

6.2 Money's Purchasing Power

1. Jin's Monetary Inflation

The history of the Jin monetary economy may be divided into three periods: During the forty years before zhenyuan (1115-1153), they had no money of their own. They used old Liao and Song coins. Though there was frequent warfare during this period, there was no currency inflation since the invasions they launched

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did not encounter much resistance.

Every time they took a Chinese city, they also got hold of a large quantity of gold and silver objects. The expenses of their wars were born by the Chinese. During the jingkang period (1126-1127), when they attacked and entered Bianjing they obtained an incalculably large ransom.¹ Thereafter, China made a regular annual payment. Sometimes, in addition to gold and silver, it included heavy silk, oxen, horses, mules, and even books.

The second period of 53 years ran from zhenyuan 2 (1154), when the Exchange Certificates were issued until taihe 6 (1206), when the Mongols proclaimed their dynastic title Yuan, and the Jin halted use of coins. During this period, the Jin issued their own paper money, and minted copper coins and silver ingots. The currency was already suffering from a tendency toward gradual inflation.

The third period was the period of currency inflation from taihe on.

During the first decade or two of the second period, not many Exchange Certificates were issued. Coins were still the main instrument of circulation, and since little copper was produced within Jin territory, there was virtually a coin famine. At the beginning of dading (1161), Shaanxi was ordered to circulate iron coins from the old days. It was only because of their inconvenience that their circulation was later halted.

The governmental authorities simultaneously banned melting down of copper to make utensils, with not even casting of bronze mirrors being permitted, and issued official coins. New copper mines were also sought out to supply raw material for additional coins. By that time Southern Song's money was already undergoing inflation, and its monetary system had become extremely fragmented. Hence, when Southern Song emissaries came through Jin territory, they felt that Jin's monetary system was simple by comparison with their own.²

¹For details of the gold and silver extorted by the Jin from Bianjing, cf. chapter 5.2.6, note 22.

The reasons why coins were insufficient in number then, was not so much that their numbers were too few as that prices were high. During Tang times, a person's daily expenses could be met by 11 or 12 cash.³ When Northern Song's Su Tongbo was in the Lingnan [i.e. the south], a family of six or seven had living expenses of only 100 cash per day, which would come to 15 or 16 cash per person,⁴ but during Jin's dading 4 (1164), Emperor Shizong had the officials of his retinue rent some commoners' cottages, and each of them paid 100 cash per day as rent.⁵ We can tell from this that money's purchasing power had somewhat lessened.

Later, issue of paper money increased, causing the real value of copper coins to become higher than their nominal value, and raising the cost of minting them.⁶ As a consequence, copper coins began to be hidden away. This meant there was a coin famine while over 60 million strings of coins accumulated

²Outline of the Nine Encyclopedias by Topics: "During the qiandao period, the Right Shi Hu served as Travelling Emissary to the Jin state. Upon reaching Bianjing, he found there were Exchange Certificates. . . . At this time, China also used the sort of money that had the legal status of coins, but the southeast had Account Notes. There were also Sichuan Vouchers, Huai Exchange, Hu Account, with many different places turning them out, leading to constant difficulties. Coins were numerous and cheap. Their weights were not uniform. They [i.e. Jin], however, only used Exchange Certificates to circulate in Henan, and old Chinese coins in Hebei. This seemed simple by contrast."

³Tang Yuti, *Record of Responses to Ghosts*: "The paper merchant Chen Tai was supporting a monk, and did so for two years without wearying of it. Suddenly one day the monk asked, 'How many mouths do you have responsibility for? Is your money sufficient for them?' Chen replied, 'My dependents come to twenty persons. It takes about a hundred strings per annum to care for them in a rough and ready way.'"

⁴Shang Binghe, *Social Customs through the Ages*, quoting *Dongpo Grove of Records*' statement that in the Lingnan daily expenses were 100 cash (for six or seven people). In the Ming Dynasty, Zhang Xuan, *Western Garden Record of Things Seen and Heard* (written during the Chongzhen reign), 14, "Frugality," says: "When Dongpo was exiled to Qi'an, his daily needs were only 150."

⁵*Ruzhen-Jin History*, -6, "Annals of Emperor Shizong, first part," dading 4, 1st month, renyin: "There was an edict to the retinue to pay 100 cash per day as rent for commoners' cottages."

⁶*Universal Statutes Continued*, dading 29: "The Daizhou and Quyang mints annually produced more than 140,000 strings of coins, but their annual expenses reached more than 800,000. Hence they were closed down."

in out of the way places without ever being taken out for use.⁷

Currency inflation got under way after Emperor Zhangzong took the throne (1189). At first they only increased

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official salaries. Then they abolished the seven year expiration date for Exchange Certificates, letting them circulate in perpetuity, and also halted minting of coins.

At first the Exchange Certificates retained their credibility since the quantity of them in circulation was about the same as the quantity of ready cash.⁸

After mingchang 4 (1193), the quantity issued increased. Salaries of officials and soldiers were sometimes paid entirely in Exchange Certificates, and at this point difficulties appeared in maintaining their circulation.

Wages and expenses for transportation were somewhat high during the mingchang period [1190-96]. The price for transporting 100 catties 100 *li* by foot over flat ground averaged 146 cash. Over hilly terrain it was 155 cash. During Northern Song's yuanfeng period a transportation worker going to an outer province could only get 50 cash per day, and in monetary terms even this was considered high. The cost was three times higher within Jin's borders. The cost of transporting 100 catties 100 *li* downstream by water was 35 cash. Going upstream it was 39.4 cash.⁹ As for the wages of labor, four iron smiths formed a team of laborers, and received 540 cash.¹⁰

Expenditures increased still more in cheng'an 1 (1196), because of embroilment with the Khitan. The following year, large denomination Exchange Certificates with face values of more than 1-string were no longer easily circulated, and so silver ingots were issued.

The face value of the silver ingots was 2 strings

of cash per ounce, which was somewhat lower than the price under Southern Song. At that time (Emperor Ningzong's qingyuan 3 [1197]), the price of silver under Southern Song was around 2,300 cash per ounce. The price of 2 strings per ounce reflected the inflation already under way. Moreover, this was an official price. The market price was only 1,600 cash per ounce.¹¹ Therefore the face value of the Cheng'an Treasure Money ingots cannot be considered to have been low.

Later, illicit coining became rife, and the ingots were alloyed with copper and tin, causing merchants to close down the market. In cheng'an 5 (1200), the Cheng'an Treasure Money ingots were abolished. Both high and low within Jin society then were in agreement that the number of copper coins was insufficient, and so neither officials nor people were permitted to hold coins. They did not realize that this hoarding was a necessary consequence of the paper money inflation.

In taihe 4 (1204), probably because it cost 10 cash to produce just one Taihe Circulating Treasure small coin,¹² 2-cash and 3-cash coins were minted, but particular emphasis was placed on the 10-cash Taihe Heavy Treasure. By this time, silver was already in circulation among the people, and there are instances of rice being reckoned in terms of silver, with a *dou* selling for more than 10 ounces.¹³

Issue of paper money expanded as preparations were made for war with Song. By taihe 6, there was no demand for Shaanxi Exchange Certificates, and so the Jin simultaneously used 100,000 strings of coin to redeem a portion of the Certificates and issued small certificates, for which they had the people exchange large certificates, since the credibility of the small certificates was better.

However, people's faith had been shaken, and the government banned public discussion of monetary questions.¹⁴ They simply printed large and

⁷Ruzhen-Jin History, 48, "Treatise on Food and Money, 3," dating 28: "The Ruler said to the ministers, 'Recently, coins have been seen in the outer circuits in very large numbers. We have heard that there are more than 60 million strings worth, all piled up in out of the way places. Since they do not circulate, there is no increase from them for either public or private interests.'

⁸Ruzhen-Jin History, "Treatise on Food and Money, 3," mingchang 3, 5th month: "An order from the Department of Ministries stated that Exchange Certificates in circulation among the people ought to be limited in quantity, and should not be greater in number than the quantity of ready cash."

⁹Sha Keshi, *Advice on River Districts*, latter part, "Transportation, Number 5."

¹⁰*Ibid.*, "Labor Rates, Number 4."

¹¹Ruzhen-Jin History, "Treatise on Food and Money, 3": "In taihe 1, 6th month, the Prefect of Tongzhou, Lu Gou, said that circulation of Certificates remained strong among the people, but that the price of silver was not stable. The officially fixed price was 100,000 per ingot, but the market price was only 80,000."

¹²Ruzhen-Jin History, "Treatise on Food and Money, 3," taihe 4: "Liang Tang said that casting coins was terribly expensive. For the expenditure of 10 cash, 1 cash could be obtained."

¹³Ruzhen-Jin History, 108, "Biography of Hou Ji": "In taihe 4 . . . Ji sent up word that 'Recently famine north of the river has been terrible, with people being brought to the point of cannibalism. In Guanzhou and Zangzhou a *dou* of rice has been 10 or more ounces of silver.'

¹⁴Ruzhen-Jin History, "Treatise on Food and Money, 3":

small Exchange Certificates intermixed, and required their use in place of coins for exchanges and secured loans of amounts larger than 1 string. Merchants were not permitted to carry more than 10 strings of ready cash.

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Any amount in excess of 10 strings had to be converted to Exchange Certificates.

At that time the Jin were still strong, or at least the Song were unable to defeat them. Hence Song was obliged to seek peace with them and pay an increased annual tribute. In da'an 2 (1210), "the defeated army's labor service brought 84 carts of rewards for the army. The soldiers were bloodied and the state ruined. There was no way to avoid bad practices. Exchange Certificates were so lightly demanded that they very nearly could not be exchanged in the market."¹⁵ From then on, the Mongols pushed in step by step, and the currency inflation became ever more severe.

Emperor Xuanzong's moving of the capital to Daliang represented the Jin's equivalent of Song's earlier crossing to the south. In zhenyou 2 (1214), 2nd month, they issued large Certificates of from 20-strings to 100-strings face value. This amounted to a ten-fold inflation. When they went on to issue face values of from 200-strings to 1,000-strings, this constituted an inflation of one hundred fold.

At this point, though tax receipts had increased several fold, the value of money had fallen to one-thousandth of its former level, so that each string of Exchange Certificates was worth less than one cash.¹⁶

Most trade was being conducted in ready cash, but as the government was still intending to ban the use of coins, most of them were flowing out to Southern Song,¹⁷ because at this point the Jin infla-

tion was worse than Southern Song's. By this time (Emperor Ningzong's jiading 8 [1215]), Southern Song's Account Notes were no longer circulating much, and people were using coins for making exchanges.

In zhenyou 3 [1215], 7th month, the Yuan soldiers occupied Jiyuanxian, and the Jin changed the name of Exchange Certificates to Zhenyou Treasure Deeds, but they remained beset militarily from all sides. The Mongols attacked them; Li Quan pillaged them; and the Song soldiers also attacked them. There was no way to maintain the value of their money.

The Jin then resorted to the Righteous Price system of price controls. The effect of this was to discourage people from bringing commodities to the capital at all. The Righteous Prices were changed twice a month, whereas the market prices did not remain the same from morning to evening. When the authorities forced limits on prices, the merchants closed their doors and no longer carried on business.

Treasure Deeds were originally issued in the greatest quantities in Hebei and Shaanxi Circuits, but the merchants brought many of them to Bianjing to use to buy gold and silver, which caused an enormous leap in prices in Bianjing. After a year, 1-string of Treasure Deeds was only worth a few cash. Reckoned in silver, however, prices were not at all high. In xingding 1 and 2 [1217-18], a horse only cost 5 ounces of silver.¹⁸

A great debate on the monetary system broke out in court at this point. The Executive Gao Qi and the Shaanxi Provincial Governor, Hui Ji, advocated exchanging the old for new certificates. The Prince of Pu, Shouchun, and the Defender of Longzhou, Wanyan Yu, opposed this, and instead advocated redeeming a portion of the old notes and temporarily halting their printing.

In principle, the latter position was, of course, the way to retrieve the situation, but as the war had not halted, there was no way to halt their issue or to redeem old certificates. And so, in the end, Hui Ji's

"At this time, because the money had been frequently changed, the people often gathered in the markets to express their resentment. When the Ruler learned this, he gave orders to the Censorate, saying, 'Henceforth any who give information leading to the arrest of those who dare gather in the city markets to discuss difficulties in circulating the Certificates, will be given a reward of 300 strings of cash.'"

¹⁵*Ibid.*

¹⁶Liu Qi, *Treatise on Return to Concealment*, 10.

¹⁷*Ruzhen-Jin History*, "Treatise on Food and Money, 3," Xu Ding sent up a message saying: "In my humble opinion we must ban ready cash temporarily. On the pretext of giving orders on army requirements to the local offices, the people's strength may be measured and collected. Then money will circulate and the prices of goods will level off. As soon as coins are no longer used, limits will be set on the amount of wealth stored away by wealthy families to anticipate difficulties. The external abuses

caused by frequent changes in Exchange Certificates have brought affairs to a parlous state. It no longer merely excites talk. Merchants frequently transport coins by boat to trade with the Yangtze and Huai regions, and many coins have entered Song territory. The Song people are pleased by this, but the Jin do not halt it."

