

## 2.2 Money's Purchasing Power

### 1. Weight Reduction of Coins Caused by the Chu-Han War

The purchasing power of money involves the relationship between money on the one side and commodities and labor on the other. Hence changes in money's purchasing power do not necessarily originate on the side of money. Commodities and labor can also influence money's purchasing power. So it would be inadequate to study the history of changes in Chinese money's purchasing power solely from the side of money. One must also study each period's productivity and the circumstances of its production, as well as the factors hindering the movement and consumption of commodities.

Prior to Warring States times, the quantity of money was not great, and the custom of using money was not widespread. Hence changes in money's purchasing power were small and unimportant in their effects. By late Warring States times, commodity production gradually developed, people had come to understand the convenience of using money, and were willing to exchange for money any goods they did not for the time being wish to consume themselves. At the same time, it was believed that so long as one had money at hand one could obtain consumption goods at any time or place. And so, the quantity of money gradually increased.

During Warring States times the states joined in committing mass slaughters,<sup>1</sup> and under the rule of the First Emperor of Qin the wastefulness of the tax in labor<sup>2</sup> caused a great diminution of production. In ancient times, land was plentiful and men were scarce. Production could only continue to increase if the people were able to reside in peace to practice their occupations. During the reign of the First Emperor, not only did a great many people die, of

those who remained alive, if they were not building the Great Wall in the north, they were garrisoning the Five Mountain Ranges in the south. Most of the rest fled into the mountain forests and turned into bandits because they could not endure repressive taxes and severe punishments. A man's labor at the plow was not capable of providing food for the table, and a woman's weaving was incapable of providing enough clothing to wear.

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Both sides in the Chu-Han war to succeed to Qin's power raised large armies. During eight years they fought over seventy battles, and suffered several million casualties. Needless to say, production was as a consequence upset and diminished. The remaining small quantity of goods could not be suitably distributed. For example, food, which was of the greatest importance, became an ever more serious problem as each side tried to block the supply routes of the other. When Xiang Yu conquered Xianyang, the old Qin capital, there was a general slaughter, all goods of any value were carried away, and the palaces and offices were all consigned to the flames. Hence Liu Bang obtained only an empty city. No wonder "the Son of Heaven could not equip a thirty-catty team of four horses, generals and ministers rode in ox-carts, and the people had nothing in reserve."

Those in power then undoubtedly believed the nation's poverty was caused by a lack of coins with which to buy things. They treated money as a general form of wealth, and supposed that its purchasing power was unchanging. That is why they carried out a reduction in the weight of coins. They seem to have supposed then that simply minting coins amounted to producing goods. At the very least, they supposed, if one had coins, one could buy all sorts of consumption goods, as though the supply of goods was inexhaustible and could be drawn on indefinitely. If only the nation's domestic supply of money could be increased, they presumed, the nation and people could become enriched. The first large scale reduction in the weight of coins in Chinese history took place under these circumstances.

The early Han reduction in the weight of the coinage embraced both gold and copper cash. The size of one *jin* of gold was reduced from one *yi* to one catty, a reduction of twenty percent. Gold was not, however, the main object of the weight reduction, because it was not a universal medium for making purchases, nor was it the medium with which official salaries were paid.

The weight reduction mainly involved the bronze coins. They were reduced in weight, on the basis of the official standard, from the Qin Half-ounce to

<sup>1</sup> *Universal Record*, "Food and Money, 1, Population by Historical Period": "The conflicts of Warring States times slaughtered the people. The defeat at Yishuo led to the beheading of 240,000. . . . When we examine the thesis of Su Zhang we find that when Qin had conquered all the Six States east of the mountains, more than five million people died. This left a population of some ten million. Of the aristocrats captured by Qin, one-third were killed. . . ."

<sup>2</sup> *Ibid.* "Over 400,000 went north to build the Great Wall. Over 500,000 were sent south to guard the Five Mountain Ranges. The Afang Palace and Lishan Mausoleum used 700,000. During the course of thirty years the number of commoners who died would have covered the whole surface of the roads."



the Eight-grain Half-ouncer of Empress Lü's reign, a reduction of one-third. Half-ouncers minted privately, however, might not have been as heavy as eight grains. Some small Half-ouncers whose inscriptions and construction closely resemble the Qin Half-ouncer, weigh less than 1 gram, or around one grain. These could have been privately minted at the beginning of Han. If those are taken as the standard, then there was a reduction to one-twelfth. The histories state that the price of rice rose to 5,000 or 10,000 per picul, and the price of a horse to a hundred *jin*.<sup>3</sup>

The government placed the blame for the rise in prices on the merchants, saying that it was caused by the merchants' hoarding of goods and prevention of their distribution. The formal denigration of merchants in China began at this time. In actuality, holding back of goods by merchants could indeed have helped extend the rise in prices, but the fundamental causes were the shortage of goods and the lightening of the money. The merchants' engrossing of goods merely caused the rise in prices to be more rapid and severe.

In the end, how expensive was rice at a price of 10,000 cash per picul, or a horse at a price of 100 *jin*? We can only

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determine this on the basis of comparison with normal prices then. What was the normal price then for a picul of rice and one horse? There is no record of that. Of course we cannot use the price of grain given in the *Guan Zi*. Nor could the price of 30 per picul spoken of by Li Kui be taken as the early Han price. This price may, however, have been close, because the small spade of Wei and the Half-ouncer used during Qin and early Han were almost the same weight.

We can use the prices quoted in the *Nine Chapter Calculating Techniques* to draw some comparisons. Many of the prices in that work can be viewed as prices current during Qin and early Han, because its prices are generally lower than most of those for Western Han. The price of millet, for example, averaged 15 cash per *hu*.<sup>4</sup> According to the rate of exchange then, one *hu* of unpolished or coarse rice would have been 25 cash, and polished or refined rice would have been 28 cash.<sup>5</sup> If we take 28 cash

per *hu* as the normal Qin-early Han rice price, then the result of the monetary depreciation and famine of the Chu-Han war was an increase of over 350 times in that price. On the basis of a price of 5,000 cash per picul, there was an increase of 170-180 fold.

The *Nine Chapter Calculating Techniques* contains a price of 5,454 *wen* and six-elevenths for a horse.<sup>6</sup> If the price of gold was 6,250 *wen* per catty,<sup>7</sup> this would be equal to about 14 ounces for one horse. If it rose to 100 *jin* per horse, that would have been an increase of 115-fold. If we assume a gold price of 10,000 cash per catty, then a rise of 183-fold had occurred. That the price of horses did not go up quite as far as rice may be explained by the fact that rice was a necessity for daily use, the price of which would rise or fall most rapidly.

From beginning to end, this episode of weight reduction lasted some thirty years. The official depreciation seems to have fallen short of that of the private coiners, but the tendency toward depreciation is quite clear.

In Empress Lü's year 2 (186 B.C.), 7th month, the Eight-grainer was put into circulation. This Eight-grain Half-ouncer was probably heavier than the privately minted Half-ouncers in circulation then, and so in the view of the authorities, this appreciation of the coinage should have raised money's purchasing power, but this coin still represented a depreciation in terms of the Qin Half-ouncer. Moreover, the government was not yet se-

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rice is 30, polished rice is 27, ground rice is 24, imperial rice is 21, wheat is 12.5, barley 54, unpolished cooked rice is 75, polished cooked rice is 54, ground cooked rice is 48, imperial cooked rice is 42, beans, pulse and wheat are each 45, paddy-rice is 60, fermented beans are 63, an evening meal is 90, cooked beans are 103.5, yeast is 175." The expression millet is 50 and unpolished rice is 30, means that 50 *hu* of millet were equal in price to 30 *hu* of unpolished rice.

<sup>6</sup>*Op. cit.*, 8. This price is almost the same as the horse price in the Juyan bamboo slips of Han times, but the price given in these was in an area near where

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horses were bred, and must have been cheaper than elsewhere, and for this reason we cannot view the horse price in the *Nine Chapter Calculating Techniques* as representing the situation from Emperor Wu's time on. The horse prices given in both the *Historical Records* and *Han History* are very high.

<sup>7</sup>The *Nine Chapter Calculating Techniques* gives two gold prices. One is 6,250 per catty (chapter 6). The other is 9,800 per catty (chapter 7), which was probably 10,000 cash per catty. Perhaps the first price was the one during Qin and early Han, and the second price was from after the Half-ouncer had been reduced in weight.

<sup>3</sup>*Historical Records*, 30, "Treatise on the Balanced Standard," and *Han History*, 24, "Treatise on Food and Money."

<sup>4</sup>*Nine Chapter Calculating Techniques*, 6, gives ten prices for millet, ranging from 10 to 20 cash per *hu*. The average is 15 cash per *hu*.

<sup>5</sup>*Nine Chapter Calculating Techniques*, 2, gives the rate of exchange for various foods: "Millet polished is 50, unpolished



cure at home, and from abroad the Xiongnu invasions were under way. Expenditures could not be reduced, and so the Five-fen coin was put into circulation just as the Xiongnu were attacking Ayang.

If by Five-fen is meant the small Half-ounce weighing 2 grains and 4 *zi*, this was only one-fifth of the weight of the Qin Half-ounce. If we pay no attention to the private minting going on then, this coin is hard to explain: Why, at a time when there was no great war going on, was so great a depreciation carried out within the space of four or five years? A reduction in weight from 8 grains to 2.4 grains may be said to be a large one.

This must mean that the privately minted coins weighed even less. Do not the histories state that in the time of Emperor Wen the Pod-cash became even more numerous and light in weight?<sup>8</sup> Among surviving Half-ouncers, the lightest [162]

are 0.17 grams and less, equal to one-fifth of a grain, and one-sixtieth of a Qin Half-ounce's weight. This type of small Half-ounce is relatively uniform in construction, not like those made at the beginning of Han, and so they must have been made between the end of Empress Lü's reign and the early years of Emperor Wen.

The phenomenon of reduction in the purity of the coins also occurred. At that time there would appear to have been a legal requirement to use copper and tin in minting coins. Privately minted coins were intentionally adulterated with lead and iron as well,<sup>9</sup> but we cannot treat all coins of good purity as official products and coins of low purity as privately coined. The key aspect of monetary depreciation in ancient China was reduction in weight. Lowering of purity was secondary.

Emperor Wen's method for stabilizing the value of money was two-fold:

The first was to increase production. For example, the nobles living in Chang'an were told to return to their fiefs to govern them personally, so as to encourage production. Simultaneously, new land

was opened in the imperial domain, and the Emperor personally plowed some of it to encourage agriculture.

The second thing was to carry out a policy of contracting the supply of money in circulation, to avoid sending soldiers abroad, and at home to abstain from construction projects, and to always give relief in goods rather than in coin. Coins brought in by taxation were stored in the national treasury.

In addition, in year 5 [175 B.C.], the weight of the coins was increased. The Half-ounce was raised from the level of the extremely light Pod-cash to a weight of four grains. Only after all this had been done was the value of the money stabilized.

When at that time Chao Cuo advocated deemphasizing gold, coins, pearls and jade, and putting emphasis on plowing, his aim was no less than to turn the people from private minting back to agriculture, and to thereby increase production. Jia Yi also lamented that "producers are so few, and consumers are so numerous."<sup>10</sup> He too advocated returning people to agriculture.

In stabilizing the value of the coinage, Emperor Wen put increased emphasis on the weight of the coins and yet simultaneously also permitted free coinage among the people.<sup>11</sup> This was hard for the quantity of money theorists of later times to understand, but at that time it was supposed that the fall in the value of money was the consequence of its reduction in weight, and if merely the weight of the coins was maintained, their price could not change. The Han politicians had come to understand that money had intrinsic value.

This doctrine was not limited to China, but was very widespread abroad as well. It flourished during the Middle Ages in Europe. One group of men then supposed that prices changed when bad practices arose in coin manufacture, and all that had to be done to restore the price level was to halt these bad practices. Therefore, the Western Han government was not concerned with the private coining of men like Pi, the Prince of Wu, or Deng Tong, because the coins they minted kept to the standard established by the central government.<sup>12</sup>

<sup>8</sup>*Historical Records*, "Treatise on the Balanced Standard": "By the time of Emperor Wen, Pod-cash were increasingly numerous and light in weight."

<sup>9</sup>The *Han History* "Treatise on Food and Money" quotes Jia Yi: "The law requires that those publicly hired to do so use copper and tin to make coins. Those who dare to adulterate them with lead and iron for their illicit profit, should be punished by tattooing of the face." Seven Four-grain Half-ouncers have been assayed. Their copper content varied from 64.94 percent to 93.68 percent. The remainder is composed of such metals as lead and iron, and is mostly lead. Katō Shigashi, *Investigations of Chinese Economic History*, pp. 151, 154.

<sup>10</sup>*Han History*, "Treatise on Food and Money."

<sup>11</sup>*Historical Records*, "Treatise on the Balanced Standard": "By the time of Emperor Wen, Pod-cash had become increasingly numerous and light in weight, and so the Four-grainer was minted with the inscription Half-ounce. It was ordered that the people be allowed to freely mint coins." *Han History*, 4, "Annals of Emperor Wen": "Year 5 . . . Summer, 4th month, the ban on illicit minting of coins law was abrogated, and more Four-grainer coins were manufactured."

<sup>12</sup>*Miscellaneous Record of the Western Capital*, first part:



There could have been another reason for the Western Han government's *laissez faire* policy toward minting coins. This is that minting of coins privately

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did not differ significantly in character from minting by the government. The government could draw in privately minted coins through taxation, and thereby reduce its own minting expenses.

In actuality, private minting could not altogether remain up to the government's standards, and as a consequence the coinage was not uniform. The coins of each locality differed, and as a consequence the phenomenon of discounts in exchange appeared, with light coins exchanging at a discount compared to heavy coins.<sup>13</sup>

In general, the great fall in money's value during Western Han caused by the reduction in the weight of the coins, was slowly reversed under Emperor Wen. Thereafter, Emperor Jing was quite capable of continuing the policy of Emperor Wen, and in year 6 of his reign [151 B.C.] he also banned private minting. This not only caused the money's value to be restored to its former level, but also tended to start a tendency for prices to decline. Millet fell to a little over 10 cash per picul.<sup>14</sup> The price of cereals ranged from several dozen cash<sup>15</sup> to 100 cash<sup>16</sup> per picul.

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"During the time of Emperor Wen, Deng Tong received as a gift a copper mountain in Shu, and was permitted to mint coins. Their inscriptions and proportions between hole and body of the coins were all the same as those of the coins of the Son of Heaven. Hence he became as rich as the ruler. At this time the Prince of Wu also had a copper mountain for minting coins. Therefore there were Wu coins of slight weight, but whose inscriptions and hole-coin proportions did not differ from those of Han coins."

<sup>13</sup>*Han History*, "Treatise on Food and Money": "Jia Yi demonstrated . . . The coins used by the people differ in each commandery and prefecture. Some use light coins, and for each hundred a certain number must be added. Some use heavy coins, and an equal weight is not received. If a standard legal coinage is not established, will the clerks stir themselves to make things uniform? Thus the great will cause vexation, and their strength will not be able to be overcome. Can one allow this without raising an outcry? Different practices from the market standard will be used, and the coinage will be thrown into great disorder. If it were not for such tricks, how could the rustics engage in such practices?"

<sup>14</sup>*Historical Records*, 25, "Treatise on the Laws": "Emperor Wen said . . . the Empire is very rich. Millet has reached a little more than 10 cash."

