

S-145 = Hartill 9.29

Editors Note: The cover photo (Hartill 9.12) was added from the editor's collection. This transcribed article originates from the *NI Bulletin*, the publication of the non-profit educational organization: **Numismatics International**. It was published in Volume 25, Number 6 (Jun 1990). The Web site and Yahoo! ® "Numismatics" group has over 3000 articles on all numismatic subjects in a searchable database. Please consider joining & donating to this excellent organization, find out more by visiting: www.Numis.org