¹⁸*Ruzhen-Jin History*, 107, "Biography of Zhang Xingxin," who in xingding 2 sent up a communication: "In the market of Taozhou, 100 ingots of silver will, it is said, fetch nearly 1,000 horses. . . . I have also heard that in frontier areas this Autumn, harvests have been sparse. When one gets silver for sale of a horse, one hurries to exchange it for grain."

position was adopted, and Zhenyou Circulating Treasure paper notes were issued, with 1-string of them equated with 1,000-strings of Treasure Deeds.

This represented an open confession by the government that the purchasing power of the paper money had fallen to one-thousandth of its original value.

By this time the Mongols were attacking the walls and moats on virtually a daily basis, and the Jin did not know when they could rest their troops. Because the annual tribute from China did not

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arrive, they launched an invasion of the south.

They did not realize that their own monetary system was already in dissolution. When they issued the Circulating Treasure note, they fixed its value at 4-strings to one ounce of silver, the same value as the Treasure Deeds. Thus, if an ounce of silver was worth 4,000 strings, the value of a Treasure Deed had fallen to one-two-thousandth of its original level.

Before xingding 5 (which ended in 1222), an ounce of silver could buy over 800 strings worth of Circulating Treasure. That is to say, the price of Circulating Treasure notes had fallen to less than half of one percent of its former level, and silver had increased in value relative to Exchange Certificates or Treasure Deeds by more than forty fold.

At the end of xingding 4 [1220], the Zhennan Regional Commandant, Wendihansijing, recommended permitting people to use silver in place of Certificates for paying taxes, and also that Xingding Original treasure large and small silver coins be minted to serve as rewards for the army. The authorities did not follow his advice.¹⁹

In yuanguang 1 (1222), a shift to issue of Xingding Treasure Spring occurred, each string's worth of which was equal to 400 strings of Circulating Treasure notes. Two-strings of it was worth 1 ounce of silver, but by the following year it had fallen so far in value as to be virtually useless, and the authorities merely limited the price of silver to no more than 300-strings of the Treasure Spring per ounce. If we match this with the earliest of the Exchange Certificates or Treasure Deeds, then the price of silver had jumped between 6,000 and 10,000 times.

The histories state that in yuanguang 2 [1223], 5th month, still more of them were made, with each string equated with 50 Circulating Treasure notes. I do not know what the meaning of this statement is. The *Investigation of Literary Remains Continued*

says it refers to 1-string of Yuanguang Heavy Treasure being equated with 50-cash of Circulating Treasure. That would be unreasonable. Probably it was equated with 5,000-strings of Circulating Treasure or 50-strings of Treasure Spring.

They also state that Yuanguang Precious Money was made, but do not say what its face value was, but merely give its equivalent in silver.²⁰ It is possible that they abolished the old certificates.

It must have been at this time that the monetary system fell into chaos, and the people either shifted over entirely into silver for making exchanges,²¹ or jointly to silver and heavy silk.²²

From yuanguang 2 [1223], when the Precious Money was issued, to the time when Bianjing was occupied by the Mongols, a period of a decade, the Jin state fell into dissolution, and there was no way for its paper money to circulate at all. At the end of zhengda [1232], the Mongol soldiers besieged Bianjing. The Jin had no strategy for restraining them, and provisions inside the city were exhausted.

At the beginning of tianxing 1 [1232], a *dou* of rice was worth 4 ounces of silver, and by the 12th month, a *sheng* of rice was over 2 ounces of silver.²³ Even normally wealthy people would take their jewelry, toys, articles of adornment, jade rings and pendants and brocaded clothing to the Tianjin Bridge market stalls, hoping to sell them for the price of a *sheng* of rice or a plate of beans to assuage their hunger for just that day.²⁴ Liu Qi

3."

²⁰*Ibid.*

²¹*Ibid.*: "... not long after it was circulated, silver daily became more expensive, and Treasure Spring daily cheaper, so that people expressed prices solely in terms of silver."

²²*Record of Strengthening Barbarians Continued*, 2, the words of Yan Da to his wife: "A peasant from Nianxian, Sun Manor, named Yan Da, during the zhengda period bought an ox from a rural travelling merchant named Liu Jin, but Yan grew sick and died. . . . On his deathbed, he wanted to see his wife and mother. The wife and mother hurried to his side, clinging to each other, and crying. They asked, 'Why must you die?' He replied, 'My death is fated by Heaven, but I have been cheated by Liu Jin. Previous to this, when we were bargaining over the price of the ox, did we set the price in heavy silk or in silver?'"

²³*Ruzhen-Jin History*, 119, "Biography of Tiegenushen": "At the beginning of tianxing . . . nearly several hundred thousand refugees had been gathered. A *dou* of rice was worth 4 ounces of silver." *Ruzhen-Jin History*, 115, "Biography of Wanyan Nushen": "Tianxing 1, 12th month . . . At this time there was no communication between the inside and outside of Bianjing. A *sheng* of rice was 2 ounces of silver. The food of the masses was exhausted, and the bodies of those dead from starvation could be seen everywhere."

¹⁹*Ruzhen-Jin History*, 48, "Treatise on Food and Money,

traded an exceedingly fine fur robe which had been kept by his family for eight *sheng* of rice. He exchanged a gold hairpin for a slab of beef.

The histories mention the issue of Tianxing Treasure Account in Caizhou during tianxing 2. Liu Qi says that the Yuanguang Precious Money was the last of the paper moneys, since he was himself in Bianjing, and did not know what was going on in Caizhou. During Southern Song's duanping 1 [1234], Wu Qian discussed the Jin inflation, and said that by their last years 100 strings of paper money could only buy a bowl of noodles.

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At the beginning of Yuan, Yelü Chucai said, "10,000 strings only exchanged for a single cake." I do not know what type of paper money he was referring to.

There were also the so-called small 10-string and large 10-string Tongtian Treasure Account. These labels could refer to variant forms of a single type of paper note, but they could also be two different paper moneys with the same face value circulated simultaneously, and having different purchasing power. The reference to Tongtian Treasure Account is probably an error for Tianxing Treasure Account.

To sum up, the Jin monetary inflation was unprecedented. The number of different paper moneys was very great, they were frequently changed, and after enough such changes everyone found it hard to remember them. Hence the statements of contemporaries can only be taken as correct in spirit, and not as the literal truth.

As the Tianxing Treasure Account was issued in Caizhou, and came in four denominations in silver from 1 to 4 *qian*, it must have been a separate paper money. Hence it had no exchange price with other paper moneys. It was then nearly a decade since the issue of the Yuanguang Precious Money, which by then had, I suspect, long since gone out of use.

The Jin monetary inflation provides an excellent historical lesson, since in military terms, the Jin never weakened, and retained their self-confidence. Toward Southern Song they always maintained an arrogant attitude, and always managed to defeat the Song. It was only because their military expenditures became too large, so that they had to add an ugly monetary inflation to their tax burden, that the Jin rulers finally made it so hard for people to maintain themselves that producers fled and their warriors lost their spirit of combat. Only then were they destroyed.

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2. The Early Yuan Zhongtong Certificate Inflation

Yuan Emperor Shizu brought a long needed unity to the monetary system. During the more than three centuries since the Five Dynasties, China's monetary systems had been in a chaotic state. In the course of establishing their state, the Mongols cut through the Gordian knot to make such unification a priority.

Naturally they could not undertake to continue the chaotic monetary systems of the peoples they conquered, and this was especially true of their inflated paper moneys. The Jin paper money may be said to have already lost all its purchasing power.

In Emperor Xianzong's 1st year (1251), from the various certificates the Mongols had themselves issued in the north, they selected for universal use the Silver Certificate legal tender system, with silver backing to maintain its purchasing power. These were later redeemed at par with Zhongtong Certificates.¹ As of zhiyuan 12 (1275), the quantity of Zhongtong Certificates issued was only some 16 million ingots worth.

After the Mongols had occupied the south (zhiyuan 13, Song Emperor Qianyou's deyou 2, 1276), there were two schools of thought as to how to rectify the Southern Song Exchange Note and Account Note systems.

¹Yuan History, 160, "Biography of Liu Su": "Zhongtong 1 . . . At this time the Zhongtong new certificates were issued, and Certificate Silver was no longer used. Because some 8,000 strings of Silver Certificates had been circulated outside, both public and private interests were agitated, and no one knew what had been determined. Su recommended three possible policies: The first was to continue use of the old certificates. The second was for new and old to be used together. The third was for the officials to use the new certificates to redeem the old on a one for one basis. The Department of Ministries accepted the third recommendation, and subsequently sent down 500,000 strings of certificates."

Wang Yun, *Middle Hall Affairs Record*, first part: "The Department of Ministries announced issue of the Zhongtong Original Treasure Exchange Certificates in a proclamation to the circuits, the text of which stated . . . 'the old certificates and white checks originally circulated by the circuits may only be redeemed up to the number originally issued from the official treasuries, and must not damage the interests of the masses. The certificates must be redeemed on the day they are brought in, and not reissued for circulation.'"

New Yuan History, 87, "Treatise on Food and Money": "When Yuan was established at the beginning of zhongtong, Wang Wentong took charge of the administration. The Exchange Certificates of the circuits were entirely abolished, and Zhong-

One school, led by Ahemate (or Ahema), Chen Hangui and Yang Cheng advocated used Zhongtong Certificates to redeem them. The other school, led by Yao Shu, Dangongfu and Bayan did not advocate redemption.

In the end the former procedure was adopted, and a 1-string Zhongtong Certificate was equated with 50 strings of Account Notes.² Such a rate of exchange probably set the face value of Account Notes very low, which was a normal device for a conqueror to employ. It was for just this reason that a number of people were unwilling to circulate Communicating Medium and Account Notes. Even forty years later a large quantity of these currencies remained in people's hands, and sometimes even were circulated.³

The Mongol policy was to zealously promote the use of paper money. The results of this policy were at first somewhat better than the Song's and much better than Jin's experience, but they were eventually unable to maintain stability in the value of their money. In other words, even under the Yuan Dynasty there appeared the phenomenon of currency inflation.

The Mongols paid attention to how the Jin monetary system was destroyed, because their government employed Yelü Chucai, who had served as an official in the court of the Jin Emperor Zhangzong, and understood the inflation Jin had suffered. He advocated setting a limit of 10,000 ingots' worth for the printing of Exchange Certificates.⁴ The Mongols were also very conscientious about maintaining backing, keeping reserves of almost 100 percent in hard money. If there was no gold or silver to back them, they would not permit the issue of new certificates.⁵ During the early period, money's value was fairly stable.

For example, the price of grain
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was 600 cash per picul in zhiyuan 3 (1266). The following year it was 450. In around zhiyuan 7, rice

cost 1-string 400 cash per picul.⁶ Such low prices were, however, confined to the first decade or two.⁷ Later, prices slowly rose.

Naturally, war causes inflation. It is no wonder that Ahemate both increased taxes and increased the issue of paper money to meet deficits.⁸ This is fully demonstrated by the rise in the quantity issued.

The quantity issued in zhiyuan 10 [1273] was only 110,000 ingots' worth. The following year there was an increase to 240,000-250,000 ingots. The year after that there was a further increase to nearly 400,000 ingots. In zhiyuan 13, because the conquest of Southern Song had been completed, the quantity issued increased to over 1.4 million ingots, and because of fears that the price of paper money would fall, use of copper coins was banned.

Inflation was already being noticed by zhiyuan 17 (1280). Officials of the Department of Ministries advised restricting the circulation of Certificates, with all rewards and gifts to be made in cloth, and taxes to mostly be paid in paper notes. But expenditures were not reduced, and the degree of inflation only worsened. The purchasing power of a 1-string Certificate only came up to that of 100 cash of bygone days.⁹

⁶Complete Collected Works of Mister Qiurun, 88, "Petition on the Commutation of Salt into Grain and Cash Upon the Official Surrender of Danzhou, Guzhu and Anzhou," states that the price of grain in zhiyuan 3 was 0.6 ounces per picul, and that the following year it was 0.45 ounces. In "Petition on the Affairs of Danzhou, Zhaozhou and the chief of Pingcexian, Zheng Heng" (which dates to c. zhiyuan 7), he says: "... for one dou of white rice, those without rice give up gold to the amount of 0.14 ounces." That amount of gold would have equalled 140 cash in Certificates.

⁷Yuan History Newly Compiled, "Treatise on Food and Money": "When Yuan was established during zhongtong, ... Zhongtong Original Treasure were printed. ... They were circulated for 17 or 18 years without falling or rising prices."