<sup>15</sup>*Master Huan's New Discourses*: "It was popularly said at the time that Emperor Wen of Han was personally frugal, and cultivated the Way of Virtue so as to give precedence to the

These prices do not seem low when compared to low prices at other times in Chinese history, but one must realize that the Four-grain Half-ounce was in use then, and there were still large numbers of private coins. When we take these factors into account, we realize that prices then were really very low.

The era of good rule of Emperors Wen and Jing was built upon the foundation of these low prices. The result was,

the local treasuries overflowed with wealth; coins in the capital districts piled up by the millions. Their strings rotted, and they could not even be counted. The cereal in the Grand Granary covered it from edge to edge, and overflowed to the outside. It could not all be eaten before it spoiled.<sup>17</sup>

This, of course, mainly shows that the ruling class was becoming wealthy, but because society was relatively tranquil, and there was no war, the people's lives were also somewhat improved. The historians say "the crowds in the streets and lanes had horses, and between the boundaries of the fields the crops grew thickly." They add, "those who guarded the gate posts ate grain and meat."<sup>18</sup> Evidently, conditions had changed since the beginning of Han.

## 2. The Monetary Depreciation of Emperor Wu's Xiongnu Wars

Relying on the accumulated stores of Emperors Wen and Jing, Emperor Wu embarked upon extensive building projects at home and far-flung campaigns abroad. These very quickly exhausted the national treasury, and impoverished the people.

The Xiongnu had been the enemy of the Chinese monarchy for generations. Ever since the Chinese monarchy had become aware of this people, relations between the two had been hostile. By the Qin to early Han period,

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Empire. The Empire was transformed, and so reached the fullness of wealth. Millet filled the marshes in abundance. Cereals reached a price of several dozen cash per picul. Above and below, all shared an abundance worthy of envy." Cf. *Taiping Yulan*, 35, "Contemporary Prefaces," 20, "Abundant Harvests."

<sup>16</sup>*Gazetteer of Customs*: "At the height of Emperor Wen's reign, cereal was one cash per *sheng*."

<sup>17</sup>*Historical Records*, "Treatise on the Balanced Standard."

<sup>18</sup>*Han History*, "Treatise on Food and Money."



this conflict had gone on for a millennium.

The power of the Xiongnu appears to have waxed greatest during the transition from Qin to Han. During the reign of the First Emperor the Xiongnu had been defeated by Meng Tian. After the First Emperor's death, there was internal disorder, and the borders were left undefended. The Xiongnu took advantage of this opportunity. Under the rule of their Shanyu, Maodun, their national power grew to an unprecedented level. They smashed the Eastern Hu, drove off the Yuezhi, and reduced the Qiang to subordination. Prince Han Xin surrendered to them and Liu Bang himself almost became their captive. Later, Empress Lü was humiliated by them, and could do nothing about it. Emperor Wen had no choice but to take a low posture before the Shanyu.

When Emperor Wu ascended the throne, the Xiongnu had just overthrown two Shanyu, and their strength had begun to decay. Though the Chinese still followed a policy of appeasement, the Xiongnu continued to raid along the frontiers. In *yuanguang* 2 (133 B.C.) Emperor Wu adopted the advice of Wang Hui and sent out an army of 300,000 to lead an attack against the dependencies of the Shanyu, and the Xiongnu thereupon abrogated the peace accord and formally declared war. Over the next ten years losses were very great on both sides.

The Xiongnu were a nomadic people whose culture and economy were very backward. They had no fixed wealth. Their homes were wherever there was water and grass. When victorious, they advanced. When defeated, they fled. Their livelihood remained unaffected.

China, however, was an agricultural nation, with a relatively highly developed economy and civilization. To maintain this level of development a stable economic foundation was necessary, and this economic foundation was easily broken by an extended period of warfare. This was just what happened during the reign of Emperor Wu.

The historians all praise the China of the age of Emperor Wu for its strength, but in my view it was not so strong as was its predecessor Qin or its successor Tang. At that time, it appeared powerful only because the Xiongnu were not at the peak of their power, and this was not the work of Emperor Wu and his generals, but rather was the result of the characteristic tendency of a nomadic people to weaken rather suddenly. Now, with the beginning of this weakening of the Xiongnu, Emperor Wu and his generals reconquered some territory, but paid a very high price for doing so.

The Three-grainer circulated after Emperor Wu took the throne represented a 25 percent weight reduction compared to Emperor Wen's Four-grain Half-ouncer, which probably continued to circulate.

Since for a time the Three-grainer was in insufficient supply, the Half-ouncer could not be abolished. Hence after five years the Three-grainer was abolished, and production of the Half-ouncer was reestablished. In actuality, not many of the Three-grainers survive. Melting down of coins for their metal flourished then. This made coins still thinner and lighter, and prices rose still more.

After the formal break with the Xiongnu in *yuanguang* 2 [133 B.C.], the situation changed. Large scale military operations were mounted every year, and expenses were necessarily very large, especially between 121 and 120 B.C., when Huo Qubing led his cavalry to Longxi, where he killed over 30,000 of the enemy and accepted the surrender of 40,000 more.

In 119 B.C. Zhang Tang requested the issue of White Metal and Hide Money to make up for the deficit. He said that because of the floods in the east [166]

725,000 impoverished refugees had been moved to the northwest. Of course this was an extraordinary expenditure, but it was not the only reason for the deficit. The war was also an important reason.

The tax on strings of cash was also first levied at this time, because that Summer Wei Qing and Huo Qubing each led 50,000 cavalry and several hundred thousand infantry in a long distance attack upon the Xiongnu. Hide Money was restricted to use by the nobility during imperial audiences. The quantity issued was probably not great, and it cannot be considered to have been true money. The monetary depreciation was mainly carried out by way of the White Metal.

Of the types of White Metal, the Dragon-coin weighed 8 ounces, and had a face value of 3,000, each ounce being equated with 375 cash. This was too high, because at most the price of silver then was 125 per ounce.<sup>1</sup>

This was not the only shortcoming of White Metal. White Metal was an alloy of silver and tin, and there was then no fixed standard of purity for it. Hence the proportion of tin could be varied at will, and this was a very great temptation for illicit coiners.

<sup>1</sup>Under Wang Mang's Treasure-money system, 8 ounces of ordinary silver was priced at a thousand cash, so that one ounce was 125 cash. At that time, however, the cash was a one-grain Small-cash, whereas during this portion of Emperor Wu's reign the cash was a Four-grainer. If we assume no change in the copper price of silver, then the price per ounce of silver under Emperor Wu could only have been 31 cash. The purity of silver was, however, very low during Han, and the real price of silver must be based on Zhuti-silver. In Wang Mang's time an ounce



This was similar to the electrum coins (an alloy of gold and silver) issued by Lydia several hundred years before Emperor Wu's time. Coincidentally, the Lydians also called their money white metal,<sup>2</sup> and there were no fixed standards for its purity either. It averaged 75 percent gold, with the remainder silver, but some coins are only 5 percent gold. At first people thought electrum was a separate metal, and so there was little illicit coining of it. Later, when it was discovered to be an alloy, it was depreciated through human intervention.

Everyone knew that Emperor Wu's White Metal was an alloy, and since its face value was so high, naturally further depreciation was inevitable.

After the White Metal was circulated, large-scale illicit coining appeared. The *Han History*, "Treatise on Food and Money" states:

During the five years after the introduction of the White Metal and Five-grainer, the number of officials and commoners pardoned at the five annual remissions from the death penalty for illegal coining was several tens of thousands. Countless others were not made known and so were killed. Over a million were pardoned for passing them out themselves, but this was less than half of those doing so. All over the Empire, people were minting the Metal and cash without a care.

The *Debates on Salt and Iron* adds: "After this, there was a partial return to the old coins, but the White Metal, Tortoise and Dragon-coins were still circulated, and many people counterfeited the new coins." Within the country, those who did not go off to fight as soldiers, got hold of copper to mint coins, or fled to lead the lives of bandits. There was no other way to earn a livelihood.

The Five-grainer began to be produced the year after the White Metal. Since the deficit was to be made up by the White Metal, the copper cash could be transformed from the Four-grain Half-ounce to the Five-grainer.

Prices then might have been expressed either in terms of copper cash or White Metal. In 118 B.C. the price of a horse was 200,000.<sup>3</sup> People were unwilling to engage in production, and instead carried on speculation.<sup>4</sup>

was equal to 200 Small-cash.

<sup>2</sup>Lydia's white metal is called electrum by the Europeans, a term which means white metal or white gold, because its silver content causes it to take on a white or light yellow color. These coins were circulated in seventh century B.C. Lydia.

<sup>3</sup>*Han History*, "Annals of Emperor Wu": "(Yuanshou) 5 . . . There were few horses in the Empire. An ordinary stallion was 200,000."

This episode of monetary depreciation was also partially the result of theoretical considerations. Many of the courtiers of that time, men like Jia Shan and Chao

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Cuo were Legalists. The Legalist monetary theory was very close to that of the national determination theory of later ages. These people denied that money had any intrinsic value, and supposed that its value was bestowed by the monarch, the government, or by statute, or came about through custom, and that it was unchanging. The Chinese Nominalists of that time, however, opposed private coining, and thought that the authority to issue coins ought to be centralized in the hands of the government. They opposed the early Han doctrine of free coinage.

The White Metal was only issued and in use for less than two years. In 117 B.C. it was abolished.<sup>5</sup> Hide Money was not a full money anyway. Therefore, even though the histories do not state clearly whether it too was abolished then, this is not very important.

After the abolition of White Metal, only the Five-grainer remained in use. This would seem to have been an arrangement which would have stabilized the value of the coinage. What may have enabled the government to adopt this measure then

<sup>4</sup>*Ibid.* "Yuanshou 6, 6th month, an edict stated that officials were constantly saying that the lightness of the coinage was causing many abuses. Agriculture was being harmed, and the secondary occupations becoming crowded."

<sup>5</sup>*Western Han Abstract of Laws*, 53: "In yuanding 2 [115 B.C.] the White Metal was abolished." *Han History*, "Treatise on Food and Money" states: "After the manufacture of the White Metal and Five Grainer,

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during the next five annual pardons, several hundred thousand officials and commoners were pardoned from the death penalty for illicit coining." This would seem to suggest that the White Metal circulated for five years, but actually this five years included the period when the Five-grainer was put into circulation as well.

The text goes on to say: "The White Metal was cheap, and the people did not use it as a store of value. Because the district officials were forbidden to do so they did not increase it. Not long after the end of the year it was abolished and no longer circulated. This year Tang died." Evidently the White Metal was abolished the year Zhang Tang died. According to the *Former Han History*, "Annals of Emperor Wu," Zhang Tang committed suicide in yuanding 2 [115 B.C.], which corresponds to the statement in the *Western Han Abstract of Laws*, but according to the *Han History*, "Table of Officials," Zhang Tang died in yuanshou 6 [117 B.C.]. Thus the White Metal only circulated for one or two years.



was the putting into effect of the Salt and Iron Monopoly policy, which increased treasury receipts, so that the issue of White Metal was no longer required.

The circulation of money was not entirely stabilized. The focus of depreciation was merely shifted to the copper cash. It is said that private coining rendered the weight of Five-grainers insufficient,<sup>6</sup> and so in 115 B.C. a value-5 Red-edged coin was minted. This constituted a depreciation, since the face value was several times the actual value, and had the perverse effect of stimulating still more private coining.<sup>7</sup> Finally, there was no choice but to abolish the value-5 Red-edged coinage, and to forbid the commanderies and fiefs from making coins. Standard Five-grainers were minted centrally by the government.<sup>8</sup>

The reason why there was no great jump in prices during Emperor Wu's time was probably because of his taxation policies and other measures. His many stratagems for raising tax rates and setting up new taxes siphoned excess money back into the treasury.

The reckoned-contribution tax was increased, the head-field tax and horse-head-cash tax were created by him. The head-field tax was a per capita tax levied annually on children from ages three to fourteen, with each such individual being liable for 20 cash.

The horse-head-cash tax was a surtax on the head tax. It was used to meet the expenses of using cart horses. This was part of the cost of war. It was 3 cash per person.

The reckoned-land tax was a head tax on adults. Though not created by Emperor Wu, he raised the

rate, but by how much is not recorded. During Emperor Wen's reign it was 40 cash per reckoning. Under Emperor Xuan it was 190 cash, and he had reduced it, so a larger increase must have occurred under Emperor Wu. If we assume that the rate was 190 under Emperor Wu,<sup>9</sup> that the population was 60 million,<sup>10</sup> and the number of those paying the tax was 50 million, 10 million of whom were children and 40 million were adults, this would have brought in annual revenues of 7,830,000,000 cash. Some people had to pay more than one reckoning. Merchants, for example, and slaves were each subject to two reckonings. Women living alone were subject to five reckonings.

This tax policy  
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caused Western Han's monetary economy to advance somewhat, since it required all to use coins. It also, however, caused a contraction of the money supply in the market. There was also a reckoned-string-cash tax, which also had the effect of contracting the money supply. In yuanfeng 1 (110 B.C.) Sang Hongyang's Office of Price Equalization Through Transportation was established. This was an attempt to stabilize prices by engrossing large quantities of goods.

In his later years, Emperor Wu emphasized agriculture, and adopted the Equivalent Field Law and improved agricultural tools so as to raise productivity. This was also extremely important for stabilizing the purchasing power of money. In another development, after the great war of 119 B.C., the Xiongnu Shanyu, Yinzhixie, led his people away from China, and before long the Xiongnu rapidly plunged into decadence, which greatly lightened China's burden of military expenses.

During the reign of Emperor Zhao (86-74 B.C.), peasants who had run away earlier gradually returned to their homes, much new land was opened

<sup>6</sup>*Han History*, "Treatise on Food and Money": "The commanderies and fiefs minted coins. Many of the people illicitly minted, and most of their coins were light. And so the Ducal Offices requested that the Capital Districts mint official Red-edged coins, with a face value equivalent to five normal coins, and that none but these be allowed to circulate for payment of taxes and official use."

<sup>7</sup>*Ibid.* "Two years after this, the Red-edged coin had cheapened, and the people had ingenious methods for using it, so that it became inconvenient, and it too was abolished."

<sup>8</sup>*Ibid.* "Thereupon the commanderies and fiefs were forbidden to mint coins. The Three Offices of the Upper Grove Park alone were to mint coins. As coins were too numerous, orders went out to the Empire that none but the coins of the Three Offices were to be circulated. All of the coins minted by the commanderies and fiefs were to be melted down, and the copper they contained forwarded to the Three Offices. Those among the people minting coins became few, since the expense of doing so exceeded their face value. Only true artisans, great villains or thieves made them."

<sup>9</sup>Historians have always supposed that the Han reckoned-contribution tax was 120 cash per reckoning from the beginning, and that all increases and decreases were from this base. This is incorrect. We may consult the research of Katō Shigashi. He supposes the 120 cash per reckoning rate was the rate after the reform of Emperor Cheng's jianshi 2 [31 B.C.], which brought the rate down to 40 cash. Before that, in Emperor Xuan's ganlu 2 [52 B.C.], it was 30 cash less. So before that time, each reckoning must have been 190 cash. (Cf. Katō's *Investigations of Chinese Economic History*, 1, 5, "An Inquiry into the Reckoned-contribution tax.")

<sup>10</sup>We have Han population figures only for Emperor Ping's yuanshi 2 [2 A.D.]. The total is 59,594,978. Cf. *Han History*, "Treatise on Geography." At the high point of Emperor Wu's reign it was probably about the same.



and production increased.<sup>11</sup> In 75 B.C. there was even concern expressed over the cheapness of grain.<sup>12</sup> In Emperor Xuan's *yuankang* 4 (62 B.C.), grain sold for only 5 cash per picul.<sup>13</sup> Even Ban Gu later wrote: "The peasants occasionally profited." Prices then were reckoned in Five-grainer coins, and the Five-grainers of Emperor Xuan's reign are rather uniformly fine.