⁸Yuan Literature Categorized, 58, "Li Jian's Spirit Road Stele of the Department of Ministries Left Executive Lord Zhang," zhiyuan 13: "Ahema was in charge of the state, set up the Proclamation Office, and ran the Board of Revenue in Dongping and Daming. It did not disturb the people, but merely had the function of printing mulberry paper money."

⁹Complete Collected Works of Mister Qiurun, 90, "Thirty-five Things for the People's Convenience: On the Certificate Regulations": "When I observe the Original Treasure Exchange Certificates, their circulation among the people is not blocked, but goods are heavily demanded and Certificates are lightly demanded. It is said that 1-string at present is only equal to 100 cash of former days. If they have become as empty as this, there may indeed be said to be a crisis!" He gives several reasons for this. The first is that since zhiyuan 13, all the silver backing for

tong Original Treasure were printed."

²Yuan Literature Categorized, 40, "Records of Prefaces of Major Laws Through the Generations": "[Zhiyuan] 13. The South was pacified. ... Fifty strings of Song Account Notes could be exchanged for 1-string of Zhongtong Certificates." Lu Youren, *Yanbei Miscellaneous Record*, latter part: "Fifty strings of Song Account Notes could be exchanged for 1-string of Zhongtong Certificates."

³Yuan Decrees and Regulations, 20, "Certificates."

⁴Investigation of Literary Remains Continued, 9. *Ming History Draft*, "Biographies, 45, Biography of Fan Ji," says it was to make 10,000 ingots' worth per day.

⁵Yuan History, 125, "Biography of Buluhaiya."

Because the issue was excessively large then, people frequently brought damaged Exchange Certificates to the Certificate Treasuries to exchange for new ones. The original handling charge for this service was 3 hundredths per ounce, or 3 percent, but redemption was limited to 400 ingots' worth per day, and sometimes the local officials did not even open the Treasury.¹⁰ As a consequence, the market was flooded with damaged notes.¹¹

At times the officials and clerks committed acts of extortion, which still further undermined popular trust in the Exchange Certificates, and simultaneously increased popular demand for gold and silver.

According to regulations, people could bring Exchange Certificates to the Certificate Treasuries for redemption in gold and silver, but the officials and clerks of these institutions frequently did not buy and sell at the official prices. They even fabricated names of purchasers of gold and silver so that they might themselves redeem Certificates at the official rate, and then sell the metal at a higher price. This created a black market in gold and silver, which caused the prices of these metals to rise still faster.

In zhiyuan 19 [1282], 10th month, the authorities sent down an edict rectifying the Certificate rules. The Department of Ministries promulgated "Regulations for Regularizing the Circulation of Certificates." The contents of this document focused on the above situation.

The main point was a strict prohibition of private dealing in gold and silver. Specific punishments were fixed for official abuses. As before, Certificate Treasuries would buy and sell gold and silver. Silver would be purchased at a price of 1.95 ounces worth of Certificates for an ounce of the white silver, and would be sold at a price of 2 ounces worth of Certificates. An ounce of flower silver would be bought for 2 ounces worth of Certificates and sold for 2.05.¹² An ounce of gold would be bought for 14.8 ounces worth of Certificates, and sold for 15.

the notes had been removed. The second is that too many of them had been issued. The third is that anticipatory buying of goods had flourished. This was the phenomenon of the flight into goods. The fourth is that officials and clerks were committing abuses. They were creating difficulties which hindered the exchange of old certificates for new ones, which caused the notes to be divided into classes. He advocated using silver to redeem certificates, or the issue of new certificates at an exchange price of one new for two old, so as to draw old certificates out of circulation.

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¹⁰Yuan Decrees and Regulations, 20, "Board of Revenue," 6, "Certificates: Investigation of Certificate Treasury Closings."

Nevertheless, those in charge did not after all understand that the only way to stabilize the value of money was to halt warfare and reduce unproductive expenditures, so that the issue of paper money could be reduced. In actuality, they were still conscripting provisions to prepare

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for war. In the south sailors were being conscripted and ships built, causing people to lose their livelihoods, and crowds of "thieves and bandits" to arise. Though there were men who offered warnings about all this, they were not paid attention to. The higher expenditures went, the lower fell the value of money, and with the monetary system in disarray, official salaries had to be increased.¹³

By zhiyuan 21 (1284), high prices were causing difficulties for people's standard of living which could no longer be ignored.¹⁴ Khubilai told the Department of Ministries to regularize the certificates, and Sengge (or Sangge) recommended Lu Shirong for the task. Lu Shirong proposed a full program.

¹¹Yuan Decrees and Regulations, "Certificates."

¹²Yuan Decrees and Regulations makes it 2.5 ounces.

¹³Yuan History, 13, "Annals of Emperor Shizu, 10," zhiyuan 21, 6th month, renzi: "Salaries of officials and clerks were increased by 100 percent. ; Those making less than 1 ingot's worth were increased by 50 percent." Yuan History, 96, "Treatise on Food and Money, 4, Salaries": "In [zhiyuan] 23, the salaries of inner and outer officials and clerks were again ordered increased by 100 percent. Expenditures increased 50 percent." Yuan Decrees and Regulations, 15, "Board of Revenue," 1, "Salaries: Increased Expenditures for Officials' and Clerks' Salaries," says that it was in zhiyuan 22, 2nd month.

¹⁴Zheng Yuanyou, *Suichang Miscellaneous Record* (written during the zhizheng era): "At this time, Jianghuai Province was changed into Jiangzhe Province (According to Yuan History, 62, "Treatise on Geography," in zhiyuan 21, Jianghuai Province had its name changed to Jiangzhe Province.) . . . Whenever his lordship went out to see the men and women of Hangzhou, he noticed that it retained something of the air of its old status as capital. When in the midst of a crowd, his lordship would insist on stopping his sedan chair or reining in his horse and admonish them, saying, 'You people are still under a cloud. Now there is no longer a southern dynasty. You are diligent, frugal and energetic, and yet still are not concerned that you cannot pay your taxes. How can you keep going about in this free and easy way?' At this time the students of the three schools were in terrible straits. His lordship went out and insisted on confronting them. He called out, 'Today there is hunger, and killing of examination graduates.' Those gathered hooted at him. His lordship insisted on having them brought forward, took a large purse of small Zhongtong Certificates, and gave it to them. His lordship subsequently gave his word that a school for nourishing scholars would begin under his sponsorship."

Superficially, his plan seemed to tilt toward the fiscal side, but in fact stabilization of the value of money was intimately linked to fiscal policy, since monetary inflation was the consequence of fiscal weakness.

Lu Shirong's plan for reforming the currency may be summarized under five headings: 1) Restoration of the people's freedom to buy and sell gold and silver; 2) Issue Damask Notes and mint Zhiyuan coins; 3) Increase the Treasury's income so as to constrict the size of the money supply; 4) Broaden pasturage so as to increase production; 5) Establish Balanced Standard Revolving Emergency Treasuries to maintain Ever-normal Granaries in which supplies would be accumulated to stabilize the value of paper money and keep prices level.

The heart of the plan lay in increasing the national treasury's income, as for example by levying temporary taxes which ought not otherwise to have been levied, restoring tolls and excises on alcoholic beverages, putting overseas trade under official management, collecting excise taxes from merchants, and official manufacture of iron utensils. He also advocated selecting merchants to manage these activities, and not necessarily disinterested parties. These policies raised a number of enemies against him.

Lu Shirong was an outstanding specialist on fiscal affairs. His defeat was perhaps due to obstruction by those in power, which kept his policies from being properly put into effect. It was perhaps also because the people employed were not good that the anticipated success was not obtained. Perhaps the time given him was insufficient, since it was only four months after he made his proposals that he was impeached and imprisoned. The logic of his position was, however, very robust. [It might also be argued that sharp contraction of government expenditures would also have had a deflationary effect by allowing reduction of new paper money issue, but Lu would no doubt have been purged even sooner by the privileged beneficiaries of such expenditures. EHK]

After Lu Shirong's death, the paper money system remained poorly run, prices continued, as before, to rise, and expenditures, as before, continued to increase. The size of the issue increased to over 2 million ingots' worth.

In zhiyuan 24 (1287), soldiers were again used abroad. From the first day of the year to the middle of the 2nd month, 500,000 ingots, the equivalent of 25 million strings were expended. This was ten times more than the entire government receipts for one year during the tianbao era [742-46] of Tang, or twice the annual tax receipts during the jianzhong era [780-84].

In the end new Certificates were issued. These were the Zhiyuan Original Treasure Certificates, 1-string of which was equated with 5 strings of Zhongtong Certificates. Evidently the authorities were acknowledging that prices had risen at least five fold. Although they intended to redeem the Zhongtong Certificates when the Zhiyuan Certificates were issued, in the end both types of notes circulated simultaneously, and so it was inevitable that price rises would be still more severe.

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There were people then who understood that the reason why the notes were depreciating in value was that they could not be redeemed for cash, and they called on the government to redeem them for gold and silver.¹⁵ Others said that if the government merely used silver to redeem Certificates, this would reduce the quantity of Certificates to the point where not enough of them would remain in circulation, and people would insist on taking silver to the Certificate Treasuries to exchange for Certificates, and thus silver would return to the national treasury.¹⁶

The degree of inflation of the currency can be made clear by the figures for the amounts issued. The histories contain specific records of the quantities issued during the Yuan Dynasty.

Expiration dates were no longer placed on notes then, and so the amount of paper money in circulation accumulated over time. Though a portion of it was lost or exchanged at the Balanced Standard Treasuries every year, there were, after all, limits to the amount so lost. Therefore, if a year's increased issue exceeded the amount lost during the previous year, the amount in circulation would grow ever larger.

When an issue of Northern Song's Exchange Notes reached their expiration date, about 20 percent were not brought in for redemption. This was one form of loss, but because there were so many different issues expiring at different times, some people felt it was not worth taking the trouble to sort them out. If the quantity involved was not large, they preferred to absorb the loss, and did not exchange them for new certificates. So the Song rate of loss was somewhat higher than Yuan's would have been.

If we assume that the actual rate of loss during Yuan was 5 percent, then in zhiyuan 23 [1286], the quantity of Zhongtong Certificates in circulation was about 147 times the quantity first issued in

¹⁵Zhang Zhihan, *Western Cliff Collection*, 13, "Advice on Mulberry Paper Money."

¹⁶*Complete Collected Works of Mister Qiurun*, 90, "On Certificates."

zhongtong 1 [1260]. On a per capita basis, this was 9,197 cash, a figure far in excess of those for earlier periods.

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YUAN DYNASTY PAPER MONEY ISSUE (1)

| Year | Size of Issue (ingots) | Cumulative Total ¹⁷ (ingots) | Amt/capita ¹⁸ (cash) |
|-----------|------------------------------|--|------------------------------------|
| zhongtong | | | |
| 1 | 73,352 | 73,352 | 488 |
| (1260) | | | |
| 2 | 39,139 | 108,823 | 726 |
| 3 | 80,000 | 183,382 | 1,220 |
| 4 | 74,000 | 248,213 | 1,654 |
| zhiyuan | | | |
| 1 | 89,208 | 345,010 | 2,300 |
| 2 | 116,208 | 443,967 | 2,960 |
| 3 | 77,252 | 499,021 | 3,330 |
| 4 | 109,488 | 583,558 | 3,890 |
| 5 | 29,880 | 584,250 | 3,894 |
| 6 | 22,896 | 577,933 | 3,852 |
| 7 | 96,768 | 645,804 | 3,229 |
| 8 | 47,000 | 660,514 | 3,303 |
| 9 | 86,256 | 713,744 | 3,569 |
| 10 | 110,192 | 788,249 | 3,941 |
| 11 | 247,440 | 996,276 | 4,981 |
| 12 | 398,194 | 1,344,656 | 2,822 |
| 13 | 1,419,665 | 2,697,088 | 2,293 |
| 14 | 1,021,645 | 3,583,879 | 3,047 |
| 15 | 1,023,400 | 4,428,085 | 3,765 |
| 16 | 788,320 | 4,795,000 | 4,077 |
| 17 | 1,135,800 | 5,391,325 | 4,584 |
| 18 | 1,094,800 | 6,216,559 | 5,286 |
| 19 | 969,444 | 6,876,175 | 5,847 |

¹⁷This column's figures are obtained by adding 95 percent of the existing quantity of Certificates to the figure for that year's new Certificates.

¹⁸I base the Yuan Dynasty population figures mainly on the *Yuan History*, 58, "Geography, 1." For zhiyuan 6 and before, I use a figure of 1.5 million households. For zhiyuan 7 to 11, I use a figure of 2 million households. By zhiyuan 12, they had expanded into the south, and so I increase the number of households to 4,764,077. I assume five persons per household. In zhiyuan 13, they completed the conquest of the south, and the population of the entire country was 58,834,711. For the years following, I continue to use this figure, even though there must have been some slight shifts year by year.

| | | | |
|------------------|-----------|------------|--------|
| 20 | 610,620 | 7,142,986 | 6,074 |
| 21 | 629,904 | 7,415,741 | 6,306 |
| 22 | 2,043,080 | 9,088,034 | 7,728 |
| 23 | 2,181,600 | 10,815,232 | 9,196 |
| 24 ¹⁹ | 83,200 | 10,357,671 | 8,807 |
| 24 ²⁰ | 5,088,28 | 15,445,956 | 13,134 |

If, however, we take the quantity issued in zhongtong 1 as our baseline, this increase is not very significant, since at that time the Mongols' rule was limited to the north, the population of which was only 10 percent of the whole nation's. The north was also backward in its production, and therefore required only a small amount of money.

Logically, if we wish to surmise changes in the value of money from increases in its quantity, we should, of course, take zhiyuan 12 or 13 [1275, 1276] as our base year, since it was then that the Mongols completed their takeover of the south, and the quantity then issued may be taken as representative of the demand over the entire nation.

If we take zhiyuan 12 as our base year, then the amount in circulation by zhiyuan 23 represented a four-fold increase. If we take zhiyuan 13 as our base year, then there had only been a three-fold increase. This, however, refers to the quantity issued by the government. There may also have been counterfeits in circulation.

In actuality, by zhiyuan 23 the quantity of Zhongtong Certificates had probably reached five times the number of zhiyuan 12 or 13. By zhiyuan 12 or 13, however, the amount issued had already been inflated to pay for the large scale military movements. The quantity of Zhongtong Certificates in circulation then must already have exceeded the amount the people of the entire country would have demanded under normal circumstances.

The figures in the table assume that when damaged notes were exchanged for new ones, these new ones are not included in the figures for the new issue. Otherwise, the annual issue figures would have to be reduced by the number of worn certificates brought in for redemption before they could be added to the cumulative total.

To what degree did prices ultimately rise? The histories do not contain definitive records on this point. In zhiyuan 21 [1284], when official salaries were rectified, they were increased by 50 percent. Of course this figure cannot be taken as representative of the degree to which prices rose. When people

¹⁹Including only Zhongtong Certificates.

²⁰Including that year's newly issued Zhiyuan Certificates.

bought rice to make stillbeer, the official price per picul was originally a 1-string Certificate. Lu Shi- [592]

rong's reform placing an excise on fermented goods changed this to 10 strings, and in zhiyuan 22 [1285], 9th month, it was reduced back to 5 strings.²¹ Therefore, the cost of rice rose at least five fold, which corresponds to the face value in old notes of the Zhiyuan new Certificates.

In fact, however, prices did not merely rise five-fold. Wang Yun said that before the issue of the Zhiyuan Certificates, a 1-string Certificate was only worth 100 cash of former days. After the change-over to the new Certificates, Zhao Mengfu said that over the course of some twenty years, the Certificates had fallen several dozen fold in value.²² He also said, "to wine and dine a guest costs several dozen times more than before."²³ Obviously, prices must have risen from a dozen or so to several dozen fold.

²¹ *Yuan History*, "Annals of Emperor Shizu, 10," zhiyuan 22, 9th month.

²² *Yuan History*, 172, "Biography of Zhao Mengfu": "There was an edict gathering the officials in the Board of Punishments to discuss the laws. Most wanted to set the punishment for those stealing more than 200 strings worth of Zhiyuan Certificates at death. Mengfu said, 'When the Certificates were first made, they were backed by silver, and the empty was matched by the real. Now, after twenty odd years, supply and demand have diverged by several dozen fold. Hence the Zhongtong were changed into Zhiyuan. After another twenty years, the Zhiyuan must suffer the same fate as the Zhongtong.'"

²³ *Yuan History*, "Biography of Zhao Mengfu." *Pine Snow Studio Collected Works*, "Appendix: Petitions of Yang Zai Duke Zhao": "Year dinghai [zhiyuan 24], 6th month, given rank of Fengshun Daifu as Executive of the Board of War, his lordship managed the postal service of the Empire, and was only to spend on food and drink for guests on mission 2,000 ingots in Zhongtong Certificates. This amount had been fixed in zhiyuan 13. He reckoned that present prices had become so high that expenses had diverged several dozen fold from those of that time. He requested that the Department of Ministries increase his expense account to 20,000 ingots."

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3. The Zhiyuan Certificates' Depreciation

When the Yuan rulers sent soldiers beyond the borders, domestic resistance was evoked. Rebellion first appeared among such peoples of the southwest as the Jinchi of Yunnan, the Babai Xifu, and the

Miaolao, who rose to the attack one after the other, and whom the Yuan rulers were unable to repress. Military expenditures rose uninterruptedly, and not only did confidence in the regime fall, even the very authority of the government was shaken.

The currency inflation then was not improved by the issue of the Zhiyuan Certificates; rather this worsened the situation. The authorities' talk of so-called primary and secondary moneys was simply a pack of lies, because the first year's issue was more than a million ingots' worth of Zhiyuan Certificates. Added to the 5 million ingots' worth of Zhongtong Certificates, these represented an unprecedented quantity.

If they had withdrawn the soldiers, and given people the leisure to restore their productive forces, the value of the money could have spontaneously stabilized, but unexpectedly they launched yet another major invasion of foreign territory, which kept the peoples of the southwest in an uproar. Ye Li put it well when he observed, "Far off places and distant barbarians, to obtain them is without benefit; as soon as armies are put on the move, expenses mount by huge sums."¹

After the Zhiyuan Certificates were issued, we hear of nothing but price increases. First, the price of gold rose. Zhiyuan Certificates were priced at one for five Zhongtong Certificates. An ounce of silver was formerly 2 strings of Zhongtong Certificates. Now it remained at 2 strings worth of Zhiyuan Certificates.

An ounce of gold, however, which was previously 15 strings of Zhongtong, was now 20 strings of Zhiyuan Certificates. Therefore, gold was either five times or six or seven times higher. In other words, the price of gold rose in terms of both silver and paper money.

In zhiyuan 26 (1289), the quantity issued was 1,780,000 ingots' worth of Zhiyuan. When added to Zhongtong notes, the total approached 9 million ingots. Sengge recommended raising the price of a salt voucher from 30 strings of Zhongtong to 50 strings (1 ingot), and of a tea voucher from 5 strings to 10 strings.²

In zhiyuan 29, the year a fleet of a thousand ships was sent off, Wanze observed that a year's budgeted income was 2,978,305 ingots, and that as of the 10th month, expenditures were already 3,638,543 ingots. Of course this deficit could only be met by additional issue of paper money.

According to Sengge, when issuing the Zhiyuan Certificates, they originally intended to redeem the

¹ *Yuan History*, 173, "Biography of Ye Li."

² *Yuan History*, 205, "Biographies of Sengge and Badan."

entire amount outstanding of Zhongtong Certificates, and so required that half the entire national salt gabelle be paid with Zhongtong Certificates. By zhiyuan 26, however, they realized that for the time being, the Zhongtong Certificates could not be entirely redeemed. Perhaps the authorities had no intention of ever redeeming them.

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Profligate issue of paper notes not only caused prices to rise, but also raised obstacles to the circulation of money. Because Yuan Dynasty paper money did not employ expiration dates, the notes circulated in perpetuity, and as the quality of their paper was not good, they were easily damaged. Hence, just as the Jin did, they had a system for exchanging worn notes. But because their issue was too great, the number of worn certificates was also large, and the Certificate Treasuries lacked enough new Certificates to exchange for them, or perhaps it was that the authorities deliberately kept the supply inadequate.

For example, in zhiyuan 19 [1282], 5th month, because the Certificate Treasury in Dadu (modern Beijing) was only permitted to exchange 400 ingots' worth per day, and sometimes did not even open, business was brought to a halt, prices rose, and so they were obliged to allow a daily exchange of one or two thousand ingots' worth. The problem was not, however, resolved, because exchange for new Certificates required payment of a labor and ink fee of 3 percent. Sometimes a Balanced Standard Treasury was too distant, and the officials could still practice extortion of merchants, which prevented damaged Certificates from being exchanged for new ones.

As a consequence, there occurred discrepancies in prices. For example, during zhiyuan 27 [1290], in Jianghuai and Zhexi, if a 2-string Zhongtong Certificate had its border and denomination inscription entirely intact, it could be used at a price of 1-string 200 cash. If it was so severely damaged that no clear trace of the inscription remained, then it could only circulate at a value of 800 cash until it could be sent to the official treasury to be exchanged for a new note.³ Later the inconvenience of damaged notes drove the people to use of barter, and even to privately issued tea checks, noodle checks, bamboo tallies, wine tallies, etc., as token moneys to serve as instruments for circulation.⁴

There is a brick from the Taihe [Great Harmony] Temple in Chongrenxian, Jiangxi Province, which

bears a price list dated zhiyuan 30, 8th month.⁵ The price of rice is given as 640 catties of Zhongtong per army *dou*, with the official weight of 500 Certificates. The meaning of this is not clear.

A bolt of hempen cloth was commuted to 1 picul for tax paying purposes. The price of heavy silk was 1 ounce's worth of Zhongtong for 4 *chi* in the local measure of cloth. A bolt of white linen was 7 strings of Zhongtong Certificates, which would come to 2 *zhang* and 5 *chi* in the local measure. Hempen cloth was 2 strings worth of Zhongtong Certificates per bolt. As for wages, a tile worker and a carpenter both made 1 string of Zhongtong Certificates per day.

The inscription on the brick clearly states that "prices have never risen so much as this," and these were rural prices.

After Emperor Chengzong (Tiemuer) ascended the throne, internal disorder began. During yuanzhen 1 (1295), reports from Yunnan stated that the Jinchi Rebellion could not be put down, and that the Babai Xifu were also resisting militarily.

The cost of rice in the capital rose, and the government set up its own retail establishments for selling rice. White non-glutinous rice was sold for 15 ounces worth of Zhongtong Certificates per picul, white rice for 12 ounces, and glutinous rice for 6.5 ounces.⁶ The government's price schedule was 5 ounces lower than the market's price for white non-glutinous rice, and 3 ounces lower for white rice. Evidently the cost of rice had gone up by more than a dozen fold.

In dade 3 (1299), a Department of Ministries official said that for years "the expenses for public slaves had amounted to an enormous sum, and the annual income figure had been less than half of annual expenditures." The rest had to be covered by borrowing, which I surmise influenced

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the monetary system. In dade 5, however, they again sent the Yunnan army out to put down rebels, and because of this a local Yunnan official, Song Longji, led the Miaolao and Zijiang peoples into resistance, which included an attack on Guizhou.

During dade 6 and 7 [1302-3], probably in response to Haidu, there was a great increase in the issue of paper money, and in dade 7 inner and outer officials had rice added to their salaries.⁷ Naturally, this was related to the fall in the value of money.

⁵ *Cultural Relics*, 4 (1963), p. 52.

⁶ *New Yuan History*, 89, "Relief Measures." The *Yuan History* gives a price of 13 ounces for white rice.

⁷ *Yuan History*, 96, "Treatise on Food and Money, 4": "In dade 7 rice began to be added to the salaries of inner and outer

³ *Yuan Decrees and Regulations*, 20, "Board of Revenue," 6.

⁴ *Yuan Decrees and Regulations*, 20, "Board of Revenue," 6, zhiyuan 31, 3rd month.

In the 8th or 9th month of dade 11, however, after Emperor Wuzong had assumed the throne, the head of the Department of Ministries spoke of the depletion of the Treasury. He said that for years the annual national income had been 4 million ingots. The central government received 2.8 million ingots, and paid out about the same amount. By the 8th or 9th month of that year 4.2 million ingots had already been expended, and an additional 1 million ingots had been obligated but not yet expended. This was double annual income. They eventually used up more than 7.1 million ingots of the Certificates' backing.

In zhida 1 (1308), 11th month, official salaries were again adjusted. Salary rice was abolished, and salaries were paid in Zhiyuan Certificates prorated in terms of Zhongtong Certificates. That is to say, salaries increased five fold. Total annual expenditures reached 10 million ingots, or 500 million strings, which was still two times annual income. The authorities sold rice for 25 strings of Zhongtong Certificates per picul.⁸ This represented approximately twice the level of prices during yuazhen 1 [1295].

In the 11th month of the year Emperor Wuzong ascended the throne (dade 11) [1307], some advocated using silver certificates and copper coins, but this was not done, probably because the officials of the Department of Ministries did not approve.

During zhida 2 (1309), changes in the paper money system were again debated, and as a consequence the Zhida Silver Certificates were issued, which raised [official] prices five fold in one jump.

Simultaneously, use of copper coins was restored. In addition to coins from earlier times, Great Yuan Circulating Treasure and Zhida Circulating Treasure were minted.