The rise in money's purchasing power and the simultaneous widening of the sphere of its circulation made it necessary to mint small Five-grainers. Food prices during Emperor Xuan's reign seem to have been lower than those of the times of Emperors Wen and Jing. A price of 100 cash per picul was considered cheap back in that earlier time, and the lowest price was several dozen cash per picul. In addition to good harvests, there was also the factor of the weight of the coins.

During Emperor Wen's reign, there were still a number of Pod-cash in circulation, and even standard coins only weighed four grains. During Emperor Xuan's time, the Five-grainer was in use, and so with equally good harvests, prices during Emperor Wen's reign would at the very least have been 2.5 times higher than those of Emperor Xuan. The country was at peace then, expenditures had been reduced, and a large portion of the coins had been concentrated within the national treasury. By the time of Emperor Yuan's ascent of the throne, there is evidence that the treasury had accumulated over eight billion cash.<sup>14</sup> It was perhaps because of the increased holdings of cash in the treasury that in 59 B.C. the salaries of low-ranking officials were raised fifty percent,<sup>15</sup> and in 55 and 52 B.C. the capitation tax<sup>16</sup> and popular-reckoning<sup>17</sup> were re-

duced. In 54 B.C. the number of soldiers was reduced by twenty percent.

At the beginning of Emperor Yuan's reign, the treasury held a large surplus. In addition to the reduction in expenditures, the main reason for this was probably the large number of coins which had been minted.

The Five-grainers of Emperor Xuan are the most numerous of surviving Western Han Five-grainers. The coin molds most commonly unearthed also are of his time. There are coin molds extant for nearly all the year periods of his reign.

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Rice prices were three or four times higher during Emperor Yuan's reign than during Emperor Xuan's time. We can deduce this from the rate of discount of official salaries then when converted from grain to cash. Western Han official salaries were expressed in terms of piculs of grain, but at times a portion or even the entire amount would be paid in coin at the going price for grain. Under Emperor Xuan, a 100-picul minor official would receive 600 per month.<sup>18</sup> If we assume such an official received 16 *hu* of grain per month, then a *hu* was worth 37-38 cash. Under Emperor Yuan, an 800-picul official's salary would be commuted to 9,200, and later a 2,000-picul functionary would get 12,000 per month.<sup>19</sup> This would make a *hu* equal to 118 cash.

<sup>16</sup>*Ibid.* "Wufeng 3 . . . reduction in the capitation cash."

<sup>17</sup>*Ibid.* "Ganlu 2 . . . an edict stated . . . reduce the popular reckoning by thirty."

<sup>18</sup>*Ibid.* has a note quoting the words of Ru Chun [a Three Kingdoms period commentator. EHK]: "By law a 100-picul official monthly received 600." According to the *jianwu* year-period [25-56 A.D.] salary schedule, a 100-picul official should receive 16 *hu* of grain per month.

<sup>19</sup>*Han History*, 72, "Biography of Gong Yu": ". . . appointed as Grandee Remonstrant, which was an 800-picul post, and received 9,200 cash per month. . . then appointed Imperial Court Grandee, which was a 2,000-picul post, and received 12,000 cash per month." There is no 800-picul entry in the *jianwu* salary schedule. According to the *Western Han Abstract of Laws*, a Grandee Remonstrant, which was comparable to an 800-picul position in that it was ranked at 600-piculs, earned 70 *hu* of grain per month, making a *hu* equal to 131 cash. If we assume that an 800-picul post got 75 *hu* per month, since that would be the mean between the 1,000-picul and 600-picul positions, then a *hu* of grain was 122 cash. An Imperial Court Grandee, according to the *Western Han Abstract of Laws*, was comparable to a 2,000-picul position. This, according to the *jianwu* salary schedule, broke down into 100 *hu* per month, and each *hu* was the equivalent

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<sup>11</sup>*Han History*, "Treatise on Food and Money," first part.

<sup>12</sup>*Han History*, 7, "Annals of Emperor Zhao": "Yuanfeng 6 . . . an edict stated: The cheapness of grain is harming agriculture. Now the grain of the Three Capital Districts and of the Grand Minister of Ceremonies has become reduced in price. It was ordered that the Imperial Uncles' grain serve as this year's field tax."

<sup>13</sup>*Han History*, "Annals of Emperor Xuan": "Yuankang 4 . . . successive good harvests. Grain was 5 cash per picul." The "Biography of Zhao Chongguo" adds: "[During 61-58 B.C.] in Jincheng and Niezhong, grain was 8 cash per *hu*."

<sup>14</sup>*Han History*, 86, "Biography of Wang Jia": "When Emperor Yuan undertook his great tasks, life was mild and gentle, and desires were few. The Treasurer had four billion cash. The Chief Commandant of Water and Parks had 2.5 billion cash. The Privy Treasurer had 1.8 billion cash."

<sup>15</sup>*Han History*, "Annals of Emperor Xuan": "Shenjue 3 . . . an edict stated . . . clerks with 100 piculs or less are to receive an increase in salary of fifty percent."



We lack reliable material on cereal prices in general during Emperor Yuan's time. If we convert Gong Yu's official salary into cash, each *hu* would seem to be worth around 100 cash, because when he served as Grandee Remonstrant, ranked at 800 piculs, he received 9,200 in cash. What an 800-picul<sup>20</sup> official received in grain per month is not recorded. There is no 800-picul ranking in the Eastern Han *jianwu* year-period salary schedule, there is only a 600-picul rank. A 600-picul official got 60 *hu* per month. Western Han high officials' salaries were higher than Eastern Han, and so an 800-picul salary should have been no less than 85 *hu* per month, and that would make each *hu* the equivalent of 108 cash. Later, when he served as Imperial Court Grandee, he was ranked at 2,000-piculs, and received 12,000 cash. A 2,000-picul official would get 120 *hu* per month in grain, and so each *hu* would be worth 100 cash.

Some people say that a Chancellor, a Grand Minister of War, and a Grand General each received 60,000 cash per month, and that a Grandee Secretary got 40,000.<sup>21</sup> This was probably the situation during the reign of Emperor Cheng or Emperor Ai. During Emperor Chen's time, He Wu requested the establishment of the Office of the Three Ducal Ministers. This was done during the reign of Emperor Ai, and the Chancellor, Grand Minister of War and the Grand Minister of Works became the Three Ducal Offices. These were 10,000-picul posts, and must have had between 400 and 500 *hu* per month, which would make each *hu* worth 130-140 cash. The Grandee Secretary was a Supreme Minister, and must have received 300-350 *hu* each month, making a *hu* worth 120-130 cash.

of 120 cash. For a 2,000-picul post, the monthly wage would be 20 *hu*, and each *hu* would be worth 100 cash. If we average all of the above discounted equivalents to calculate the average price of grain during Emperor Yuan's time, a *hu* was 118 cash.

<sup>20</sup>For Gong Yu's words cf. *Han History*, 72, "Biography of Gong Yu": These words were spoken during the reign of Emperor Yuan. Though the official salary system of Western Han cannot be verified, the official rank hierarchy is to some extent ascertainable. The *Han History* "Biographies of Imperial In-Laws" tells us that in Emperor Yuan's time, the hierarchy of palace ladies ran parallel to that of the official ranks. Above the middle 2,000-picul ranks were the two ranks of Chancellor and Supreme Minister. Below there were the True 2,000-picul, 2,000-picul, 1,000-picul and 800-picul ranks.

<sup>21</sup>*Han History*, 10, "Annals of Emperor Cheng" contains a note quoting the words of Ru Chun.

### 3. The Monetary Depreciation During the Time of Wang Mang

The stability of the Western Han monetary system gradually decayed after the time of Emperor Wu. Though the treasury still held a surplus of over eight billion<sup>1</sup> when Emperor Yuan ascended the throne, there was already a tendency for the price of food to rise. In *chuyuan* 2 (47 B.C.) on one occasion the price of grain rose to over 300 cash per picul. In *yongguang* 2 (42 B.C.) it rose to over 200. On the frontiers and near the capital it even sold for as much as 400-500.<sup>2</sup> In the last years of the reign there were military campaigns against the Western Qiang, and it was only because the treasury was still full that there was no crisis.<sup>3</sup> Nevertheless, the price of grain in normal years had risen to more than 100 cash per picul, which was much higher than during the reigns of Emperors Zhao and Xuan.

During the reign of Emperor Cheng (32-7 B.C.), though there was a tax reduction,<sup>4</sup> there were floods and droughts, the good order of society gradually deteriorated, and prices may have risen. Under Emperor Ai (6-1 B.C.), the normal grain price was probably 170 cash per picul.<sup>5</sup> Upon Emperor Ping

<sup>1</sup>*Han History*, 86, "Biography of Wang Jia." Cf. subsection 2.2.2 above, note 14.

<sup>2</sup>*Han History*, 24, "Treatise on Food and Money": "When Emperor Yuan ascended the throne, there were great floods in the empire. They were particularly severe in eleven commanderies in the east. In year 2, there was famine in the lands of Qi, and a picul of grain went for over 300. Many people died of starvation." *Op. cit.*, 79, "Biography of Feng Fengshi": "Yongguang 2 . . . the harvest was comparatively low. In the Capital Districts grain sold for more than 200 per picul. It was 400 in the border commanderies and 500 in the east."

<sup>3</sup>*Op. cit.*, 86, "Biography of Wang Jia": "Although there were bad years and famines during the *chuyuan* and *yongguang* eras [48-39 B.C.], and there was in addition the revolt of the Western Qiang requiring external moves of the army and the internal unsettling of the impoverished, in the end there was no crisis, because the treasuries were full."

<sup>4</sup>*Op. cit.*, 10, "Annals of Emperor Cheng": "Jianshi 2 [31 B.C.] . . . an edict stated . . . reduce the Empire's Reckoned-contribution by forty."

<sup>5</sup>*Ibid.*, note quoting Ru Chun: "By law a Chancellor, Grand Minister of War, or a Grand General received a salary of 60,000 cash per month, and a Grandee Secretary received 40,000." According to the *jianwu* salary schedule, a 10,000-picul post got 350 *hu* of grain per month, which would make each *hu* worth 170 cash. A Grandee Secretary was the equivalent of a middle-2,000-picul rating, and would get 180 *hu* per month, and so a *hu* would be worth 222 cash. Although Ru Chun's words appear in



coming to the throne (1 A.D.), the sovereign power fell into the hands of Wang Mang.

Before taking up the discussion of the monetary depreciation carried out by Wang Mang, we can sum up the circumstances of money's circulation during the last years of Western Han.

The histories state that during the 120 years from 118 B.C. to 1-6 A.D., over 28 billion Five-grainers were minted.<sup>6</sup> On the average, over 230 million coins were produced each year. During the last years of Western Han there were undoubtedly also a number of privately minted coins and Half-ouncers still in circulation. Even if we exclude the private coins and Half-ouncers, or treat them as coins kept in hoards, there was money in circulation equivalent in value to 2.8 million catties, or 716,800 kilograms of gold. In addition, 700,000 catties of gold, equal to 180,000 kilograms, were present, and had some of the functions of money.

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These are huge figures which fully make clear the dimensions of the monetary economy then.

Wang Mang's domestic aim was to establish his own dynasty. Abroad, he wanted to expand to make China into a large empire. To realize so great an ambition would require a very large sum of capital.

To establish his own dynasty he had to capture men's loyalties. During the reign of Emperor Ping he had established a retirement fund system for high ranking officials, he had encouraged education, and supported scholars. Naturally, these activities in-

creased government expenditures. He even made contributions from his own landed property, but since sovereignty was in his hands, his own contributions did not go for his personal use, and so he could thereby stimulate other officials into contributing their own property. Of course, such contributions were insufficient, and so he went on to plunder the people at large. This is the background to his first reform of the monetary system in 7 A.D.

In this monetary reform Wang Mang issued three new coins. The first was the Large-spring-fifty; the second was the Inscribed-knife-five-hundred; the third was the One-knife-equals-five-thousand, generally called the Inlaid-knife or Gold-inlaid-knife. The Large-spring weighed 12 grains, which made it 2.4 times the size of the Five-grainer of those times, but since it bore a face value fifty times that of a Five-grainer, this amounted to a depreciation to less than 5 percent of the previous level. This coin had the effect of cheating small producers of their capital and labor. The inscribed knife weighed around 16 or 17 grams, and was equated with 500 Five-grainers. This was a depreciation to less than 0.8 percent. The inlaid knife, including the minuscule amount of gold inlay, weighed around 28-29 grams, and each was equated with 5,000 Five-grainers. This amounted to a depreciation to less than 0.1 percent of the former level (not counting the gold).

The function of these two coins was to fleece those of middling property and the rich. They were mainly used to sop up gold from all over the country. Since the price of gold then was 10,000 cash per catty, two Inlaid-knives or twenty Inscribed-knives could be exchanged for a catty of gold.

Simultaneously, Wang Mang banned private possession of gold. This was in fact to proclaim the nationalization of gold. Later, not even an exchange price was given for gold. Hence not very many of these two knife-coins have survived. After Wang Mang's death, there was 6-700,000 catties of gold in the palace.<sup>7</sup> I suspect that most of it was sucked in during this first monetary reform.

There was resistance among the people to this exploitation. They resisted using the new coins, and continued to use the Five-grainer. The Five-grainer was still legal at that time. Wang Mang had not yet thought of banning it, but he very quickly got the idea, and after he formally usurped power (9 A.D.), he carried out his second monetary

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reform which abolished the Five-grainer and the

a note to the "Annals of Emperor Cheng," he must have been speaking of the situation during Emperor Ai's reign, because under Emperor Cheng the Chancellor was subordinated to and made one of the Three Ducal Offices, and it was not until Emperor Ai's time that the Chancellor, Grand Minister of War and Grand Minister of Works became the Three Ducal Ministries. They jointly achieved prime ministerial status in yuanxi 2 [1 B.C.]. That was when the Grandee Secretary's title was changed to Grand Minister of Works, and he became one of the Three Ducal Ministers.

So the law *Ru Chun* speaks of must have been a law of Emperor Ai's time. According to the *Western Han Abstract of Laws*, the Three Ducal Ministers and the Grandee Secretary both held rank at the 10,000-picul level. By the terms of the *jianwu* salary schedule, that rank received 350 *hu* of grain per month. During Western Han, the Three Ducal Ministers and the Grandee Secretary were different, the former holding the rank of Chancellor, and the latter holding the Supreme Minister rank. The *Han History* "Biographies of Imperial In-laws" remarks that the official ranks of Emperor Yuan's time numbered thirteen, from Chancellor down to the lowest rank, called Eaters of Quarts, but it does not attach salary figures to those ranks.

<sup>6</sup>*Han History*, 24, "Treatise on Food and Money."

<sup>7</sup>*Op. cit.*, "Biography of Wang Mang."



knife-coins in favor of the Large and Small-spring coins.

The Small-spring was a new issue. It weighed one grain, and was to replace the Five-grainer. He simultaneously banned the private holding of copper and charcoal so as to prevent private minting.

This second monetary reform can only be viewed as a continuation of or supplement to the first reform. The knife-coins were probably abolished because their aims had been accomplished: The country's gold had been concentrated in the national treasury. Nevertheless, the people continued to resist. They would not accept the Large and Small-spring coins, and kept on using the Five-grainer for purposes of exchange.<sup>8</sup> Word also spread that the Large-spring would quickly be abolished.

Wang Mang thereupon determined on a strict course of punishments: Anyone who used the Five-grainer was to be exiled to the frontier. The result of this was "agriculture and commerce went bankrupt, and food and commodities were both lost. The people wept in the markets and on the roads." Countless persons, ranking from nobles and high officials down to commoners, were punished for private coining.<sup>9</sup> Since the people had no way to maintain a stable coinage on their own, they had no choice but to carry on private coining to earn a living. So sharp a struggle between the people and ruling class over the monetary system was rarely seen in Chinese history.

In the second year after Wang Mang proclaimed himself Emperor (10 A.D.), he carried out a third monetary reform, instituting the extremely complex Treasure-money system. This reform also effected a

depreciation of the coinage, but not so severe a one as did the first reform. It did however, proceed a step further in depreciation than the second reform.

The heart of the depreciation lay in the creation of Spade-money, because the Spring-money's face value was the same as that of the previous Large and Small-spring, except that several denominations were inserted between the two. The Spade-money's face value was raised. If we use the Small-spring as our base, then the Small-spade weighed fifteen times more than the Small-spring, but had a face value a hundred times that of the Small-spring. The Large-spade weighed twenty-four times more than the Small-spring, but had a face value a thousand times higher. The copper from 24 Small-springs could make one Large-spade which was equal in face value to a thousand Small-springs, and so the seignorage (i.e. the profit to the mint) was more than forty-fold. This was ten times more than the seignorage from the second reform.

That is to say, this third monetary reform yielded a depreciation ten times that of the second reform. The exploitation of the people was ten times greater after this third reform than it was after the second one. Therefore, of the ten kinds of Spade-money, more of the Large-spade were minted than of any other. The other nine are scarce. There are even fewer of them than of the Gold-inlaid knives.

Why did Wang Mang wish to carry out this new act of exploitation? It was not to gather in gold, because all the gold had already been drawn in. It was not to carry on a war, because at that time there was no important war going on.

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We can only conclude that this reform was carried out to make provision for some future foreign war. The year before Wang Mang had set up his own dynasty, he had already collected from the chiefs of the various tribes the seals of authority issued by the Han authorities, and passed out instead the seals of his own New Dynasty. He had also lowered the ranks of these chieftains, and compensated them for this with some of the gold he had confiscated from the people. The Xiongnu, however, had embarked on a path of resistance.

Wang Mang had probably carried out this monetary reform to extort still more of the property of the people within China so as to prepare for imminent foreign war. The year after this reform (11 A.D.), he mobilized 300,000 soldiers and 300 days provisions, and sent them out along ten routes to attack the Xiongnu. The histories' statements that "he taxed away half the wealth of the people" testify to the extremity of his extortions.

The people continued to resist this assault. Wang

<sup>8</sup>*Op. cit.*, middle section: "In shijianguo 1 [9 A.D.] . . . he made the small coins with a diameter of 0.6 inches. They weighed one grain, and bore the inscription Small Cash Value One. They were circulated along with the previously issued Large Cash Fifty. It was desired to hinder illicit coining among the people, and so they were forbidden to hold copper and charcoal. . . . At this time the common people rested content with the Han Five-grainer coin. Because Mang's large and small coins were hard to distinguish when in circulation, and there was no faith that their number would not change, everyone privately used the Five-grainer for purchases in the market, and word was spread that the Large coin ought to be abolished.

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No one was willing to hold it. Mang was troubled by this, and repeatedly issued statements to rebut those who held on to the Five-grainer and said the Large coin ought to be abolished. He argued that this would be contrary to the well-field system, and so he exiled them. Thereupon both agriculture and commerce went bankrupt, and food and commodities were both lost."

<sup>9</sup>*Ibid.*



Mang then adopted a coldblooded form of punishment: If one family minted coins, five families were linked to it in guilt. He continued to promote the Spade-money. Wherever the people went, they had to carry Spade-money with them, if they were to be allowed to proceed. If they did not, they "would have nowhere to eat or stay, and would be annoyed and delayed at the passes and ferries."<sup>10</sup> Even the highest officials coming to the palace, had to carry Spade-coins before they could get through. But though the circulation of Spade-money was encouraged by force, prices could not be kept from rising. The histories say that even the normal price of grain was high. Government expenditures increased without limit, and as a consequence so-called bandits arose.

In 14 A.D. a fourth monetary reform was instituted. The Monetary-spring and Monetary-spade were minted. The Monetary-spring weighed five grains, and was valued at one unit. The Monetary-spade weighed 25 grains, and was valued at 25 units. This reform seems to have enjoyed some success, because the Monetary-spring weighed the same as the Five-grainer, and was virtually a restoration of the Five-grainer. The Monetary-spade involved only a relatively minor degree of depreciation. Hence the goal of this reform was to stabilize the coinage, and recover the people's loyalties.

In fact, this is considered the most successful of Wang Mang's coinages. These coins circulated for the longest time, and more of them have survived than the others. But because people's loyalties had been lost in other respects, and because a few years later there was another Xiongnu invasion, and because of a rebellion of serfs and slaves, the country fell into disorder.

"From the aristocrats down to the petty clerks, no one received their salaries. . . . The rich could not preserve their wealth. The poor had no way to preserve their existence."<sup>11</sup> The price of rice ranged from 2,000 per picul<sup>12</sup> to 10,000.<sup>13</sup> There were even times when gold was used as a medium of exchange, with one catty of gold buying one *hu* of

millet,<sup>14</sup> or one *dou*,<sup>15</sup> or two *sheng*.<sup>16</sup> Even if we discount these according to the official exchange rate, a picul of millet was worth from 10,000 to several hundred thousand cash.

That, however, was not a matter caused by depreciation of the money, but rather by a dearth of goods, because by then the people

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must no longer have been using the large denomination coins of Wang Mang, but rather had gone back to the old Five-grainers and Wang Mang's Monetary-spring coins. The latter may well have suffered from lightening, but compared to the large denomination coins, they did not endure a severe depreciation.

In 24 A.D. Liu Xuan issued a Five-grainer. The victorious restorer of Han, Liu Xiu, did not, however, use a Five-grainer, but rather the Monetary-spring.

After Wang Mang's death, circulation of money was probably very chaotic, with a number of places using Spade-springs, gold and grain intermixed. Sichuan's Gongsun Shu abolished copper cash in favor of iron coins, which was a depreciation of the coinage. It was probably popular dissatisfaction with this coin that evoked the nursery rhyme that reads "Yellow ox's belly's white; Restored Five-grainer'd make things right." This originally was a political satire produced then by Gongsun Shu's opponents.

#### 4. The Value of Eastern Han's Money

For no period in Chinese history since Han are materials on the purchasing power of money as scarce as they are for Eastern Han. Nevertheless, we can make the general statement that except for one

<sup>14</sup>*Later Han History*, 1, "Annals of Emperor Guangwu":

"At first, at the end of Wang Mang's time, the Empire suffered from drought and locusts. One catty of gold exchanged for one *hu* of millet."

<sup>15</sup>*Eastern Monastery Han Record*: "From the end of Wang Mang's time the Empire endured drought and frost, and for successive years the grain crops did not mature. By the beginning of year 1, there were few to plow, and the people were starving. A catty of gold exchanged for a *hu* of millet."

<sup>16</sup>*Sixteen Kingdoms Annals*: "In the various prefectures, from *jianwu* 1 [25 A.D.] 1st month on, there was no rain or snow. By the 12th month, 8th day, the price of grain had soared. A catty of gold was worth two *sheng* of rice."

<sup>10</sup>*Ibid.* Some say that the Spade-money referred to here were Spade-spring round coins, and not the key-shaped Spade-money.

<sup>11</sup>*Han History*, "Treatise on Food and Money," latter part.

<sup>12</sup>*Han History*, "Biography of Wang Mang," latter part: "From Luoyang east, rice was 2,000 per picul." "Treatise on Food and Money": "At the time, rice was 2,000 per picul."

<sup>13</sup>*Eastern Monastery Han Record*, 18, "Chronicle of the Fifth Principle": "At the end of Wang Mang's reign, when bandits arose, a picul of rice went for 10,000 cash, and cannibalism was practiced."



occasion under Dong Zhuo at the end of Han, no large scale depreciation was carried out.

The thirty-odd years of the Guangwu reign was a period of stability in money's value. This stability was not on the side of money, but on the side of goods. Because people resisted using Wang Mang's large denomination coins, and turned instead to the small ordinary coins, there were no problems on the money side. It was only because the many years of war had impoverished the people and exhausted their wealth, that even those with coins could not find goods to buy, and so prices became very high. To stabilize the value of money it was necessary to be frugal in consumption, and to set to work increasing production.

Emperor Guangwu's authority had some effect on the side of production.

First, in some places the officials promoted use of progressive methods of production and tools, such as iron plows and use of oxen for plowing.

Second, he lightened some of the burdens on the peasantry. These were necessary preconditions for the peasantry to restore the foundations for production. Though the annual land tax came to over four billion cash,<sup>1</sup> no small amount, it probably represented a much lighter burden than during Wang Mang's time. Because of their heavy burdens under the Wang Mang regime, the peasants then could not preserve themselves without abandoning their fields and launching rebellions.

Third, he set up Garrison Fields colonies, used pardoned criminals to settle the frontiers, and sent peasants who had fled back to their native places.

These

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were all measures designed to increase production. In addition, he practiced strict economy, and took on no new campaigns on the frontiers. This reduced some wasteful expenditures. His measures all helped stabilize the value of money.

We can judge their efficacy during the reign of Emperor Ming. Five years after he ascended the throne (62 A.D.), the price of millet was only 20 cash per picul.<sup>2</sup> This was as low as the level during

the times of Emperors Wen and Jing. In yongping 10 and 12 [67 and 69 A.D.], it was only 30 cash.<sup>3</sup> An historian writes that "the masses were rich," and "cattle and sheep covered the uncultivated land."<sup>4</sup> This was the result of successive good harvests, but good harvests are inseparable from the people laboring to produce them.

In 73 A.D. an army was sent off against the Xiongnu. Two years later a Xiongnu attack defeated the Han army on the western frontier. This became a threat to the monetary system.

During Emperor Zhang's reign [76-89 A.D.], prices were unstable. Zhang Lin blamed this on an excess quantity of money, and advocated bottling up the money supply. Clearly, the military deployments near the end of the reign both consumed much real wealth and had required a large increase in the money supply. Though there were no large wars then, Ban Zhao's activities on the western frontier had been supported by Emperor Zhang's government, and so it was hard to avoid increasing expenditures.

After Emperor He assumed the throne (yongyuan 1, 89 A.D.), soldiers were several times dispatched to attack the Northern Xiongnu. The latter suffered a major defeat, and moved west. Thereafter, the Xiongnu were no longer so powerful an opponent as before, but because of successive years of foreign war, expenditures had increased, and fiscal policy must have grown more difficult. This caused a further weakening in the economic foundations for money's stability. According to the official salary schedule of the yanping era [106 A.D.], the price of millet then was 150 cash per picul.

The nation's fiscal situation further deteriorated after Emperor An took the throne. This was mainly because of the war with the Western Qiang. The histories say that "tax collection never ceased; the floods did not ease; the strength of the land was not restored." It was also said that "the labor of the peasantry was expended on transportation; the wellsprings of capital were exhausted by taxation; fields were not opened to cultivation, and the grain was not harvested." Hence in yongchu 2 (108 A.D.), the

<sup>1</sup>The *Taiping Yulan*, quoting *Huan Dan's New Doctrine*.

<sup>2</sup>*Jin History*, 26, "Treatise on Food and Money": "When Xianzhong ascended the throne, the Empire was at peace, and the people were not burdened with labor service. Good harvests succeeded each other. In yongping 5 [62 A.D.] an Ever-normal Granary was built, and a grain market set up in the eastern part of the city. One *hu* of millet was priced at 20 cash. Hay accumulated in great bales. Cattle and sheep spread as far as the eye could see. Taxes in kind were especially light, and official granaries still overflowed, though illicit practices were not

employed."

<sup>3</sup>*Eastern Monastery Han Record*, 2: "In yongping 10 [67 A.D.] there was a record harvest. The masses were rich. Millet was 30 per *hu*. Cattle and sheep covered the uncultivated land." *Latter Han History*, "Annals of Emperor Ming": "Yongping . . . 12 . . . This year the Empire was at peace. There was no labor service. There was a record harvest. The masses were rich. Millet was 30 per *hu*. Cattle and sheep covered the uncultivated land."

<sup>4</sup>*Jin History*, 26, "Treatise on Food and Money."



price of rice and other grains leapt up.<sup>5</sup>

Two years later the price of grain shot up to over 10,000 cash per picul. Probably the treasury was empty, and so the government borrowed several billion cash.<sup>6</sup> This, however, was only the beginning, since the war with the Western Qiang stretched on for fourteen years. War expenses totalled more than 24 billion, almost equal to the total production of coins during 130 years of Western Han. Annually this came to 1.7 billion. Since the population then was 56 million, this was 30 cash per capita. The light and thin Eastern Han Five-grainers probably were minted at this time. What is hard for us to explain is why they did not mint large coins.

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From Emperor Sun's yonghe 5 (140 A.D.) until the time of Emperor Chong (145 A.D.), there was another six or seven years of war which cost over 8 billion.<sup>7</sup> In Emperor Huan's kangyuan 1 (167 A.D.), Duan Gong mentions a military budget of 5.4 billion as required to guarantee the pacification of the Western Qiang within two and a half years.<sup>8</sup> In the end, 4.4 billion were used up in the pacification of the Western Qiang, and this dealt a serious blow to the economic foundations of Eastern Han.

Some people then advocated minting large coins, but because of Liu Tao's opposition this was not done.<sup>9</sup> It may be, however, that iron coins were minted, to be exchanged two for one with copper cash.<sup>10</sup> Though large coins were not minted, they did work out the Reduced-hundred system.

<sup>5</sup>*Latter Han History*, "Biography of Ma Rong."

<sup>6</sup>*Op. cit.*, 41, "Biography of Pang Can": "Year 4 [110 A.D.], the Western Qiang raids became numerous. Military expenses daily widened, and there were successive bad harvests. Grain was more than 10,000 per picul. Can's memorial, recorded by Deng Zhi, said: In recent years the Qiang raids have been particularly severe. In Longyou, the land tax and labor service are growing more onerous because of the damage. The officials have burdened the people to the amount of several billions and more. . . Transported provisions are dispersed into a wilderness. Cattle and horses perish in the mountains and marshes. The district officials do not have enough, and they borrow from the people, who are already impoverished. From whom shall they seek aid?"

<sup>7</sup>*Latter Han History*, 55, "Biography of Duan Gong."

<sup>8</sup>*Latter Han History*, 55, "Biography of Duan Gong."

<sup>9</sup>*Universal Statutes and Universal Record* both link this matter to the name of Emperor He. My statement here is based on the *Latter Han History*, "Biography of Liu Tao," and the *Investigation of Literary Remains*, "Investigation of Coins, 1." During the reign of Emperor Ling, Liu Tao was still serving as Governor of the Capital.

<sup>10</sup>Cf. subsection 2.1.1, note 37.

The so-called Reduced-hundred or Reduced-cash involved 100-coin units of cash which were only one hundred cash nominally. Somewhat less was actually paid out. There is a lead seal contract of Emperor Ling's guanghe 7 [184 A.D.] in which Fan Li's family buys land for "a thousand cash lacking fifty." A similar contract of zhongping 5 [188 A.D.] has Fang Tao buy land with the same formula. This phenomenon was evidently connected with a shortage of bronze cash caused by the rise in prices.