Zhongtong Certificates were to be redeemed within one hundred days. All payments were to be expressed in terms of Zhida Silver Certificates. The price of a salt voucher rose to 4 ounces worth of Zhida Silver Certificates, the equivalent of 100 strings of Zhongtong Certificates, which was twice the level fixed by Sengge in zhiyuan 26 [1289].

officials. All personnel with salaries of less than 10 ounces . . . were to be given 1 *dou* of rice for each 10 ounces. For those with salaries of more than 10 but less than 25 ounces, each official was to be given 1 picul of rice. For the remainder with higher salaries, for each ounce's worth of salary, they were to be given 1 *sheng* of rice. If there was no rice, then the equivalent in money at the price of the time was to be given, except that no more than 20 ounces per picul was to be paid, no matter how much more expensive rice became."

⁸New Yuan History, 89, "Relief Measures."

This change was, however, short-lived, because Emperor Wuzong died only a few months later. When Emperor Renzong assumed the throne, he overturned Wuzong's reform, abolished the Zhida coins, and withdrew the Zhida Silver Certificates. He said they were being withdrawn because their quantity was too great, and this was putting upward pressure on prices. There may have been some truth to this explanation. Copper coins were abolished because it was said they could not be supplied in adequate numbers. In actuality, because the value of money was unstable, copper coins were being hidden away.

None of these reforms and counterreforms managed to stabilize the purchasing power of the paper money. There were obsequious officials like Li Meng, who understood how the mind of the great Khan worked. Just after the withdrawal of the Zhida Certificates had been proclaimed, he said "prices are falling as quickly as people discern the Sage's spiritual transformation."⁹ Fortunately, the Great Khan was not that stupid.

Nevertheless, it is evident that the problem of prices then was a severe one. In the 11th month of that same year (zhida 4), Li Meng said

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that over 6 million ingots worth of Certificates were being used each year then. Several million ingots were required for earth and wood for garrison repairs. Rewards for those who surrendered required over 3 million ingots. Army requirements on the northern frontier added another 6 or 7 million ingots, but there were only some 11 million ingots in the treasury. With this sort of red ink fiscal policy, what else could they do but issue more paper money?

As for issue of paper money after zhiyuan [1295], there was a great increase because of war in Yunnan during Emperor Chengzong's dade 6 and 7 (1302-1303). In zhida 3 (1310), 1.45 million ingots worth of Zhida Silver Certificates were issued. This was equal to over 36 million ingots in Zhongtong Certificates. This represented a sudden increase in the quantity of money. Though they were withdrawn the following year, the quantity of Zhiyuan Certi-

⁹Yuan History, 24, "Annals of Emperor Renzong, 1," zhida 4, 4th month: "Li Meng entered and said, 'Your Majesty's diligence has been extremely quick. Prices are falling as quickly as people discern the Sage's spiritual transformation. I dare to congratulate you for this.' The Emperor agitatedly replied, . . .

'Now We have been on the throne for less than a month. There is no reason why prices should have fallen. We have put such heavy trust in you. Such words are not to be relied upon.' Meng was ashamed."

cates increased thereafter, and a small quantity of Zhongtong Certificates was also issued. As a consequence, the quantity of money in circulation had increased enormously compared to the period before the issue of the Zhida Silver Certificates.

After Emperor Yingzong's zhizhi period (1321), the amount issued gradually declined, but by Emperor Wenzong's tianli 2 (1329), the quantity of paper money in circulation had increased by seven or eight times over the amount existing prior to the issue of the Zhiyuan Certificates, and from thirty to sixty times the amount in zhiyuan 12 or 13 [1274-5].

YUAN DYNASTY QUANTITY OF ISSUE (2)

| Year | Amount Issued ¹⁰ (ingots) | Cumulative Total ¹¹ (ingots) | Amount per capita (cash) ¹² |
|-------------------------|---|--|--|
| zhiyuan 24 (1287) | 5,088,285 | 15,445,956 | 13,134 |

¹⁰The amount of issue figures are in units of Zhongtong Certificate ingots. All of the Zhiyuan Certificates and the zhida 3 Zhida Silver Certificates have been converted to their equivalent in Zhongtong Certificates. The figures are drawn from those in the *Yuan History*, "Treatise on Food and Money." Figures for after tianli 2 are scattered within the texts of the basic annals of the *Yuan History*. For the zhishun 1 figure, cf. "Annals of Emperor Wenzong, 2," under the entry for tianli, 12th month, dinghai, which I assume is for zhishun 1. For years which are omitted, I do not know whether new Certificates were not issued or there are gaps in the record. However, "Annals of Emperor Shun, 3" contains an edict of zhiyuan 6, 3rd month, jiashen, halting the printing of Certificates for that year. In zhizheng 1, 12th month, guihai, there were enough Zhiyuan and Zhongtong Certificates in the treasury to cover two years' expenditures, and so manufacture of Certificates was halted for zhizheng 2.

¹¹The method for calculating the cumulative total was to add 95 percent of the old notes to the quantity of new Certificates, but because the Zhida Silver Certificates issued in zhida 3 were withdrawn and destroyed within a short time, the cumulative total for zhida 4 has been reduced by that amount.

¹²As before, a population figure of 58.8 million is used.

| | | | |
|------------|------------|------------|--------|
| 25 | 4,608,060 | 19,281,718 | 16,396 |
| 26 | 8,900,465 | 27,217,097 | 23,144 |
| 27 | 2,501,250 | 28,357,492 | 24,113 |
| 28 | 2,500,000 | 29,439,617 | 25,033 |
| 29 | 2,500,000 | 30,377,636 | 25,831 |
| 30 | 1,300,000 | 30,158,755 | 25,645 |
| 31 | 968,530 | 29,619,347 | 25,186 |
| yuanzhen | | | |
| 1 | | | |
| (1295) | 1,550,000 | 29,688,380 | 25,245 |
| 2 | 2,000,000 | 30,203,961 | 25,684 |
| dade | | | |
| 1 | | | |
| (1297) | 2,000,000 | 30,693,763 | 26,100 |
| 2 | 1,499,550 | 30,658,625 | 26,070 |
| 3 | 4,500,375 | 33,626,069 | 28,593 |
| 4 | 3,000,000 | 33,944,765 | 28,865 |
| 5 | 2,500,000 | 34,747,527 | 29,547 |
| [598] | | | |
| dade | | | |
| 6 | 10,000,000 | 43,010,150 | 36,573 |
| 7 | 7,500,000 | 48,359,642 | 41,122 |
| 8 | 2,500,000 | 48,451,600 | 41,200 |
| 9 | 2,500,000 | 48,529,077 | 41,266 |
| 10 | 5,000,000 | 51,102,623 | 43,625 |
| 11 | 5,000,000 | 53,547,492 | 45,533 |
| zhida | | | |
| 1 | | | |
| (1308) | 5,000,000 | 55,870,117 | 47,509 |
| 2 | 5,000,000 | 58,076,611 | 49,385 |
| 3 | 36,259,200 | 91,431,980 | 77,765 |
| 4 | 10,900,000 | 63,314,162 | 53,838 |
| huang-qing | | | |
| 1 | | | |
| (1312) | 11,211,680 | 71,360,134 | 60,681 |
| 2 | 10,200,000 | 78,092,127 | 66,405 |
| yanyou | | | |
| 1 | | | |
| (1314) | 10,100,000 | 84,287,521 | 71,673 |
| 2 | 5,100,000 | 85,173,145 | 72,426 |
| 3 | 2,100,000 | 83,014,488 | 70,590 |
| 4 | 2,500,000 | 81,363,764 | 69,187 |
| 5 | 2,100,000 | 79,395,576 | 67,513 |
| 6 | 7,500,000 | 82,925,697 | 70,515 |
| 7 | 7,500,000 | 86,279,141 | 73,367 |
| zhizhi | | | |
| 1 | | | |
| (1321) | 5,050,000 | 87,015,184 | 73,992 |
| 2 | 4,050,000 | 86,714,425 | 73,736 |
| 3 | 3,550,000 | 85,918,704 | 73,060 |
| taiding | | | |
| 1 | | | |
| (1324) | 3,150,000 | 84,772,769 | 72,086 |
| 2 | 2,100,000 | 82,634,130 | 70,265 |
| 3 | 2,100,000 | 80,602,423 | 68,539 |

| | | | |
|----------|-----------|------------|--------|
| 4 | 2,100,000 | 78,672,302 | 66,898 |
| tianli | | | |
| 1 | | | |
| (1328) | 1,585,110 | 76,323,797 | 64,901 |
| 2 | 6,000,000 | 80,507,607 | 68,459 |
| zhishun | | | |
| 1 | | | |
| (1330) | 2,300,000 | 78,782,227 | 66,991 |
| 2 | 4,455,250 | 79,298,365 | 67,430 |
| 3 | 4,984,000 | 80,317,447 | 68,297 |
| zhiyuan | | | |
| 3 | | | |
| (1337) | 7,500,000 | | |
| 4 | 6,000,000 | | |
| zhizheng | | | |
| 1 | | | |
| (1341) | 4,960,000 | | |

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From its middle years on, the Yuan no longer had a unified issue. In addition to those the government issued, private individuals were also awarded the right to print certificates.

For example, because Zhang Xuan and Zhu Qing achieved merit managing sea transport, they were granted the right to print certificates at the end of zhiyuan 23 [1286]. They could issue as many as they desired, and could become as rich as the court. Although they were later executed, as had been the fate of Prince Bi of Wu and Deng Tong of Western Han (who also had the legal right to issue money, in their case coins), they were able to keep issuing money for seventeen years.¹³

There were also ad hoc issues, as during the years from the end of taiding to zhihe [1328-29], when there was a struggle for the throne, and a shortage of money to meet expenses in the capital

was made up by having blocks carved to print certificates. These were not withdrawn and destroyed until tianli 1 [1329].¹⁴

Sometimes damaged and old notes were reissued after they had been redeemed, as during tianli 2, when there was a famine in the Guanzhong, and a *dou* of rice was worth 13 strings. If notes were somewhat damaged, they could not be used. Nor could people exchange them for new ones. Zhang Shanhao took from the Certificate Treasuries some 1.855 million strings of old and damaged notes with readable inscriptions which had not yet been destroyed, overprinted them with the denominations 10-strings and 5-strings, and reissued them. Rice merchants could take these notes to a Certificate Treasury to exchange for regular notes.¹⁵ Naturally, these ad hoc issues are not included in the formal issue figures.

The problem of counterfeits was also very severe. Because the cost of production for paper money was low, counterfeiting was hard to avoid. Counterfeits were being printed as early as the beginning of zhongtong [1260].¹⁶

A regulation of zhiyuan 7 [1270] prescribed the death penalty for counterfeits, but allowed well-made ones to circulate. If they were not accurate copies, they could not circulate, and those who used them were exiled to a distance. Later on, however, makers of both good and bad counterfeits were all sentenced to death.

And yet, despite such cruel punishment, those who risked violating the ban to print notes privately remained very numerous.¹⁷ During dade 7, 12th

¹⁴Yuan History, 32, "Annals of Emperor Wenzong, 1."

¹⁵Yuan History, 175, "Biography of Zhang Shanhao."

¹⁶Yuan History, 163, "Biography of Li Dehui."

¹⁷Outline of Ancient and Modern Good Administration

quotes Zheng Jiefu: "[During the time of Emperor Chengzong] as only certificates were used and their production cost was light, counterfeiters proliferated. Though the laws established were severe, in the end they could have no effect." Yuan History, 97, "Treatise on Food and Money, 5": "In zhizheng 10 . . . Prior to this, the Left Executive of Capital Affairs, Wuqichangjian had said, 'Certificates have been circulated since Emperor Shizu's time. . . . In recent years . . . counterfeit certificates have proliferated.'" Yuan History, 181, "Biography of Huang Qian": "[During the reign of Emperor Renzong] wicked people [reaching into Zhejiang] have formed gangs of counterfeiters to despoil people of their wealth."

Academician Huang's Collected Writings, 26, "Lord Jie Spirit Road Stele": "People in Huizhou were counterfeiting mulberry paper money in a Buddhist monastery." Yu Ji, *The Way Garden Studies Ancient Record*, 3, "Yuzhou Newly Rebuilt Proclaim-the-Sage Temple Confucian Studies Record": "Marquis Li

¹³New Yuan History, 74, "Treatise on Food and Money, 7," zhiyuan 23: "This year, because Zhang Xuan and Zhu Qing had transported provisions for 10,000 households by the sea route, they were granted the right to print Exchange Certificates on their own. The color of their Certificates was blacker than the official ones, and the seals a brighter red. From this time on Xuan and Qing grew as rich as the court itself. Finally, [606]

they became so profligate that they suffered execution." (According to Yuan History, 21, "Annals of Emperor Chengzong," the executions of Zhang Xuan and Zhu Qing occurred during dade 7.) Investigation of Literary Remains Continued, 9: "In zhiyuan 23, 11th month, Zhang Xuan and Zhu Qing were granted certificate printing rights as reward for transporting provisions for 10,000 households by the sea route." Ye Ziqi, *Grass and Tree Master*, 3, 4, also records this matter.

month, there were 88 cases of counterfeiting among Hangzhou's criminal prosecutions, with 274 individuals involved.¹⁸

In addition to private printing of notes, raising of certificates was also occurring: the turning of a 1-ounce into a 2-ounce note or the turning of 5 *qian* into 1-ounce.¹⁹ There were even some officials and clerks who treated genuine Certificates as false ones. This must have been because they feared committing errors or wanted to curry favor.²⁰ Evidently, however, there were many false certificates.