In Emperor Ling's guanghe 1 [178 A.D.], a sale of offices was carried out, with a dukedom going for 10 million, and a ministership for 5 million.<sup>11</sup> In 181 there was a requisition of horses, at 2 million cash per horse.<sup>12</sup> During the zhongping era (184-189), there were successive years of famine, and the price of a *hu* of grain was 6-700 cash.<sup>13</sup> This led to a number of localized peasant uprisings, most notably that of the Yellow Turbans, in which 300-400,000 people arose simultaneously. This pushed the domestic situation into chaos. Given this situation, the Four-corner Five-grainer issued by Emperor Ling may not have been intended to be a single unit value coin.

Eastern Han prices were definitely much higher than those of Western Han. We can infer this from the constricted sphere of circulation of Eastern Han money and the increased quantity of coins in circulation. I have already ascribed the narrowing sphere of the circulation of coins to the partial monetization of cloth. We can infer the increased quantity of coins in circulation then from the number of Eastern Han Five-grainers still in existence, and also from the fiscal expenditure figures cited above. Most of the more than 28 billion Five-grainers minted during Western Han must have still been in circulation during Eastern Han, to which must be added the Five-grainers minted during Eastern Han. These must also have been very numerous.

The sixty-odd-year struggle against the Western Qiang from the reign of Emperor An [107-126 A.D.] on must have involved great material loss. Though tax receipts could also have increased, since the late Han head tax was so severe as to prevent the people from raising children,<sup>14</sup> and so a number of

<sup>11</sup>*Investigation of Literary Remains*, "Investigation of State Requirements, 1."

<sup>12</sup>*Latter Han History*, 8, "Annals of Emperor Ling," guanghe 4, Spring, 1st month.

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<sup>13</sup>*Palace Gentleman Cai's Collected Works*, 7, "Petition on Long-standing Deficiencies By the Inspectors of Youzhou and Jizhou": "Recently, there have been successive years of scarcity, and the price of grain has reached 6-700 per *hu*."



people would have taken up private coining. It is hard to imagine how price increases could not have occurred.

The one severe reduction in the weight of the coins occurred during the reign of Emperor Xian. In 190 A.D. Yuan Shu and Cao Cao rebelled, and Dong Zhuo carried Emperor Xian into Chang'an, where he melted down Five-grainers and reminted them into the Small-

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cash. The histories do not record the weight or quantity of the Small-cash, nor has numismatics been able to identify which coins are Dong Zhuo's Small-cash.

If we assume a reduction to one-fifth the former weight, this would have permitted a several-fold increase in the quantity of money just on the basis of reminting Five-grainers. We cannot tell the specific quantity. By the end of Western Han a total of 28 billion Five-grainers had been minted, not including privately minted coins. An additional number had been minted during Eastern Han. If, at the time of Dong Zhuo, the total quantity of coins in circulation was 30 billion, and of these one-fiftieth were melted down by Dong Zhuo, 3 billion Small-cash could have been minted.

In addition, the bronze statues of Luoyang, bells, roof-brackets and bronze horses were all used to mint these coins.<sup>15</sup>

<sup>14</sup>*Water Classic*, "Notes on the Xiang River," quoting *Biographies of Previous Worthies of the Lingling*, says: "... there were many activities during late Han, and there was not enough for the state's needs. When a child reached the age of one year, capitation cash had to begin to be paid on it. Many people did not raise children."

<sup>15</sup>*Later Han History*, 72, "Biography of Dong Zhuo." The *Three Capital Districts Yellow Diagram*, 1: "The weapons of the Empire had been gathered in Xianyang, and melted down to make bells three yards high. The smallest of them would hold a thousand piculs. Weapons had been melted down to make twelve human figures of bronze, so as to enfeeble the people of the Empire. They were erected at the gates of the palace, and were three *zhang* tall seated. ... Dong Zhuo confiscated all of the bronze statues and bronze platform to make them into Small-cash."

Cheng Dachang of Song times, in his *Harmonious Record*, states: "In addition to the metal statues of men, there was a platform three *zhang* tall, which Dong Zhuo also melted down to make coins." In addition, "the *Temple Record* says that Emperor Wu of Han established rules for making a Spirit Illumination Platform. On it was a dew collection bowl, a bronze immortal holding a bronze bowl and a jade goblet to receive the dew emanating from the clouds, and layers of jade covering it to seek out the immortals." According to the *Stories of the Three Capital*

Of these, the twelve metal human figures of the First Emperor of Qin could have made 500 million to one billion coins, since each of them was said to hold a thousand piculs and to weigh 240,000 catties.<sup>16</sup> Some say Dong Zhuo only used ten of these statues to make coins. Others say it was nine.<sup>17</sup> Even if we assume nine of these statues were used to mint coins, they would have yielded 3-400 million to 7-800 million cash. If we add in the other bronze utensils, there could have been 4-5 billion new coins.

*Districts*, the bowl was twenty *zhang* high.

The *Record of Gao An* says: "The immortal held seven rings in his palm, made of copper." Also, "In addition to the statue made by Emperor Wu, there was more than one other image. In the Upper Grove Park there was a Flying Eave Monastery and Flying Eave Miraculous Birds. The Dazhang had a Phoenix Tower. On this were roof corner tile ridge metal ornaments. The Dragon Pavilion Gate had a bronze dragon. The Golden Horse Gate had a bronze horse. The Cypress Beam Terrace had a bronze pillar. All of these things were cast from bronze."

The *Yellow Diagram* states that "in Emperor Ming's yong-ping 5 [62 A.D.], Emperor Ming went to Chang'an and took the Flying Eaves and Bronze Horse and set them up at the West Gate to provide a pleasing prospect. Dong Zhuo melted all of them down to make coins."

<sup>16</sup>According to the *Historical Records*, "Basic Annals of the First Emperor," each of the metal human figures cast by the First Emperor held a thousand piculs. According to the *Three Capital Districts Yellow Diagram* each weighed 240,000 catties.

<sup>17</sup>*Rectification of the Historical Records*, quotes the "Record of Wei," "Biography of Dong Zhuo" as stating that ten of the bronze figures along with the bells were melted down to make the Small-cash.

The *Colophon to the Paintings of Canon and Sichuan* says that Dong Zhuo used nine of the twelve Qin bronze human figures to make coins. Shi Hu believed the three remaining ones were placed in the Ye Palace [in Luoyang], from where they were taken by Fu Jian and put back in Chang'an. Two of them were made into coins, and the third sent to Shan, where rebels threw it into a river.

The account in the *Record of the Natural Sciences Continued* is the same. In addition, the *Water Classic*, "Notes on the Rivers," 4, states: "In the First Emperor's year 26 [221 B.C.] the twelve tall Di were seen in Linyao. Over five *zhang* long, they were believed to be auspicious. Twelve human images were cast. Each weighed 240,000 catties. ... The Han moved them from the Afang Palace to the front of the Weiyang Palace. They were popularly known as the Younger Venerables. ... Later Dong Zhuo destroyed nine of them to make coins, leaving three in existence." *Op. cit.*, 16, "Notes on the Gu River," states: "Jin Zhuo said, the Flying Eaves was frightening. The head was like a sparrow with horns. A snake-like tail was leopard-spotted. Dong Zhuo melted it down for its metal."



Their sphere of circulation was limited to just the Chang'an-Luoyang region. The rest of the country continued to use Five-grainers. Therefore, while the territory controlled by Dong Zhuo was carrying on a reduction in the weight of the coinage, in Youzhou, occupied by Liu Yu, a picul of grain was only 30 cash.<sup>18</sup> Monetary depreciation could also have occurred elsewhere, as for example, by making large coins. Prices would have gone up in such places.

If the money issued could have served the function of being a store of value, then the increased amount issued would not have been so important, because the portion not required for circulation could have been withdrawn from circulation and preserved in hoards. Then prices would not have been so severely affected.

The Small-cash minted by Dong Zhuo were not, however, in accord with the normal standard for coins. Not only were they too light, their rims were not uniform, their inscriptions were unclear, and they may not even have had inscriptions. The people understood that they could not circulate for long, and so who would have been willing to hoard them? Therefore when the government went all-out in minting them and using them to draw in goods and services from the people, the people must in turn have spent them as quickly as possible to buy commodities so as to avoid losing value. This in itself would have caused a jump in prices to some extent, and this derived inflation could well have exceeded the effect of the reduction in weight.

Different accounts vary as to the prices caused by this depreciation. The *Latter Han History* says that a picul of grain was worth several tens of thousands of cash.<sup>19</sup> The *Record of the Three Kingdoms* says a *hu* of grain was worth several hundred thousands.<sup>20</sup> The *Jin History* states that the price of grain jumped to several million per *hu*.<sup>21</sup> Rather

than make an investigation to determine which of these is correct, it would be better to acknowledge that they are all correct. They reflect the situations of different times and places. Because of the sharp decline in production, even gold's

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purchasing power had fallen. There was a Luoyang nursery rhyme that went:

To have a thousand in gold is not-as good as my peck of grain.

A peck of grain can fill one's gut,

From a thousand in gold what can one gain?

There was another nursery rhyme from the south:

Great hills like marts, men die like groves;

Take gold, for grain more dear than gold proves.<sup>22</sup>

Because the situation then was the combined result of monetary depreciation and scarcity of goods, it cannot be solely explained in terms of the monetary factor.

The grain prices given in the written sources, whether several tens of thousands or several million per *hu*, are hard to believe when reckoned in copper. If we assume one Small-cash weighed 1 grain, several tens of thousands of them would have amounted to more than a hundred catties. Though this is in Eastern Han catties, the *hu* is also the Han *hu*. If converted into hectoliters and kilograms, and with a *hu* of ordinary grain equated with half a *hu* of rice, then a hectoliter would have been worth 336 kilograms of bronze, a weight of metal greater by many times than the commodity being purchased. If we consider that purchases then were not made by the *hu*, translate these into smaller quantities, and note that the highest prices are merely particular instances, we will see that they were mainly caused by shortages of food.

Chen Shou seems to believe that after the rise in prices evoked by Dong Zhuo's issue of the Small-cash, money no longer circulated.<sup>23</sup> After the death of Dong Zhuo, however, the ladies of Chang'an "sold their pearls and jade jewelry. Those who sold wine and meat were jubilant, and filled the streets and lanes."<sup>24</sup> This happened in chuping 3-4 (192-193). Is this not clear evidence for the use of coins?

A *hu* of grain reached several millions of cash."

<sup>22</sup>For the two nursery rhymes, cf. *Record of Narratives of the Unusual*.

<sup>23</sup>*Record of the Three Kingdoms*, "Record of Wei," "Biography of Dong Zhuo."

<sup>24</sup>*Latter Han History*, 102, "Biography of Dong Zhuo."

<sup>18</sup>*Latter Han History*, Biographies 63, "Biography of Liu Yu": "In chuping 1 [190 A.D.] . . . each locality was isolated from the others. The seasonal taxes did not arrive. Yu's responsibility was to take charge of deposits. He encouraged the establishment of farming settlements. . . The people were pleased and the harvest abundant. Grain was 30 a picul."

<sup>19</sup>*Latter Han History*, Biographies 72, "Biography of Dong Zhuo": ". . . Thus money was cheap and goods expensive. A picul of grain was several tens of thousands."

<sup>20</sup>*Record of the Three Kingdoms*, "Record of Wei," "Biography of Dong Zhuo": "Thereupon money became light and goods expensive. A *hu* of grain reached several hundred thousand. Thenceforth coins no longer circulated."

<sup>21</sup>*Jin History*, "Treatise on Food and Money": "In Emperor Xian's chuping year period [190-193], Dong Zhuo minted the Small-cash. This caused money to be light and goods expensive.



The histories also record that when in 194 Li [?] and Guo Si fought in Chang'an, within the city the price of grain was 500,000 per *hu*, and beans and wheat were 200,000.<sup>25</sup> This is additional evidence that the Small-cash remained in circulation. In 197, the price of rice inside the capital reached 20,000 per *hu*.<sup>26</sup> Obviously, coins were still being used. Moreover, the Small-cash was likely still in use, because so long as it had not been formally abolished, the people could not employ the Five-grainer at par with it. Otherwise the Five-grainer would have had to become an independent standard for price setting.

Hence, after Cao Cao became Chancellor, he had to abolish the Small-cash so as to restore the Five-grainer.<sup>27</sup> That change occurred during the Summer of 208 (jian'an 13). Some historians say that the Five-grainer was only restored by Cao Bei. In any event, its restoration was being advocated during Cao Cao's time. Xun Yue was one of those advocating its restoration.

There seem to have been a variety of contradictory positions on money then. One group opposed restoring the Five-grainer. Some of these people were Objectivists. Others opposed doing so because there were not many Five-grainers available in Chang'an, so there would be practical difficulties in that coin's restoration. Yet others called for collecting the Five-grainers being hoarded among the people and transporting them to the Capital Region before restoring the coin. Still another groups called for turning out a Four-grainer.

Xun Yue opposed all of these schemes.<sup>28</sup>

By that time, most of the Five-grainers of the Chang'an-Luoyang region had been melted down by Dong Zhuo. Unless his

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Small-cash could be reminted, there would be genuine difficulties in restoring the Five-grainer. This was the reason offered for opposition to doing so. Opponents argued that such a restoration would certainly enable people from the outer areas to use coins to buy up the Capital Region's commodities. Xun Yue supposed that the government could make

up for shortages of the Five-grainer through supplementary minting.

Actually, at that time Cao Cao not only held Henan, he had taken from Yuan Shao the four Hebei prefectures of Yizhou, Bingzhou, Youzhou and Qingzhou. All that was needed was to proclaim the coin's restoration for Five-grainers to spontaneously flow from other places into the the Capital Districts. Reminting the Small-cash would also have helped. Xun Yue's position was reasonable in that context. In principle, Cao Cao could have adopted his recommendation. There is, however, no way to know if more Five-grainers were minted.

However, even after Cao Cao restored the Five-grainer, their quantity would not have been large because it had been so long since they were last minted. Hence the price of grain fell steadily.<sup>29</sup> The problem of Dong Zhuo's Small-cash had now been resolved. Sima Zhi said that during the jian'an era [196-220], the granaries of the Empire were full, and the masses amply supplied.<sup>30</sup> This provided a stable foundation for the monetary system of Cao Cao's Wei state.

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## 5. Summary: Han Prices

Most of the grain prices given in Han written sources are of special or unusual prices rather than normal prices. There are only three reliable sources for everyday Han prices. The first is the *Nine Chapter Calculating Techniques*. The second are the *Ju-yan Han bamboo slips*. The third are the figures for discounting official salaries in grain into cash.

The *Nine Chapter Calculating Techniques* was likely edited by Zhang Cang,<sup>1</sup> but additional material could have been added later. Generally speaking, the prices it mentions pertain to the time from Qin through beginning of the Han, but are not those of the period of the depreciation of the currency dur-

<sup>25</sup> *Investigation of Literary Remains*, "Investigation of State Requirements, 1." *Later Han History*, 9, "Basic Annals of Emperor Xian": "In yuping 1 [194 A.D.] . . . At this time grain was 500,000 per *hu*."

<sup>26</sup> *Taiping Yulan*, 35, quoting Wang Can's *Records of Bravery*.

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<sup>27</sup> *Jin History*, "Treatise on Food and Money," and *Universal Statutes*, "Food and Money, 8."

<sup>28</sup> *Explanations and Observations*, 2.

<sup>29</sup> *Universal Statutes*, "Food and Money, 8."

<sup>30</sup> *Record of the Three Kingdoms*, "Record of Wei, 12," "Biography of Sima Zhi."

<sup>1</sup> The abstract in the *Collected Works* volume, based on the use of the name Shanglin [Upper Grove] in Chang'an, dates the work to after the middle of Western Han. Actually, the name Shanglin was already in use by Qin times, and the ranks mentioned in the work are those of the Qin system.



ing that time. Rather they are the normal prices of Qin and early Han. That is, these prices are in terms of the Qin Half-ouncer or at least of the Eight-grain Half-ouncer. That is why they are relatively low. This is particularly the case for food prices. A *hu* of millet ranges from 10 to 20 cash. A *hu* of hemp runs to 70 cash. Wheat is 40 cash per *hu*. Legumes (large beans) are 30 cash per *hu*. Pulse (small beans) are 50 cash per *hu*. Glutinous millet is 60 cash per *hu*.

I suspect these are mostly prices of pre-unification Qin, because the grain price cited is even lower than the one mentioned by Li Kui, and is as low as the price of from 10 to 20 cash per picul mentioned in the *Guan Zi*. Li Kui's millet price was probably in terms of small spades, while this price was expressed in terms of Qin Half-ouncers, which are heavier than small spades. Even the larger Eight-grain Half-ouncers weigh over 8 grams, and contain more copper than the small spades, so prices expressed in terms of the Qin Half-ouncer or Eight-grain Half-ouncer should be lower.

There are two prices given for gold in the *Nine Chapter Calculating Techniques*. One is 6,250 cash per catty. The other is 9,800 cash per catty. The former was probably the Qin price, or was calculated in terms of the Eight-grain Half-ouncer. If we take this price as our base, then the price of a hectoliter of wheat<sup>2</sup> was 3.6 grams of gold.<sup>3</sup> If the gold:silver price ratio was 1:5, then the price would be 18 grams of silver. The price of wheat in Rome at that time was 50 grams of silver, or 4.2 grams of gold per hectoliter.<sup>4</sup> Hence, calculated in gold, the Chinese and Roman wheat prices were fairly close. In silver, the Chinese price was much lower than Rome's. At that

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time China made more use of gold than silver, while Rome mainly used silver.

Livestock prices in the *Nine Chapter Calculating Techniques* are also relatively low. A horse cost 4,400-4,500 cash; an oxen from 1,200 to 3,700-3,800; a sheep from 150 to 500; a pig 300; a dog

100-120, and a chicken from 23 to 70 cash. The price ranges of several fold for oxen, sheep and fowl might reflect differences in size and also price differences at successive times.

The price of fine silk during Western Han was around 400 cash per bolt.<sup>5</sup> Light silk was double this, or 800 per bolt. The *Nine Chapter Calculating Techniques* prices for the two types of silk are very close to this. Prices of over 118 cash and 128 cash are given for one yard of fine-silk. One bolt contained four yards, and would have cost 500 cash. A bold of plain silk was 625 cash. A bolt of hempen cloth ran from 125 to 245 cash. A catty of silk thread ran from 60-70 to 200-300 cash. These prices seem to belong to a somewhat later time than the abovementioned food prices, were probably reckoned in Four-grain Half-ouncer or Five-grainer coins, and were contemporaneous with the 10,000 cash per catty gold price.

The period encompassed by the Juyan Han bamboo slips runs from the time of Emperor Wu to the beginning of Eastern Han. Most important is the material from the times of Emperors Zhao and Xuan. The monetary unit was generally the same, but prices varied over time. Millet ranged from 85 to 195 cash per picul. Unhusked grain was 35 cash per picul. Barley was 110, wheat 90, glutinous millet 150. These represent a clear rise in prices over those in the *Nine Chapter Calculating Techniques*.

This was not necessarily a decline in money's purchasing power, but could instead have been a result of regional differences. Juyan [in Gansu] was far from the Central Plain of the north, and the price of food there was probably higher. Gold must have been 10,000 cash per catty, so that wheat would have been 8 grams of gold or 40 grams of silver per hectoliter. The price of wheat in Rome had not changed, but the monetary unit had been reduced in weight. Hence, reckoned in gold, the price of wheat in China was higher than in Rome. In silver, it was close to the Roman price.

Livestock prices were lower. A horse cost from 4,000 to 5,500; an ox from 2,500 to 3,000; a sheep from 900 to 1,000. Aside from the sheep price, which was higher, the prices of horses and oxen

<sup>2</sup>During Western Han one picul was equal to 0.3425 hectoliters. Cf. Wu Chengluo, *History of Chinese Weights and Measures*.

<sup>3</sup>During Western Han one ounce was equal to 19.2 grams.

<sup>4</sup>Theodor Mommsen, in his *The History of Rome* (trans. William P. Dickson), Volume III, chapter 7, states that at around the turn of the Christian era, the normal price of wheat in Rome was "one *denarius* for one Roman *modius*." One hectoliter equals eleven *modii*, and one *denarius* (taking it as one-sixth of a Roman ounce) equals 4.55 grams of silver or 0.382 grams of gold. (In 157 B.C., according to Mommsen, the gold:silver price ratio was 1:11.91.)

<sup>5</sup>The *Taiping Yulan* section on feathers and textiles quotes Fan Zi and Ji Ran: "For white plain cloth in the Three Capital Districts one pays out 800 per bolt." Three Capital Districts is a Han period term. *Debates on Salt and Iron*, "Disperse What is Not," states: "Fine and light white silk's price is double that of fine silk." Thus, the price of fine silk during Western Han must have been 400 cash per bolt. Cf. *Posthumous Work of Mr. Jing'an, Prince of Huaining*, 26, "Explanations of Money," latter part.



were almost completely identical to those in the *Nine Chapter Calculating Techniques*. This too involved regional factors.

The prices of material for clothing were probably close to the normal level for Han. A bolt of white plain cloth cost from 800 to 1,000. A bolt of silk was 325 to 800. A bolt of eight-shuttle hemp ran from 220 to 290. These were

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very close to those in the *Nine Chapter Calculating Techniques*. Evidently the price of heavy silk had been stabilized because it was being exported.

As for agricultural land, the *Nine Chapter Calculating Techniques* gives a price of around 70 cash per *mu* for poor land, and 300 cash per *mu* for good land.<sup>6</sup> During Emperor Wu's time, a *mu* went for 1,500 cash.<sup>7</sup> On the Juyan bamboo slips a *mu* cost 100. These three prices show a tendency for land prices to have risen, but in the isolated northwest, land prices remained low.

Basically, we must discover food prices for Han on the basis of discounts into cash of official salaries in grain. Han official salaries were defined in terms of amounts of grain for each rank. During Western Han, a portion or the whole sum was paid out in cash. During Eastern Han the rule was for half to be given in cash and half in unhusked grain, or half in cash and half in millet. If we know the quantity of grain received, and the number of coins that was discounted into, then we would know the price of food then. Unfortunately, we do not have such material, particularly for Western Han. We do not even know the official salary rates.

The notes on salaries in the *Former Han History*, "Table of Ordinary and High Official Ranks" by Yan Shigu<sup>8</sup> are probably based on the salary system which was revised in Eastern Han's *jianwu* 26 (50

A.D.).<sup>9</sup> The Western Han salary system underwent several revisions, but for the most part the ranks above 1,000-piculs must have been higher than under the *jianwu* system, and those from 600-piculs on down must have been lower than under the *jianwu* system.<sup>10</sup> Perhaps, based on this principle, we can infer the Western Han salary scale, or at least the one in use around the time of Emperor Yuan.

The "Biographies of Consort Families" in the *Former Han History* gives the ranks of the palace ladies of that time, and compares them with contemporary official ranks. If we compare these with those enumerated by Yan Shigu, most of them are comparable to Imperial Chancellors, Supreme Ministers and 800-picul ranks.

There is also some material on official salaries on the Han bamboo slips, mainly on the salaries of

<sup>9</sup>*Latter Han History*, 1, "Annals of Emperor Guangwu": "*Jianwu* 26, 1st month. An edict ordered official salary increases." Liu Zhao's note quoting the *Han Record Continued* agrees with the figures quoted by Yan Shigu, except that a 1,000-picul official gets 80 *hu*, and a *brevit* 600-picul rank gets 55 *hu*, and he adds an Eater of Quarts rank which gets 11 *hu*, and an Accessory Clerk who received 8 *hu*.

Wang Mingsheng's *Commercial Taxes in the Seventeen Histories*, 34, "Official Salaries": "... as for examples of official salaries in the Western Capital, they are not to be found in earlier works, but Yan Shigu's notes, placed below the 'Table of Ordinary and High Officials,' summarizes the system in detail. Now, Li Xian's extracts from the *Record of Literary Remains Continued* supplements it. Yan states that the *brevit* 600-picul rank got 60 *hu*. Li Xian makes it 55 *hu*. This is a small discrepancy, and all the other figures are generally the same. Yan Shigu's narrative pertains to Former Han. Li Xian is citing the Latter Han system. There is no reason why the two should have been identical.

"Moreover, the 'Annals of Emperor Guangwu,' after mentioning the increase in official salaries, goes on to say that from the 1,000-picul rank on up, salaries were to be lowered to the old Western Capital standard, and those from 600-piculs on down were to be increased to the former rate. If we now correct Yan's notes, then those above the 1,000-picul level were not increased at all during the *jianwu* era, and of those from the 600-picul level on down, only the *brevit* 600-picul level differed. As Yan states, during *jian*-

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*wu* they were brought down by 5 *hu* to the Western Capital level. How then can one say they were increased? This must have been caused by Yan Shigu omitting to mention that they were increased during *jianwu*, and simply taking the data from the *Han Record Continued* for his notes to the 'Table of Officials,' which would have substituted the Latter Han for the Former Han system. . . "

<sup>10</sup>*Latter Han History*, "Annals of Emperor Guangwu." Cf.

<sup>6</sup>*Nine Chapter Calculating Techniques*, 7: "Now we have a *mu* of good crop land, at a price of 300, and 7 *mu* of bad land at a price of 500."

<sup>7</sup>*Han History*, "Biography of Li Guang," has 3 *qing* selling for more than 400,000.

<sup>8</sup>*Han History*, 19, notes by Yan Shigu to the "Table of Ordinary and High Official Ranks": "The Han system was for the Three Ducal Offices to be called 10,000-picul officials. Each month one of them would receive 350 *hu* of grain. Those called Middle-2,000-picul officials would get 180 *hu* per month. 2,000-picul officials would get 120 *hu*. Those with *brevit* 2,000-picul rank got 100 *hu*; 1,000-picul officials got 90 *hu*; *brevit* 1,000-picul officials got 80 *hu*; 600-picul officials got 70 *hu*; *brevit* 600-picul officials got 60 *hu*; 400-picul officials got 50 *hu*; *brevit* 400-picul officials got 45 *hu*; 300-picul officials got 40 *hu*; *brevit* 300-picul officials got 37 *hu*; 200-picul officials got 30 *hu*; *brevit* 200-picul officials got 27 *hu*; 100-picul officials got 16 *hu*."



low ranking officials, but these are not altogether self-consistent, probably because they belong to different periods, and because money received for salary was adjusted to match the prices of foodstuffs. One bamboo slip states that in Emperor Zhao's yuanfeng 3 (78 B.C.), a 100-picul rank salary was commuted to 720 cash per month. During Eastern Han, a 100-picul rank received 16 *hu* per month. If we assume 14 *hu* for Western Han, then a *hu* of grain was 51 cash, and a hectoliter of rice was 248 cash. This would have been the price during Emperor Zhao's reign [86-73 B.C.].

In addition, an Eater of Quarts would get 9,000 cash per month, and several Chief Clerks had 600, 670, and 903, so that a Chief Clerk must have held the rank of Eater of Quarts.<sup>11</sup> According to the Eastern Han *jianwu* system, an Eater of Quarts received 11 *hu* per month. If we calculate in terms of 10 *hu* for Western Han, then a *hu* of grain ran from 60 to 90 cash, and a hectoliter of rice from 342 to 422 cash. There is also mentioned a 200-picul ranked Barrier Commandant, who received 2,000 cash per month. During Eastern Han a 200-picul

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ranked official received 30 *hu* per month. If we calculate on the basis of 27 *hu* for Western Han, then a *hu* was worth 74 cash, and a hectoliter of rice was worth 259 cash. This too may be taken as the price of rice during Emperor Zhao's reign. The price of rice then was probably 200-300 cash per hectoliter. The price was 300-400 cash during Emperor Xuan's time [73-48 B.C.].

During Emperor Yuan's reign [48-32 B.C.], Gong Yu served as a Grandee Remonstrant, an 800-picul rank. The cash salary he actually received each month was 9,200. If this was commuted from 85 *hu* of grain, then a *hu* of grain was worth 108 cash. Later on he rose to the 2,000-picul rank of Imperial Court Grandee, and received 12,000 cash per month. The 2,000-picul rank during Western Han must have been about on a par with the brevet version of that rank during Eastern Han, but the salary level must have been higher than the Eastern Han brevet 2,000-picul level. If we assume a monthly income of 120 *hu* of grain, then a *hu* was worth 100 cash. That would be the price of grain during Emperor Yuan's time.

This grain was not, one suspects, rice, but rather millet, which was the staple food of Han times. If we calculate on the basis that one *hu* of millet had a

value equivalent to 6 *dou* of rice, then a hectoliter of rice was worth 487 cash. In addition, Ru Chun states that a Chancellor, Grand Minister of War and Grand General received 60,000 cash per month, and that a Grandee Secretary got 40,000.<sup>12</sup> The Chancellor must have held 10,000-picul rank. During Eastern Han this brought 350 *hu*. This would have been somewhat higher during Western Han, probably from 400 to 500 *hu*. Each *hu* would have been worth 120 to 150. The Grandee Secretary was a Deputy Chancellor or Supreme Minister, and probably received 300 to 350 *hu* per month, with each *hu* being worth from 114 to 133 cash. These may be taken as grain prices during the reigns of Emperors Cheng and Ai. Commuted to rice, a hectoliter was equal to 600-700 cash.

The price of food during Eastern Han may also be inferred from the official salary schedule of the yanping year period [106-107 A.D.]. The yanping system involved payment half in cash and half in cereal.<sup>13</sup> This cereal was probably millet, and a *hu* of it was equivalent to five or six *dou* of unhusked rice.<sup>14</sup> The salary figure gives us the quantity of cash, and so it is very easy to calculate the price of rice. This price averages 150 cash per picul.<sup>15</sup>

<sup>12</sup>*Han History*, 10, "Annals of Emperor Cheng," note quoting Ru Chun: "By law, a Chancellor, Grand Minister of War and a Grand General each received 60,000 cash per month, and a Grandee Secretary got 40,000."

According to the *Western Han Abstract of Laws*, the Three Ducal Offices and the Grandee Secretary were all of the 10,000-picul rank. According to the *jianwu* salary schedule, this rank received 350 *hu* of grain per month. During Western Han the Three Ducal Lords and Grandee Secretary could not have been treated the same, but because data are lacking, we will calculate on the basis of 350 *hu* for each of these official titles. This would make a *hu* worth from 114 to 171 cash, with an average of 143 cash.

<sup>13</sup>The *Précis of Collectanea of Books*, 45, quotes Cui Shi's *On Government*.

<sup>14</sup>According to the *Nine Chapter Calculating Techniques*, 2, the exchange rate of millet was one *hu* to six *dou* of coarse rice, or one *hu* two *dou* of unhusked rice. The latter figure was probably equivalent to six *dou* of husked rice.