Yuan Dynasty laws concerning counterfeit notes

... had served as an official in the South Seas. . . . On the seacoast there was a great pirate controlling a dozen or so vessels. When he came ashore, he did a big trade in private salt and counterfeit certificates. They spread everywhere, but could not be redeemed. [An event of the early years of Emperor Shun.] "The Way Garden Studies Ancient Record, 41, "Stele of Zou Qusi, Chief of Chong'anxian, Jianning Circuit": ". . . the people of the mountain valleys are ignorant and do not know the laws. They snatch at profit, and counterfeiters flourish."

Yuan and Ming Certificates, 26, quotes the Yuan writer Li Cun's "Song of Counterfeit Certificates":

Neither ancient nor modern have the like of our dynasty's notes,

Far better than stringed cash like green bug notes.

If you tell youngsters to lodge them in their sleeves,

A thousand or ten thousand *li* they go alone by their leave.

At any time abuses of the morés may arise,

All too often counterfeits stick in corners.

No matter how heavy the rules that are set down,

To chase profit this way sure beats dying for your country and your mourners.

¹⁸*Yuan Decrees and Regulations*, 20, "Board of Revenue," 6, "Certificates: Counterfeiting."

¹⁹*Ibid.*, "Raising Certificates."

²⁰*Yuan History*, 176, "Biography of Han Ruoyu": "At this time, those in charge of burning worn certificates wanted to get reputations for ability, and so they labeled all the notes to be burned as counterfeits, causing those in charge of the treasuries to be imprisoned for erroneously having accepted them." *Ibid.*, 182, "Biography of Xu Youwang": In zhizhi 2, "he reached Jiangxi, where the Purity Inquiry Commissioner, Miao Haoqian, was supervising the burning of worn certificates. Every day, more than a hundred people came to examine the certificates. Haoqian feared this would give rise to abuses, and had them severely whipped. These people feared punishment, and hence frequently labeled genuine ones as counterfeits so as to fulfill his expectations. The clerks in charge of the treasury and all below them were flogged till their skins were not whole, and none could make restitution. Those in charge double-checked the certificates, and they turned out to be genuine. Subsequently they were pardoned."

were especially complex.²¹ This shows how severe counterfeiting was. Sometimes, damaged notes which had been withdrawn were stolen before they could be burned.²² Whether or not officials and clerks inside the ministry were committing abuses, these old certificates must have been returned to circulation, and as a consequence the purchasing power of certificates would have been affected.

People mentioned the rise in prices during the dade year period [1297-1308],²³ but different goods rose in price to different degrees. For example, by zhiyuan 24 [1287], food and drink had risen to a level several dozen times higher than in zhiyuan 13, but some people said that boat construction materials had only risen ten fold by Emperor Wuzong's zhida 4 [1311].²⁴ Agricultural land prices had by da-

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de 1 risen three or four fold compared to zhiyuan 24.²⁵

²¹*Yuan Decrees and Regulations*, 20.

²²*Yuan Decrees and Regulations*, 20.

²³*Yuan Decrees and Regulations*, 19. In Emperor Chengzong's dade 1, 6th month, there was an announcement in Jiangxi Province, Longxing Circuit: "When the south was first taken, Zhongtong Certificates in ounces were circulated. Prices in general were low. . . . Now, evidently, prices have risen, and in the business emporia prices have gone up several fold." *Ibid.*, 22, huangqing 1, 5th month, an accusation by the Jiangxi Travelling Bureau to the Department of Ministries against the Board of Revenue's handling of affairs: "According to information received, in recent years prices have jumped up. Compared to former days, they have increased several dozen fold." *Outline of Ancient and Modern Good Administration*, quoting the words of Zheng Jiefu: "In the old days, if you went out carrying 10 cash in your purse, you could come home full of food and drunk. How could people avoid being rich? Now if you go out carrying 10 cash worth of Certificates, you can't even buy enough ice to slake your thirst. How can people avoid being poor?"

²⁴*Great Yuan Sea Transport Record*, Emperor Wuzong's zhida 4, Department of Ministries memorial: "Thirty years ago, when sea transport was first inaugurated, the Certificates were expensive and heavily demanded, and prices in general were level. . . . Now, goods are heavily demanded and Certificates are lightly demanded. Materials for building ships are ten times higher in price."

²⁵*Yuan Decrees and Regulations*, 19, dade 7, 3rd month, "Communication By the Huguang Travelling Ministry to the Department of Ministries on the North Sea and South Sea Route Proclamation Guarding Office": "Leizhou Circuit Complaint Against Wu Fen": "In zhiyuan 24, elder brother Wu Qiu sold 4 *mu* 5 *fen* of fields to Tang Zheng, who became its master, for a price of 30 ounces. In zhiyuan 30, Tang Zheng sold the land at a higher price of 100 ounces to Wang Fengsun, who became its owner. In dade 1, Wang Fengsun sold it at a price of 125 ounces

There was also a tendency for transport costs to rise. There is a close link between the prices of goods and transport costs, since a number of goods prices include the cost of transportation. In addition, the level of transport costs also reflects the extent of a country's circulation of commodities and general level of economic development.

Riverine transport cost 0.03 ounces in certificates to ship a picul of grain 100 *li* downstream in Jiangxi. By zhiyuan 31 [1294] this had increased to 0.06 ounces, double the original amount.²⁶ During the mingchang era of Jin [1190-96] a picul (115 catties) was 40 cash 3 *fen* 6 *si*, probably paid in copper coin, or in both coin and paper. The Yuan Dynasty price was nearly the same as that earlier one.

As for land transport, in zhiyuan 26 [1289], it cost 1 ounce to send a picul 100 *li* over flat ground, and 1.2 ounces over hilly terrain. This was higher than during Jin's mingchang period, the Jin Dynasty price for foot carriage of 100 catties over 100 *li* of flat ground having been 146 cash, and 155 cash over hilly terrain. The Yuan Dynasty price was probably denominated in Zhongtong Certificates, but even so was still higher than the Jin Dynasty price. In dade 5 [1301], however, it rose further to 1.2 ounces over flat ground and 1.5 ounces over hilly terrain.²⁷ In the course of a dozen years, it had risen 20 percent.

As for sea transport, to transport a picul of grain during the zhiyuan period would cost 8.5 ounces in Zhongtong Certificates. By zhida 4 [1311], this had increased to 3 ounces in Zhiyuan Certificates,²⁸

to Han Twenty, who became its master."

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²⁶*Yuan Decrees and Regulations*, 26, zhiyuan 31, 1st month, "Communication By the Huguang Travelling Ministry On Shipping 150,000 Piculs of Zhenzhou Grain to Jiangxi Province": "Previously, grain was assembled annually for transport from Zhenzhou. The old rate for sending 1 picul 100 *li* downstream was 0.03 ounces in Certificates, not including the workmen on the ship. This ministry advises obtaining an additional 0.03 ounces per picul of rice, making 0.06 in all."

²⁷*Yuan Decrees and Regulations*, 26.

²⁸*Great Yuan Sea Transport Record*, first part, Emperor Wuzong's zhida 4, Department of Ministries memorial: "Thirty years ago, when sea transport first began . . . to transport 1 picul of grain cost 8.5 ounces in Exchange Certificates [Zhongtong Certificates]. . . Now . . . even Mongols must pay an increase to 2 ounces in Zhiyuan Certificates. If prices go yet higher, this route will no longer be able to be used. . . Now, when ships from afar, from places like Wen, Tai and Qingyuan, transport grain, a picul costs an additional 1 ounce in Zhiyuan Certificates, making a total of 3 ounces. When other ships are loaded with coarse white grain, each picul costs an additional 0.6 ounces in Certificates, making a total of 2.6 ounces. A premium of 0.6

which was equal to 15 ounces in Zhongtong Certificates. Over the course of 30 years, there had been a rise of 77 percent. Generally speaking, transportation costs had been rising slowly.

The prices of gold and silver rose relatively quickly. By zhizheng 5 (1345), an ounce of gold had risen to more than 250 strings worth of Zhongtong Certificates.²⁹ The next year, pure gold had risen to 300 strings worth of Zhongtong Certificates per ounce, and 900 fine gold to 270 strings.³⁰ This was fifteen times more than at the beginning of zhongtong.

In about zhiyuan 13 (1276) rice was 1 string per picul in Zhongtong Certificates. By the end of zhiyuan [1295] it had probably already risen to better than 10 strings.³¹ In yuazhen 1 [1295], the authorities sold rice for from 6.5 to 15 strings per picul. During the dade period [1297-1308], rice went at least as high as 10 strings per picul, and during a famine in Zhejiang in dade 10 [1306], a picul went to more than 30 strings.³² It probably averaged 20 strings per picul.

In zhida 1 (1308), the authorities again increased their selling price for rice to 25 strings per picul.³³ The histories say that in taiding 2 (1325), it was re-

ounces is also charged for rice husk, making for a total charge of 2 ounces."

²⁹Zheng Yu, *Shi Mountain Collection*, 4, "Preface to Odes on Estimating the Time When the Price of Gold Was Being Regulated in Songyexian": "In zhizheng 5, the price of gold in the market, reckoned in Certificates per ounce, was only a little over 5 ingots' worth."

³⁰Sugimura Yutsuku, *Yuan Archives Filled In* records zhiyuan 6, 5th month, prices for gold and silver: "An ounce of red gold is 6 ingots in [Zhongtong] Certificates. Nine parts fine is 5 ingots 20 ounces in Certificates per ounce. Seven parts fine is 4 ingots 10 ounces per ounce. Flower silver is 30 ounces in Certificates per ounce. Nine parts fine is 27 ounces in Certificates per ounce. Seven parts fine is 21 ounces in Certificates per ounce."

³¹*Superfluous Words on Agricultural Fields*, first part: "When the south was first obtained . . . rice was 1 string per picul. . . Now [the end of Emperor Shizu's reign] rice is worth ten times what it was previously. In terms of Zhongtong Certificates, it is more than 10 strings."

³²Liu Xun, *Water-cloud Village Confused Draft*, 14, "Petition to the Chengzhou Transport and Purity Inquiry Office on Famine Relief": "In dade 10, year bingwu, during Spring and Summer, there was a famine in Jiangzhe. . . For years, the price of a picul of rice was only 10 ounces in Zhongtong Certificates, and even then households purchasing it from the state said they were placed in difficulties. Now the price is rising by the day. It has doubled and doubled again. . . A picul has reached more than 30 ounces."

³³*New Yuan History*, 89, "Relief Measures."

duced to 20 strings, and that in zhihe 1 (1328), it was reduced to 15 strings,³⁴ probably because there was large scale transport of millet from the south to the north. The market price was surely much higher. In zhizheng 6 (1346), upper grade glutinous rice went for 40 strings per picul,³⁵ which was forty times higher than when the south was first taken over.

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The degree to which prices had risen by then can also be discerned from the price of salt. Before the Mongols took over the north China plain, they paid an especially high price for salt because of their location in the northern desert.

In Emperor Taizong's (Ögedei) 2nd year (1230), 1 voucher, exchangeable for 400 catties, cost 10 ounces of white silver. By zhongtong 2 [1261], the price had fallen to 7 ounces. In zhiyuan 13 [1276], having just taken the salt-producing south, a voucher came to 9 strings of Zhongtong Certificates.³⁶ This was equal to 4.5 ounces of white silver. By zhiyuan 26 [1289], the currency inflation had driven 1 voucher up to 50 strings, a more than five-fold increase over the course of 13 years. In yuanzhen 2 (1296) it had risen to 65 strings. During the seven years from zhida 2 to yanyou 2 (1315), it rose to 150 strings, making for a sixteen-fold rise over the course of forty years.³⁷

In the Liangzhe region, the price of salt rose still more violently. At first, the official price per voucher was only 5 strings in Zhongtong Certificates. Later, it increased to 9 strings, 10 strings, and

reached 30, 50, 60 and even 100 strings. By Emperor Zhishun's zhiyuan 5 [1339], it had risen to 3 ingots,³⁸ thirty times higher than at the very beginning.

The market price was still higher. A 1-string Certificate could only buy 1 catty of salt. This was 500 times higher than the Tang tianbao era [742-56] price of 2 cash per catty, and more than twenty times higher than the early Northern Song price of 40 cash per catty. It was eighty times higher than the price when the Mongols first occupied the south [1276].