<sup>15</sup>The Eastern Han yanping official salary schedule was half in cash and half in grain. Cf. Liu Zhao, *Han Record Continued*, 28, quoting Xun Chuojin's notes to the "Table of Officials." The salary figures and discounted values are as follows:

Middle 2,000-picul grain		72.0 <i>hu</i> cash	9,000	125
				cash per <i>hu</i>
True	2,000-picul	"	36.0	" " 6,500 181"
Brevet	2,000-picul	"	34.0	" " 5,000 147"
	1,000-picul	"	30.0	" " 4,000 133"

previous note.

<sup>11</sup>Wang Guowei states that a Chief Clerk held the rank of an Eater of Quarts. *Observation Hall Collected Grove*, 14, "Afterword on the Bamboo Slips of Liushaling."



Because, however, the Eastern Han picul was smaller than the Western Han one, to make a comparison between the two periods a discount must be made. During Eastern Han a picul of grain was 150 cash, or 760 cash per hectoliter. This was about the same as in the last years of Western Han.

On the basis of the above prices, we can compare official incomes during Eastern and Western Han, except that under the Eastern Han yanping schedule there was no 10,000-picul rank, and so we can only compare incomes from the middle 2,000-picul rank on down.

This comparison shows that of the three periods, the level was highest during Western Han. The Eastern Han jianwu schedule was the lowest, and the yanping schedule was somewhat higher. Both Western and Eastern Han had the 10,000-picul rank. An official of that rank during Western Han could get up to 90 hectoliters of grain per month. An official of the same rank during Eastern Han's jianwu year period could only get 40 hectoliters per month, and

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during Western Han there were routine rewards and gifts, so that total official incomes exceeded the formal salary rate. Otherwise, the Eaters of Quarts and 100-picul minor officials' incomes could not have matched that of a laborer.

#### Comparison of Han Officials' Monthly Salaries<sup>16</sup>

Real Income (in hectoliters of grain)					
Official Rank	W.Han	E.Han	E.Han yanping		
600-picul	"	21.0 "	"	3,500	167"
400-picul	"	15.0 "	"	2,500	167"
300-picul	"	12.0 "	"	2,000	167"
200-picul	"	9.0 "	"	1,000	111"
100-picul	"	4.8 "	"	800	167"

Average 150 cash per hu

<sup>16</sup>During the reign of Emperor Yuan, a middle 2,000-picul rank got 200 hu per month; the 1,000-picul got 100 hu; 600-picul got 70 hu; 400-picul got 45 hu; 300-picul got 36 hu, 200-picul got 27 hu; 100-picul got 14 hu; and Eater of Quarts got 10 hu. One picul of grain made 5 dou of rice. The jianwu schedule of Eastern Han is the same, but under the yanping schedule grain was commuted to cash at the rate of 150 cash per hu and then added to the salary in kind. During Eastern Han a picul was 0.1981 hectoliters.

	EmpYuan	E.Jianwu	system
Middle			
2,000-picul	41.10	21.39	26.15
1,000-picul	20.55	10.70	11.23
600-picul	14.38	8.32	8.78
400-picul	9.25	5.94	6.27
300-picul	7.40	4.76	5.02
200-picul	5.55	3.56	3.10
100-picul	2.88	1.90	2.01
Eater of Quarts	2.05	1.31	

Material is also scarce on the incomes of laborers during Han. According to Chao Cuo, during the reigns of Emperors Wen and Jing, a peasant household with five members had an annual income of 100 piculs of millet.<sup>17</sup> This was the return on the labor of two persons, and from it must be deducted various taxes. If the field tax was one-thirtieth, and the reckoned contribution and head taxes for the entire family was assessed on three adults and two children, the total tax would be 400 cash. If we assume a millet price of 50 cash per picul, then the household's annual net income would only be 88 piculs 6 dou 8 sheng of millet. This was equal to 30 hectoliters. Apportioned among two persons, each would only get 15 hectoliters, or a little over 1.2 hectoliters per month. This was for those cultivating their own land. If cultivating another's land, half or more would go to the landlord, and monthly per capita return would be less than 0.5 hectoliters of millet.

Non-agricultural laborers' income varied by occupation. The *Nine Chapter Calculating Techniques* mentions two wages: One was a wage of from one to ten cash for hiring someone by the day, with the average being 5 cash per day,<sup>18</sup> or 150 cash

<sup>17</sup>*Han History*, 24, "Treatise on Food and Money": "Chao Cuo again spoke to the Ruler, saying . . . 'Now a peasant with a household of five has no fewer than two people subject to the labor service tax. He can plow no more than 100 mu, which can yield no more than 100 piculs. He plows in the Spring; he weeds in the Summer; he harvests in the Autumn; he stores up food, cuts firewood, serves in the government's office and gives labor service in the Winter. . .'" The 100 piculs here probably means 100 piculs of millet. In Li Kui's time, a mu produced 1.5 piculs of millet, but because the picul of Warring States times was smaller, the price of millet may be reckoned at sixty percent of that of rice.

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<sup>18</sup>*Nine Chapter Calculating Classic*, 6.



for a month. The other wage was an annual wage of 2,500,<sup>19</sup> which was equal to 208 cash per month. If we convert this into millet at a rate of 15 cash per *hu*, then such a laborer's monthly real income would range from 10 to 14

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*hu*, or 3.4 to 4.7 hectoliters. If we use the exchange rate given in the book for converting this into rice and wheat, then it would be the equivalent of from 2.0 to 2.8 hectoliters of husked rice or 3.0 to 4.2 hectoliters of wheat. At a wheat price of 40 cash per *hu*, monthly income would be from 1.28 to 1.44 hectoliters of wheat.

In addition, Ru Chun mentions a monthly wage of 2,000 for a substitute soldier's hire.<sup>20</sup> It is also said that the average merchant earned 2,000 cash per month.<sup>21</sup> In Emperor Ping's *yuanshi* 4 (4 A.D.), the payment in cash in lieu of labor service by an exiled female laborer was 300 per month.<sup>22</sup> The Han bamboo slips also contain a reference to 300 per month hiring cash. Hired frontier matching cash approximated the cost of a soldier's maintenance. If we calculate on the basis of the price of millet during Emperor Yuan's reign, this comes to 20 *hu*, or 6.8 hectoliters, per month. Converted to husked rice, this is 4.04 hectoliters. If we assume a rice:wheat price ratio of 1:1.5, this was equal to 6.12 hectoliters of wheat. There are, however, many assumptions built into this figure. A wage of 300 cash per month could buy 1 hectoliter of rice during Emperor Xuan's reign.

During the reign of Emperor Huan of Eastern Han, a retainer's monthly income was 1,000 cash

over and above his meals, which equalled 3 *hu* of millet,<sup>23</sup> worth 500 cash, making his total monthly income around 1,500 cash, or 9 *hu* of millet, equal to 1.78 hectoliters.

The incomes of laboring people in the Occident were not as high as they were then in China. During the first and second centuries B.C., the wages of Roman freemen ranged from 0.75 to 1.0 *denarius* per day. One *denarius* could buy one Roman *modius* of wheat. This adds up to 2 to 3.5 hectoliters of wheat per month, which was a good wage then. A soldier's provisions were only 1.2 hectoliters per month. The Egyptian wage, reckoned in money, was only one-fourth to one-third of the Roman laborer's wage.<sup>24</sup>

During Western Han, wealth calculated in money for people outside of the ruling class was considered to be 100,000 cash for a family of middling status.<sup>25</sup> A family with capital of less than this amount would be considered a lower than middling household, and could sometimes receive tax-exempt status.<sup>26</sup> Those with less than 1,000 cash were considered impoverished, and were the objects of charity.<sup>27</sup>

There were no limits on rich families. Possession of one million earned the label rich household. So did ten million. These figures, however, probably refer to monetary wealth, and do not include other forms of property. After Gong Yu was raised to the status of Imperial Court Grandee, he said that previously he was impoverished, his family wealth being less than 10,000 cash. He sold 100 *mu* of farm fields to buy a chariot and horses. One hundred *mu* of agricultural land was worth more than 10,000 cash, and from the tone of his remark, he was not

<sup>19</sup>*Op. cit.*, 3: "Now we take on a guard for a year at a price of 2,500 cash. . ."

<sup>20</sup>*Han History*, 7, "Annals of Emperor Zhao": "Three years before, he had evaded the frontier service exemption tax. . ." The note states: "Ru Chun says there were three classes of frontier service: service as a soldier, appointed service and substitute service. In ancient times, being a soldier was not a normal occupation and all had to serve in rotation. There was a one month tour. This was service as a soldier. Poor people wanted to be hired to perform this service, and the well-off would hire them for that purpose at a rate of 2,000 per month. This was appointed service."

<sup>21</sup>*Op. cit.*, note to "Treatise on Ditches and Channels."

<sup>22</sup>*Universal Statutes*, 4, "Food and Money": "Yuanshi 4. An edict on females of the Empire who had been transported allowed them to return to their homes for payment in cash of 300 per month." The note states: "Females who had been transported refers to those whose guilt had been determined. They were to be allowed to return home and not personally perform labor service, but they were ordered to pay out 300 cash each month to hire substitutes."

<sup>23</sup>Cui Shi, *On Government*: "A senior clerk supervising a hundred hamlets . . . had a monthly salary of 20 *hu* of millet (the *Record* makes it 12 *hu*), and 2,000 cash. Though a senior clerk might wish to honor his agreement, he still had to have one subordinate. Even if he had no authority, he had also to take in a retainer, whose wage was 1,000 per month, plus 500 for forage and good meat, and another 500 for firewood, salt and vegetables. The two men would together consume a *hu*."

<sup>24</sup>*An Economic Survey of Ancient Rome*, Vol. I, p. 188.

<sup>25</sup>*Han History*, 4, "Annals of Emperor Wen": "One-hundred in gold, is the property of a middle level set of ten families." That would make ten in gold the property of one family. One in gold was 10,000 cash.

<sup>26</sup>*Han History*, 11, "Annals of Emperor Ai": "All commoners with capital of less than 100,000 are exempt from this year's land tax."

<sup>27</sup>*Han History*, 9, "Annals of Emperor Yuan": "Chuyuan 1 . . . those with capital of less than 1,000 cash will be lent seeds and food."



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the landlord of just 100 *mu*.

When Ban Gu mentions the flourishing condition of the national treasury at the time of Emperor Yuan, the number of imperial consort families with capital of ten million was still small. That is why coins accumulated in the national treasury. Obviously the term "family capital" refers to money. If we speak of a family's entire property, then Dong Xian's family wealth amounted to 4.3 billion.

#### 6. Monetary Depreciation During the Three Kingdoms Era

The purchasing power of money during the Three Kingdoms Era must have been exceedingly volatile, but as statistics on prices have not survived, we can only draw inferences from the depreciation in the value of money at that time.

Of the Three Kingdoms, the economy of the Cao family's Wei was the most stable, but even it was not without its monetary problems. In jian'an 13 (208 A.D.), when Cao Cao succeeded to the Chancellorship, he inherited a deteriorating situation in the aftermath of Dong Zhuo's revolt. The monetary system had disintegrated, production had had to become constricted, and the people had gone over to the life of a natural economy, using grain and cloth as media of exchange, at least in the region of the two capitals.

The previous year, during the northern expedition against the Wuwan, he had concluded that a natural economy was inconvenient, and that coins were needed. This year he was planning to lead a large army south against Liu Biao and Sun Quan, and money was even more necessary to prepare for that. As a consequence he restored the Five-grainer to use. In the battle of Chibi he employed an army of 830,000.

It was not just Cao Cao under whom monetary depreciation did not occur, we do not hear of any monetary arrangements by Sun Quan or Liu Bei. Probably during that great battle, both sides were limited to the expenditure of goods actually at hand, and the war was not very

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prolonged.

Later, the minting of the Value-hundred Five-grainer by Liu Bei does not seem to have had any influence on the economy subject to the control of

Cao Cao, but in Emperor Wen's *huangchu* 2 (221 A.D.), the first year of Liu Bei's reign, the Shu-Han coinage was reduced in weight. In the 10th month of that year Cao Bei again halted use of the Five-grainer. The histories state that this was because the price of grain had become dear. And yet, though there are many instances in history of grain becoming dear, this was rarely the occasion for abolishing the use of money. The situation must not have been that simple.

Viewed from Wei's domestic perspective, the quantity of money must not have been great, aside from some privately minted small coins, so the high price of grain must have been due to natural disasters. From an external perspective, Shu-Han was then not only using a coin with a face value of 100, this coin had also probably been reduced in weight. If communications had been convenient between Wei and Shu, according to the rule for money's flow, the Wei Five-grainers would have flowed toward Shu [where they would be hoarded. EHK], causing the Wei money supply to shrink still faster, and prices to fall. But economic relations between the two states might not have been close then, and each might have had its own independent structure of prices, so that their moneys might not have influenced each other.

The reason for Cao-Wei's halt in the use of money was probably that natural disasters had caused a shortage of food and a rise in its price. And since in addition the quantity of money was insufficient, they returned to a barter economy. Six years passed in this way. During this time Shu-Han's money continued to depreciate.

In Emperor Ming's *taihe* 1 (227), the Five-grainer was again minted. It is said that the reason for Wei's returning to use of coins was false dealing among the people: Grain was being dampened to increase its weight. Silk cloth was being woven more thinly so as to increase its area. This shows that even when grain and cloth become media of exchange, depreciation can still occur. Some also say that during the long period when it did not use coins, Wei amassed millions of them, and so eventually put them back in use.<sup>1</sup>

But return to minting of the Five-grainer was in accord with the policies of Cao Rui. Of the several generations of Caos, historians consider Cao Rui to have been the most profligate. Even a feudal ruler could not have led such a profligate life under the constraints of a natural economy. He would require the aid of money to do so. Renewed minting of the Five-grainer did not amount to depreciation, so it

<sup>1</sup>*Jin History*, "Treatise on Food and Money."



might not have been influenced by Wu or Shu. Probably it was because Shu-Han was isolated by mountains, as was Wu, that they could make no monetary démarche toward Wei. Later, as Wu's and Shu's coinages continued to depreciate, we see no measures taken to compensate for this by Wei.

In fact, the histories state that from the time Wei Emperor Ming went back to the Five-grainer, that coin continued in use until the coming of the Jin Dynasty. The Wei monetary system was relatively stable because of its economic foundations --the Garrison Fields and grain collection laws. Cao Cao understood that "Qin focused on agriculture to unify the Empire; Emperor Wu used the Garrison Fields to control the western frontier." Therefore he strenuously promoted the Garrison Fields system. After the Yellow Turbans were defeated, millions of *hu* of grain were obtained from the Garrison Fields.

After the Battle of Chibi, Cao Cao retreated back north, and never again lightly took military risks. Cao Bei and Cao Rui were for the most part able to continue this policy. During Cao Fang's time, the [193]

plan of Deng Ai to dig canals was adopted, and an annual hydraulic profit of 5 million *hu* was envisaged. For that reason the coinage was not disturbed.

Moreover, though use of money had been restored, the natural economy still bulked quite large, with income from the land tax and expenditures for relief both being in grain. When Cao Fang ascended the throne, he had some 150 gold and silver objects from the palace, weighing over 1,800 catties, melted down to meet military expenses.<sup>2</sup> He did not use coins for this purpose. Coins were merely viewed as gifts.

The situations in Shu and Wu differed. At the end of Han, when Sichuan broke away, it probably used Liu Zhang's Five-grainer, and the Large-spring-fifty or Taiping-hundred-cash could still have been in use. Hence Zhuge Liang said: "The people of Yizhou are many and their state rich, and yet they do not know pity."

After the battle of Chibi, when Liu Bei took Jingzhou and later took over Ba and Shu, he found himself in fiscal difficulties. Some say that when Liu Bei was in Jingzhou, millet and gold were the same price.<sup>3</sup> When he was attacking Liu Zhang, he feared he would not even be able to come up with provisions for his army, and so he could only promise his officers and men that when the city fell, the the money in its treasury would be divided up among

them. When, in jian'an 19 (214) he fought his way into Chengdu, the officers and men threw down their weapons and took the money. This was no help to Liu Bei's political ambitions.

It was because of this that Liu Ba advised minting a value-hundred coin, which was probably the Value-hundred Five-grainer. The weight of this coin was only three times that of the Shu Five-grainer, while its face value was one hundred times that of the Five-grainer. This signified that Liu Bei was going to exchange the same quantity of bronze for thirty or forty times the previous amount of goods and labor from the people. Hence even curtain hooks were gathered in to be minted into coins.<sup>4</sup> It is no wonder that the histories say "within a few months, the prefectural treasury was overflowing."<sup>5</sup>

Liu Ba's advice might not have been original with him. If in Hanzhong there were already people minting the Taiping-hundred-cash, then all he had to do was exhort Liu Bei to follow their example. When Jianwei was taken the following year, large scale minting of coins began there as well.

By this time Shu-Han had been engaged in war for years. In jian'an 24 [219] it had taken Hanzhong from Cao Cao. Jingzhou was then obtained by Sun Quan. In zhangwu 2 (222), Shu-Han fought Sun's state of Wu in Yiling. Across a battle line of five to six hundred *li*, naval and infantry forces were used to the utmost.<sup>6</sup>

After Liu Bei's death, his successor, Houzhu, proved to be profligate.<sup>7</sup> In jianxing 3 (225) a treaty was made with Wu, and Zhuge Liang crossed the Lu River on a campaign into the south. By 227 he had advanced on Hanzhong. Coming up to the six passes of Qishan, he entered upon several years of battle with Sima Yi.

How could an Yizhou suffering from a dearth of coins undertake all this? Sichuan did not produce copper. Hence the Value-hundred Five-grainer's weight was steadily reduced, from 8 grams to 6

<sup>4</sup>Dan Wei, *Strange Things From the Northern and Southern History*.

<sup>5</sup>"Biographies of Former Worthies of Lingling." (Note to *Record of the Three Kingdoms*, "Record of Shu.")

<sup>6</sup>*Record of the Three Kingdoms*, "Record of Wu," 13, "Biography of Lu Sun."

<sup>7</sup>*Taiping Yulan*, 173, quoting the "Record of Wu": "Houzhu year 2, 6th month. A new palace was begun in taichu's Winter. Its plan was very

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spacious. . . A drain was also opened north of the wall to bring the waters of the rear lake into the palace. The new palace hall was ingeniously made, and the labor for its erection ran into the tens of thousands."

<sup>2</sup>*Record of the Three Kingdoms*, "Record of Wei," 4, "Biography of Cao Fang."

<sup>3</sup>Zu Chongzhi, *Record of Narratives of the Unusual*.



grams, and finally to less than 3 grams. The supply of coins seems to have depended on Jianwei, since when one carefully examines the Value-hundred Five-grainers, the variants from Jianwei are the most numerous. This explains why later on the coin reverses were no longer minted with

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characters on them. This was because coins minted in Jianwei were no longer limited to circulation within their home area. The Jianwei region was famous for its mines, which probably included copper mines.

Around jianxing 12 or 13 [234 or 235] a monetary reform was carried out, and a 2 gram Value-hundred-cash was minted. Zhuge Liang may still have been alive, and he may not have approved this change, but if it took place before his death, it was at a time when he was worn down from his labors in trying to take the Central Plain in the north. It is more plausible to date this change to the year of his death, jianxing 13. By then Liu Chan had become still more fixed in his profligacy, and was no longer influenced by men like Jiang Wan. In any event, this change must have taken place before jianxing 14, because in that year Wu issued the Large-spring-five-hundred. The larger Value-hundred-cash was less than one-fifth the weight of the larger Large-spring-five-hundred.

In terms of the purely monetary aspects of the struggle, the latter should have appeared first, and the Value-hundred afterward, but more of the large Value-hundreds are extant, and the first to be minted Large-spring-five-hundreds are rarely seen. Evidently the Value-hundred must have been minted for a longer time. Otherwise, given the scarcity of copper in Shu, once it had been noticed that the Wu coin had been reduced in weight, the Shu coin would have immediately been lightened as well, and there would have been fewer of the first-minted Value-hundreds than of the first-minted Large-spring-five-hundred coins. Of course the scarcity of the latter is also the consequence of their being melted down and flowing abroad.

By then the economic foundations of Shu-Han were crumbling. Cao Huan put it well: "Shu was too small a state; its territory narrow, and its people sparse." He also said: "It wasted the strength of its commoners; it stripped them, and taxed their labor until the people could no longer endure their fate." Obviously, production was harmed, and taxes could be increased no further. So there was no choice but to carry out further depreciation.

The 2 gram Value-hundred-cash was probably not maintained long before it too was reduced in weight, even though there were not any important wars during those years. After yanxi 12 (249),

Qiang Wei went on the attack several times, and war expenditures must have been very large. The Value-hundred was reduced from 2 grams to 1.4 grams, then to 1 gram, to 0.5 or 0.6 grams, and finally to 0.4 grams. If we begin with the Value-hundred Five-grainer, this was a weight reduction to one-twentieth of the original level. If we begin with the Shu Five-grainer, it was a reduction to one-five-hundredth of the original weight. Probably the Shu-Han monetary system fell into dissolution in parallel with the dynasty's decline in political power.

The unit of value used by Shu-Han requires discussion. Before Liu Bei had conquered Chengdu, or for a certain period of time before he took the place, there is no doubt that the Five-grainer was the unit. Later, when the Value-hundred Five-grainer had been adopted, one Value-hundred was made the equivalent of a hundred cash, but we cannot tell for how long this was maintained.

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As the Value-hundred became lighter and prices shot up, it must have come to be felt that the unit of value was too small to be convenient, and prices came to be expressed in terms of numbers of coins. This change perhaps occurred during the last period of Shu-Han, particularly when the Value-one small coin was being minted. Perhaps this explains why the Value-one was minted in the first place, but that could also have happened after the fall of Shu-Han.

During Liu Zhang's time, Zhuge Liang still called Yizhou the land of the Heavenly Prefecture, whose people were numerous and government rich. Pang Tong said: "Precious goods were not sought abroad." When Liu Bei took Chengdu, its grain and cloth could be expended for two years.<sup>8</sup>

Wei supposedly had a number of civil officials concerned with the people's livelihood, and Shu-Han had a number of generals. Zhuge Liang was described by the phrase, "civil, military, his talents are complete," and so we cannot say he was not concerned with domestic policy, but most of his time and energy were expended on the military aspects.

The real causes for Shu's fall were economic. Of the thirteen prefectures of Han, Wei occupied nearly nine, Wu occupied three, and Shu-Han only one. How could it compete with Wei and Wu relying on the land of only one prefecture? It had no choice but to undergo a monetary depreciation which exploited the people so severely that a point was reached where the people "were labored without rest until they could no longer endure their fate."<sup>9</sup>

<sup>8</sup>Record of the Three Kingdoms, "Record of Shu," 1, "Biography of Liu Zhang."

<sup>9</sup>Record of the Three Kingdoms, "Record of Shu," 3,



If the Taiping Hundred-cash and Dingping-one-hundred were Three Kingdoms Era coins, and if the coins' weights exactly reflect their purchasing power, then the purchasing power of these two coins also steadily fell. The Taiping Hundred-cash with stars and curved lines on their reverses each weigh up to around 7 grams. Some are as light as 3 grams. The weight reduction of the blank reverse versions was more severe. The heaviest of them are upwards of 4 grams. They were gradually reduced to less than 3 grams. The smallest is less than 1 gram. They became so small that the character for coin --*qian*-- had to be abbreviated to "metal" --*jin*-- so that their inscriptions read Taiping Hundred-metal. This coin was further lightened until each weighed only around 0.4 grams.

A reduction from 17 to 0.4 grams must have pushed up prices seventeen or eighteen fold. Though the Dingping-one-hundred's lightening was not so severe, that was because it was not big to begin with. It only began to be minted after the lightening of the coinage had been under way for some time. Hence the largest of them are only something over 1 gram, and the smallest of them are the same as the small Value-hundreds and Taiping Hundred-metal.

Wu's situation was a little better than Shu-Han's. It was able to mint coins well before the battle of Chibi. In *jian'an* 7 (202 A.D.), when Cao Cao demanded that Sun Quan send his son to Wei as a hostage, Zhou Yu said that Wu could mine the mountains for copper and boil the seas for salt.<sup>10</sup> The coin minted then could have been a Five-grainer, but it could also have been the Large-spring-fifty, [196]

each of which weighed around 4 grams. In *jian'an* 24 [219], when Lü Meng conquered Jingzhou, he got hold of the coins amassed in the Jingzhou treasury. In addition to the Value-hundred Five-grainers, these could have included the Taiping-hundred-cash.

The 100 million cash that Sun Quan gave to Lü Meng would naturally have been from the supply of face-value 100 coins taken from the Jingzhou treasury. That is why the history says, "since the coins were too expensive, their possession was illusory."<sup>11</sup> Later generations of numismatists believed this referred to the Large-spring-five-hundred.<sup>12</sup> That, however, was an anachronism. The Large-

spring-five-hundred was not yet being minted then.

A gift of 100 million would not have been unusual during Western Han, when gifts of several billion at a time occurred, but the states' financial power during Three Kingdoms times could not be compared to that of Western Han. After Wu acquired the 100-cash coins of Jingzhou, they had both 50-cash and 100-cash large denomination coins. The contemporary Value-hundred Five-grainer and Taiping-hundred-cash of Shu-Han-were about the same weight, 6 or 7 grams.

After Shu-Han had carried out its monetary reform, Wu minted the Large-spring-five-hundred in *jiahe* 5 (236). Two years later it also minted the Large-spring-equals-thousand. Though the Large-spring-five-hundred weighed 12 grains, it still represented an enormous devaluation compared to the Large-spring-fifty. All other things being equal, prices would have increased three-fold. The 1,000-cash coin involved a still greater devaluation.

At this point Wu went on the offensive against Wei. In *jiahe* 1 [232] Sun Quan besieged Hefei with 100,000 men for three or four months. Before long the two large coins continued to be reduced in weight. The Large-spring-five-hundred was lightened to 8 grams, and the Large-spring-equals-thousand to 12 grams.

Wu's territory was broad and prosperous. Its mines produced copper and iron which was profitable to smelt, but because war expenditures were large, it still could not maintain itself. In *chiwu* 4 (241) the Wu army besieged Fancheng and Xiangzhong, and so there was no avoiding another monetary depreciation. This depreciation also might have been to match Shu-Han's as part of an economic competition in devaluation between the two.

Wu and Shu were then in communication, and if Wu had not carried out such a lightening of its coinage, most of its coins would have flowed into Shu-Han territory. Later, Shu-Han's Value-hundred-cash was lightened to 1 gram and then 0.5 grams. Wu then minted a 12 grain weight Large-spring-two-thousand. Next, the Large-spring-equals-thousand was lightened to 4 grams. The Large-spring-five-hundred had been taken out of production earlier. Finally, a Large-spring-five-thousand was minted. These events probably occurred during *chiwu* 8 or 9 (245, 246).

Before long, this external monetary war probably ruined the internal economic life of the people of Wu, and so in 246 the government had no choice but to halt minting of large coins. Those already minted were transformed into commodities. Those already issued could be turned in and the government would give what accorded with their value in exchange.<sup>13</sup>

"Biography of Liu Chan," quoting Cao Huan in the *Notes on Shu*.

<sup>10</sup>*Record of the Three Kingdoms*, "Record of Wu," 9, "Biography of Zhou Yu," note quoting the "Biography of Jiang Biao."

<sup>11</sup>*Jin History*, "Treatise on Food and Money."

<sup>12</sup>Dai Xi, *Collected Words on Ancient Money*.



Nevertheless, Wu lasted another 34 years after 246. Were there any coins in circulation during that time? Some districts may have reverted to a barter economy, calculating prices in bolts of silk,<sup>14</sup> but in the country as a whole,

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coins must have remained in circulation. The histories tell us that when Sun Hao built a new palace, it was marvelously elaborate, and the cost of labor for it amounted to billions.<sup>15</sup> This figure must be in coins. In tianji 4 (280), the annual giving of 500,000 in coin was still going on.<sup>16</sup> Evidently money had not been abolished.

Some say that the Large-spring-two-thousand and the Large-spring-five-thousand were minted toward the end of Wu's tenure, but in fact this was probably not the case. These two coins were minted before the order was issued halting coins' use. It was because of the appearance of these two coins in the market that prices made a quantum leap up, causing popular panic. It was only then that the government realized it had no choice but to issue the order halting their use, and calling back in those already issued. Perhaps the recall order of 246 was limited to these two coins alone. The histories state "their value was calculated so that none would be aggrieved."

In exchange for what were they recalled? In terms of what was their value calculated? Surely this could not have been done in terms of commodities. If they were exchanged for money, it must have been in the old coins, including Han Five-grainers, Large-spring-fifties, Value-hundred Five-grainers, and Taiping-hundred-cash.

Because the Large-spring-two-thousand and five-thousand had only just been issued, probably nearly

all of them were returned to the government. Those remaining in the hands of the people would have been exported or melted down and reminted, so that posterity would rarely encounter them. Even if the object of the recall were the Large-spring-five-hundred and Large-spring-equals-thousand, surely not all of them were turned in, and so those remaining continued to circulate alongside the old coins. This situation would have continued right up through Eastern Jin.—

At the time of Wu's most severe coin-lightening, the extent of the depreciation of Wu coins was not less than that of coins of Shu-Han. It is just that it lasted for a shorter time. The histories say that prices soared.<sup>17</sup> How much they rose, we cannot tell. During the decade or two before the abolition of the use of large coins, prices could not have been very low. Because of Lü Dai's long-range military campaign, women and children were starving,<sup>18</sup> and so one may imagine the standard of living of other people. Hence solely from the perspective of the coinage, the unification of the Three Kingdoms by Wei and then by Jin was not fortuitous.

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<sup>17</sup>Hao Jing's *Latter Han History Continued*, 89, "Treatise on Food and Money," says: "In chiwu 1 [238] a large coin with a face value of 1,000 was minted. No one found it convenient. Prices soared. Criminal behavior abounded which punishments could not halt. Great resentments were engendered. The *Jiankang Veritable Record*, 2, under chiwu 9, 9th month, states: "At this time large coins were used, prices were high, and the masses were inconvenienced."

<sup>18</sup>*Record of the Three Kingdoms*, "Record of Wu," 15, "Biography of Lü Dai."

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<sup>13</sup>*Record of the Three Kingdoms*, "Record of Wu," 2, "Biography of Sun Quan," note quoting "Biography of Jiang Biao."

<sup>14</sup>*Record of the Three Kingdoms*, "record of wu," 3, "biography of sun xiu," note quoting the *Xiangyang Record*. In this work it is mentioned that for each mandarin orange tree there had to be paid one bolt of light silk per annum. In the "Biography of Sun Hao," under fenghuang 1, there is a quotation from the "Biography of Jiang Biao," which states that "a dog was worth up to a thousand bolts; a guard dog with complete equipage was worth 10,000 in coin."

<sup>15</sup>*Record of the Three Kingdoms*, "Record of Wu," 3, "Biography of Sun Hao," note quoting "Biography of Jiang Biao."

<sup>16</sup>*Record of the Three Kingdoms*, "Record of Wu," 3, "Biography of Sun Hao."