Salt is a necessity for life, but historically the sale of edible salt had been a government monopoly. The profit from salt was a very considerable item in the Yuan Dynasty's annual income. In tianli 2 [1330], it came to 7,661,000 ingots.³⁹ This constituted 82 percent of the state's entire paper money income. It was through the price of salt that the Mongol rulers carried out their exploitation of the people.

There was also a tendency for objects of art to rise in price. When, in zhiyuan 23, Li Kan was in Zhejiang selling Wen Tong's paintings, he considered 25 strings a good price. Some thirty years later, after the death of Gao Kēgōng, his paintings sold for 1,100 strings apiece. While Ni Can was still alive, his small bamboo and rock landscapes sold for several dozen of metal (i.e. strings) apiece.⁴⁰

Objects of art differed from ordinary commodities. Some said that two of Li Gonglin's paintings could be exchanged for one of Wu Daozi's, and that two of Wu Daozi's exchanged for one Gu Kaizhi or Lu Tanzheng. I suspect this was a trivial rule of thumb based on worship of antiquity, but it is evident that the trend in prices of Yuan Dynasty paintings did not lag behind prices in general.

Owing to the chaotic conditions for the circulation of money and the instability of prices, barter and the practice of commercial establishments issuing their own money substitutes appeared. Later we hear of such labels as tea checks, noodle checks, bamboo tallies and stillbeer tallies.

After the end of Emperor Shizu's

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zhiyuan period [1295], such practices probably became more widely used. In zhiyuan 31 [1294] there was an order banning such tokens,⁴¹ but that had no

³⁴New Yuan History, 89, "Relief Measures."

³⁵Sugimura Yutsuku, *Yuan Archives Filled In* (in Commemorative Collection Honoring Master Fukubu's Ancient Rarities) records that in zhizheng 6, 5th month: "For glutinous rice of the upper grade per picul it is 40 ounces of [Zhongtong] Certificates; for middle grade, 37.5 ounces of Certificates per picul; for lower grade, 35 ounces of Certificates per picul. For zhan rice of the upper grade, it is 37.5 ounces per picul; for middle grade, 35 ounces; for lower grade, 32 ounces."

³⁶Yuan History, 94, "Treatise on Food and Money, 2, Salt Regulations": "In Emperor Taizong's year gengyin, the salt regulations were inaugurated. Each voucher of salt was for a weight of 400 catties. Its price was 10 ounces of silver. In Emperor Shizu's zhongtong 2, it was reduced to 7 ounces of silver. In zhiyuan 13, having taken Song, and the salt of the south having entered widely, the price of a voucher was changed to 9 strings in Zhongtong Certificates." On the Yuan salt price, there is also Ye Zhiben's "Message Requesting Reduction of the Price of Salt." Cf. Gu Yanwu, *Letters on the Profits and Ills of the Regions of the Empire*, 22, "The South, 10."

³⁷Yuan History, "Treatise on Food and Money, 2, Salt Regulations."

³⁸Yuan History, "Treatise on Food and Money, 5, Salt Regulations."

³⁹Major Statutes Through the Generations, 12.

⁴⁰Gu Yuanqing, *Cloud Grove Deeds of Those Now Dead*.

⁴¹Yuan Decrees and Regulations, "Certificate Regulations: Miscellaneous Rules."

effect. To the contrary, the situation was aggravated.

Originally shops had issued money substitutes only to make it more convenient for their customers to buy from them. Later, these tokens came to circulate in the market. Therefore, in Emperor Renzong's huangqing 1 (1312), the authorities acknowledged that prices were several dozen times higher than before.⁴² In yanyou 1 (1314), the Department of Ministries sent down an order limiting the use of tokens. Stillbeer tallies issued by taverns could only be used by customers to pay for stillbeer in the establishment which had issued them. They were not to circulate on the open market.⁴³

In his discussion of Yuan Dynasty paper money, Wu Qi of the zhizheng period [1341-68] employed rather odd logic. He said that during the 25 years from Emperor Shizu's zhiyuan 24 to Emperor Wuzong's zhida 4 [1311], many notes had been printed and few burned, their circulation was broad, and the Certificates had become universally used. During the 9 years from Emperor Renzong's huangqing 1 to yanyou 7 [1320], though many had been printed, many had also been burned, the number in circulation had gradually declined, and the Certificate system had begun to decay. From Emperor Yingzong's zhizhi 1 to 3 [1321-3], though many had been printed and few burned, so that even more were in circulation, the Certificate system was further spoiled. During the eight years from taiding 1 to zhishun 3 [1332], few were printed, and many burned, and their circulation ceased altogether, bringing the Certificate system to disaster.

His words are simply a muddle. Apparently when the notes are numerous they are bad, but when they are few they are also bad. When many are printed and few are burned, they are still worse. When few are printed and many burned, they are especially bad. What then would have improved matters?

⁴² *Yuan Decrees and Regulations*, 22.

⁴³ *Itemization of the Universal Regulations*, 14, "Stillbeer Tallies Encroachments on Certificates": "In yanyou 1, 9th month, the Department of Ministries placed a notice on posts in the streets stating that taverns, teahouses and bathhouses often made and issued their own tallies made of bamboo or wood, and wrote checks denominated in Treasure Certificates. These flowed into use, thereby encroaching on the sphere of the Certificates. These stillbeer tallies
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were only to be used to pay for stillbeer in the tavern issuing them. They were not to be circulated or turned over on the streets or in the markets. The other bamboo and wood tallies and paper checks were completely banned from circulation."

He says that during 64 years a total of 59,056,000 ingots worth of Certificates were printed, over 56,200,000 were paid out, and some 36 million were burned, so that less than 20 million ingots worth remained in circulation.⁴⁴ His figures do not correspond with those from the histories, which do not record the numbers of notes burned. If we assume the truth of his statement that there were only some 20 million ingots worth in circulation, and so there was a shortage of Certificates, then what were the people using? How could prices have increased?

[Though his figures may have been wrong, Wu Qi's contemporary account may have accurately recorded evidence of a transient shortage of paper notes. When a currency inflation begins, people do not anticipate that it will continue. Hence they allow their cash balances to grow. This means that prices rise by less than the increase in the money supply. Later, people conclude that the currency inflation will indeed continue. As a consequence, they reduce their cash balances, and the resulting flood of money onto the market raises prices even faster than the rate by which the authorities are increasing the money supply. At some point, the resulting panic may force prices to rise so high so quickly that there actually is not enough money in consumers' hands to buy up all the goods at those prices. EHK]

After taiding (1324), domestic security became a problem. Resistance got under way in various places, and expenditures increased. In tianli 2 (1329), there was a famine in the near northwest, and a *dou* of rice cost 13 strings. If people took certificates to buy rice, and they were slightly damaged or old, no one would accept them. Should they bring them to a Balanced Standard Treasury to trade them in, "then overbearing and cunning conspirators would trade 10 for 5, and for days on end even this much could not be obtained."⁴⁵

Falcons, pigeons, lions and leopards kept in the palace then ate meat which cost up to 13,800 ingots annually. This was sixty or seventy times more than the previous cost.⁴⁶ Gifts to the Imperial Guardsmen ultimately came to more than 80 ingots per man.⁴⁷ This was equal to 4,000 strings. During Han and Tang, only officials who demonstrated the highest merit could have received so large an amount, and during the Jin Dynasty of the third and fourth centuries A.D. even great officials found it hard to get so large a gift.

⁴⁴ Wu Qi, *Full Investigation of Treasure Certificates*.

⁴⁵ *Yuan History*, 175, "Biography of Zhang Shanbao."

⁴⁶ *Yuan History*, 33, "Annals of Emperor Wenzong, 2."

⁴⁷ *Yuan History*, 33, "Annals of Emperor Wenzong, 2."

During late Yuan, rewards were given simultaneously to 13,000

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people, for a total amount of 52 million strings. At the beginning of Song, this amount would have paid the whole national budget for two or three years. At the end of dali [780], after Tang's currency inflation, the state's entire annual income was only 12 million strings, and it would have taken four or five years before a sum of 52 million could have been accumulated. All of this demonstrates the extent of the currency inflation.

From its middle period on, the Yuan Dynasty's tax income increased twenty-fold over that of the zhiyuan period,⁴⁸ but even so income did not match expenditures. By tianli 2 [1330], 7th month, the year's expenditures were already several times greater than income.⁴⁹ In zhishun 2 [1331], 9th month, Chen Siqian said that expenditures had increased several dozen fold over the levels prior to zhiyuan 30 [1293].⁵⁰

At the beginning of zhizheng [1341], the external exchange price of Zhongtong Certificates reflected the depreciation of the money. The African, Ibn Batuta, who arrived in China in zhizheng 5, said that a 1-string Chinese note was about equal to one of his country's *dinars*.⁵¹

Ibn Batuta was an Islamic pilgrim from Africa, where the *dinar* gold coin was bigger than the Arabian *dinar*, weighing 4.6 grams, which was equal to 1.2 Chinese treasury ounces of white silver. According to the official price, this could only exchange for 2 strings 500 cash of Zhiyuan Certificates. If this amount of metal could buy 50 strings worth of notes in the market, then the price in Zhiyuan Certificates of gold had gone up twenty fold.

It is also possible, however, that he was referring to Zhongtong Certificates, in which case the rise had only been four fold.

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⁴⁸New Yuan History, 68, "Treatise on Food and Money."

⁴⁹Yuan History, 31, "Annals of Emperor Mingzong," tianli 2, 7th month, statement by the Investigatory Censor Badeqiansi: "If we compare it with the annual income from the land tax, then outgo has already exceeded it by several fold. Moreover, as of now, the courts of the princes, which under the old system would all have been given 100 million, have still not been given their appropriation."

⁵⁰Yuan History, 184, "Biography of Chen Siqian," zhishun 2, 9th month. Chen Siqian said: "The entirety of wasteful expenditures, has increased several dozen fold over the levels prior to zhiyuan 30. There is a deficit for zhishun of over 2.39 million ingots."

⁵¹Yule, *Cathay and the Way Thither*, VI, pp. 112-113.

written by Wang Dayuan in zhiyuan 9 states that the Wudie silver coin weighed 0.28 ounces and was worth 10 ounces in Zhongtong Certificates. It also states that 67 bronze Jiaozhi coins were equal to 1 ounce in Zhongtong Certificates. Evidently the Zhongtong Certificate price of silver had risen eighteen fold.

The fall in the price of certificates was also due to the proliferation of private certificates. Private manufacture of notes increased in parallel with the decay of the Mongol administration. Some people grew rich making private certificates during Emperor Shun's reign [1333-68]. There was even a group of forty or fifty men who entered the government to become officials who could guard from within against informers, and this conspiracy continued for more than a decade.⁵²

Owing to its use of paper money, Yuan Dynasty prices were higher than those of any other dynasty. The people's standard of living fell to a low level. Even official salaries were lower than those of earlier dynasties. The incomes of Chinese officials had been increasing uninterruptedly since Han. They had reached their peak during Northern Song, reaching a figure which people would find it hard to credit.

Southern Song started on the downward path, but first rank officials under Jin rule enjoyed a monthly real income which was still the equivalent of 200-300 hectoliters of pearl rice. The Yuan Dynasty moved down a step further. Under the zhiyuan regulations, a first rank official's income could only buy 100 hectoliters of pearl rice. The incomes of lower ranking officials and clerks were not much reduced, equaling 10 hectoliters of rice per month.

The Yuan Dynasty government's treatment of laborers and artisans was still more repressive. In zhiyuan 25, 3rd month, the authorities fixed each

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bureau's laborers' and artisans' wages. Apparently wages were paid partly in money and partly in kind. Each man was paid 3 *dou* of rice per month and half a catty of salt as well as a family allotment. Dependents were divided into three classes: Adults got 2 *dou* 5 *sheng* of rice per month. Minors and so-called ordered adults (adult slaves and servants) were paid 1 *dou* 5 *sheng* per month. Servile minors got 7 *sheng* 5 *he* of rice per month. A household could not, however, exceed four persons.⁵³

⁵²Yuan History, 192, "Virtuous Clerks, 2, Lin Zuxing."

⁵³Itemization of the Universal Regulations, 13, "Labor Grain Schedule," zhiyuan 25, 3rd month: "The Secretariat and Board of Revenue separately sent to each office the salt and grain that ought to be paid per capita. In addition to the money which it was requested be paid, there was not to be money

When this system was laid down, the price of rice was around 10 strings in Zhongtong Certificates, and the price of salt was 50 strings per voucher, or 125 cash per catty. Therefore the personal income for a laborer was only 0.29 hectoliters per month.⁵⁴ If there was a wife in the family, one son or daughter, and one adult servant, they could still only get 0.812 hectoliters per month, and this was reduced for days off. Unless there was an additional money wage, there would be no way to eke out an existence.

Treatment of river workers was a bit better. During the first two or three decades of the fourteenth century, a man got one ounce of Certificates per day, and in addition 1 *sheng* of broken rice, or 3 to 5 *sheng*, the amount varying. At that time, rice cost 20 to 30 ounces per picul.⁵⁵ Therefore, the total income for a day came to 6 *sheng* of rice, and a month's income was about 1.7 hectoliters. Such work was temporary, and so this was not normal income, but since these river workers were all peasants, they had normal agricultural income in addition. They probably performed river work during the agricultural off season. Hence their river work wages were supplementary income. In other words, their total income was somewhat greater than this.

During the first half of the fourteenth century, tenant farmers in some places in England paid

money in place of performing labor service. In Winter, the rate was half a pence per day. In Autumn, it was one pence. The daily rate averaged 0.75 pence. Assuming a six day work week, then monthly income would be 19.5 pence, or 26 grams of pure silver, which could only buy a little over 0.6 hectoliters of wheat.

Comparisons between an English tenant farmer's labor service substitute cost and the wages of a Chinese river laborer are inapposite. There were laborers in Europe then whose incomes were greater than a tenant farmer's. Frankish woolen workers' wages were, for example much higher.⁵⁶ They could have been higher than the wages of a Chinese river worker. It would, however, be unfair to compare a Chinese river worker, whose labor was so simple, with the relatively complex work of a woolen worker. Moreover, in a feudal society, peasants after all constitute the great majority.

Therefore, before the middle of the fourteenth century, the income of Chinese laborers seems to have been a bit more than that of European laborers.

After the middle of the fourteenth century, conditions were no longer the same. There was no particular change on the Chinese side, but during the forties of the fourteenth century—in Europe there appeared the great Bubonic Plague. More than half of the

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English population died, which caused a shortage of labor and a great increase in wages.

By the end of the fourteenth century, an English laborer could get three pence per day.⁵⁷ The silver content of a pence was 1.188 grams. If we assume 26 working days per month, the total wage was 92 grams. The price of wheat during the last half of the fourteenth century averaged 34 grams per hectoliter.⁵⁸ Therefore, such a laborer could purchase 2.72 hectoliters of wheat. At that time a grain harvester could get 8 pence per day.⁵⁹ In a month he

requested in terms of the household size. It was assumed there would be four persons per household, including the worker himself. In addition to the four person household rule, the number of people in the household would be considered as a group. No household was to exceed four persons. Those smaller were to be checked to confirm their size. The person himself was to be paid 3 *dou* of rice per month and half a catty of salt. Adult dependents were to receive 2 *dou* 5 *sheng* of rice per month. Minor dependents and servile adult dependents were to receive 1 *dou* 5 *sheng* of rice per month, and servile minors 7 *sheng* 5 *he* per month. Artisans who printed paper certificates and river dike builders and repairers were each year to have their residences provided and be paid at the same rate as labor service actually received for monthly and daily work. Each individual was to be paid 3 *dou* of rice per month and half a catty of salt. The capital and provinces were to select them."

⁵⁴During the Yuan Dynasty a picul was 0.9488 hectoliters; one ounce was 37.3 grams. Cf. Wu Chengluo, *History of Chinese Weight Measures*. Yuan sometimes, however, employed the Song picul. *Yuan History*, 93, "Treatise on Food and Money: Taxes in Grain" states: "In zhiyuan 19, at Yao Yuan's request, tax grain in the south was allowed to be commuted into silk and various other goods in accord with the old Song measures. . . . Those who paid in rice, used only the Song *dou* and *hu*, so that 1 Song picul was equal to 7 current *dou*."

⁵⁵*Yuan History*, "Record of River Dikes."

⁵⁶In 1345 (zhizheng 5), the Frankish woolen trade guild had as its 40th regulation that beginning from the day of presenting candles until the festival of the Eucharist, a weaver's daily wage was not to exceed 16 *Heller*. At other times, it was not to exceed 14 *Heller*. The *Heller* is a monetary unit which is very difficult to pin down, since it varied by place, and its fineness frequently changed. In 1356, it must have weighed 0.76 grams, and it may have been only six parts fine. This would have made it equal to 0.456 grams of pure silver. If we assume 26 working days per month, a weaver could have made 177 grams, which would have been equal to 4.745 Chinese treasury ounces.

⁵⁷Ellis T. Powell, *Evolution of Money Market (1385-1915)*.

⁵⁸According to the figures in James E. Thorold Rogers, *A History of Agriculture and Prices in England*.

could purchase over 7 hectoliters of wheat, but this was a phenomenon peculiar to the aftermath of the Bubonic Plague, and a transient one.

⁵⁹Cf. note 57, above.

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4. The Late Yuan Zhizheng Certificates' Depreciation

After Emperor Shun succeeded to the throne in 1333, the domestic administration lost its effectiveness, and there were repeated floods and droughts in various circuits. At first, grain continued to be used for relief. Later, the government relied entirely on the issue of paper money. Nevertheless, the more that was issued, the less it was worth, and eventually scattered revolts broke out among the starving.

The Yao of Hunan's Daozhou resisted the longest, and the authorities had no way to put them down. The Yunnan uprising in Shandong of zhizheng 1 [1341] spread to more than 300 locations. In zhizheng 8 [1348], Fang Guozhen rebelled in Taizhou.

The Secretary of the Board of Revenue in zhizheng 3 requested curtailment of wasteful expenditures because of insufficient revenues. Three years later it was requested that free and easy making of gifts be halted. None of these requests had any effect. Price figures went ever higher. Someone wrote a verse satirizing the then current situation which went: "Pols make false money, Folks make crooks plenty; Jia Lu opens the river, And the whole Empire stirs up he."¹ By zhizheng 10 [1350], in the south rice cost 67 strings of Zhongtong Certificates per picul, 67 times more than at the beginning of zhongtong times [1260].² New certifi-

cates were issued that year, and this was in fact Jia Lu's idea.

The issue of new certificates did not yet represent a large scale further inflation. Their face value vis à vis the Zhiyuan Certificates was only set at one for two, which cannot be considered high compared to the Zhida Certificates, and could not have as much as doubled prices. Their aim was probably to lower nominal prices, since prices were still being expressed in terms of Zhongtong Certificates. When they shifted over to expressing prices in terms of the new certificates, this reduced nominal prices to 10 percent of their former level. If this had not been the aim, then the issue of the new certificates would have had no significance.

After the issue of the new certificates, the domestic situation became still more strained. The new certificates were issued in zhizheng 10 [1350], 10th month. In the 5th month of the following year, rebellions by Han Shantong, Liu Futong and Xu Shouhui began almost simultaneously. In the 1st month of zhizheng 12, they issued another 1.9 million ingots of new certificates and 100,000 ingots of Zhiyuan Certificates, both of which, added to the Zhongtong Certificates, made a total of 24 million ingots. Except for the issue of zhida 3, this was the largest single issue during the Yuan Dynasty.

Xu Shouhui won one victory after another. In zhizheng 12 [1352], 2nd month he took Jiangzhou; in the 3rd month, Ruizhou; in the 3rd intercalated month, Ji'an Circuit; in the 4th month, Jianchang Circuit; in the 5th month, rebellions broke out all over Henan; in the 6th month, the Red Turbans took Daozhou; in the 7th month, Hangzhou Circuit fell; in the 8th month, Jingmen and Yuezhou fell. Monk Peng took Raozhou, Xinzhou, Hangzhou and Huizhou. The Mongols were losing the Mandate.

A picul of rice was 20 strings, and 10 catties of salt were 2 strings.³ It is said that before long prices had risen more than ten fold.⁴ In some places, 1-

demanding by the armies and to purchase rice. They would no longer be countenanced for trade among the people. When the masses had been exploited, they would no longer employ them."

³*Yuan History*, 144, "Dao Tong."

⁴*Yuan History*, 97, "Treatise on Food and Money, 5, Certificates," zhizheng 11: "Treasure Spring Intendants Offices were established, and Zhizheng Circulating Treasure coins were frequently minted, and Exchange Certificates printed, and ordered circulated among the people. Before long, prices became turbulent, and went up ten fold." *New Yuan History*, 87: "During zhizheng, the Chancellor, Tuotuo, served as countercyclical purchasing authority, and put forward Jia Lu's theory, calling for the separate establishment of the Zhizheng Exchange Certificates. The material out of which the Certificates were made was

¹Ye Ziqi, *Grass and Tree Master*, 4, first part, "Concerning the Marshes."

²*Superfluous Words on Agricultural Fields*, first part: "By zhizheng year gengyin, the Zhongtong [Certificates] had long since been abolished, and the Zhizheng had been made instead. Zhongtong Exchange Certificates were printed and called New Certificates, with 1 string equal to 10 strings of the old, or 1,000 cash. A picul of rice cost 67 strings of the old Certificates, 67 times more than at the time the state was founded. Then soldiers were employed, and they were hastily printed to purchase things

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string could only buy 14/24 of an ounce of salt.⁵ This was a price of 27 strings per catty, the equivalent of 270 strings of Zhongtong Certificates, and one or two thousand times the price at the time of the Mongol conquest of the south. In the 1st month of the following year, there was another paper money issue of the same amount.

At this point, a crowd of rebels arose in the Yangtze and Huai region: Zhang Shicheng took Gaoyou; Han Shantong took Linhao; Xu Shouhui, Ni Wenjun and Chen Youliang attacked Hanmian. Chancellor Tuotuo led a 400,000 man army out onto the attack, and the price of Certificates must have fallen as a consequence. Because of squabbling and grasping for profit among the officials, the morale of the army fell, and many soldiers slipped away to surrender to the Red Turbans.⁶

When cavalry mounts were compulsorily purchased in zhizheng 14 [1354], the official price was 10 ingots of Certificates per head, equal to 5,000 strings of Zhongtong Certificates, and naturally the market price was still higher. The price of a horse averaged 20,000 cash during Northern Song. During Yuan's zhiyuan period, it was probably some 50 strings of Zhongtong Certificates, or more than 10 ounces of white silver. A good horse cost 90 strings, equal to 18 ounces of silver.⁷ This was already an inflated price.

inferior, they were easily damaged, and so they were hard to redeem. Subsequently they were obstructed, and did not circulate. When armed disorder occurred, there was not enough for the state's requirements. More certificates were printed to buy things for the soldiers. Certificates became cheap, and goods expensive, and no one would accept the Certificates. They were subsequently abolished."

⁵Zhou Tingzhen, *Stone Beginning Collection*, 5, "Notes of Events": "Recently, merchants have competed to rush south with 10,000 *dou* from the Northern Salt Office on the coast. Last year [zhizheng 12], on this day, the price in the city was 1 string of cash for only 14 grains." When the Mongols took the south, the price in the north was 9 strings per voucher, and 5 strings per voucher in the south.

⁶*Grass and Tree Master*, "Concerning the Marshes."

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⁷Zhu Shijie, *Calculation Techniques Primer* contains three horse prices. In the first chapter, "The Method of Horizontal Cause," has a price of 90 strings per head. "The Nine Returns Division Method" also contains a price of 90 strings for a good horse. The last chapter, "Making Up for Deficiencies Method," has a price of 53 strings 700 cash per head. There is also a price of 3 strings 600 cash per head. That last price is suspect. This book was completed during the dade period. The prices it contains are a bit confused, and do not seem to be dade prices.

By zhezhen 14 [1354], it had risen fifty or sixty fold. If we take the Northern Song price as our reference point, the rise had been 250 fold. In Hongwu 1 of Ming, a horse was 10,000 cash. With this as our reference point, the Yuan price was 500 times more.

The Yuan Dynasty maintained close links with the horse-breeding region of the western frontier, and so horse prices should have been cheap, but the Mongols' demand for horses was also especially large, especially in times of war.

In England during the 140 years corresponding to the Yuan Dynasty, a draft horse averaged 12.82 ounces of white silver.⁸ This was about the same as the normal price for a horse in China.

The price of an ox in China then was 1.5 ounces of silver. During Tang's huichang era [841-47], a stockaded ox cost 500 cash.⁹ Compared to this, the Yuan Dynasty price was much higher. At the same time, however, an English bull cost from 7 to 8 or 9 ounces, and a milk cow was 6.25 ounces. The Mongols probably did not make much use of cattle, and so Yuan cattle prices were relatively low.

People were recruited for garrison fields in zhi-zheng 15 [1355], and each recruit was paid 2.5 ounces in Certificates per day. He was also given an ox and agricultural tools.¹⁰ Of course this did not mean that the popular standard of living had risen, but that the Certificates were no longer worth much in coin. At the time the new certificates were issued, 1 ounce's worth of them were said to be equal to 1,000 copper cash, but by this time they had long since lost the ability to maintain level prices. Otherwise, a laborer's monthly income would have been 75,000 copper cash, which would have been more than the salary of a Tang kaiyuan period first rank official.

There are rice prices of from 110 to 185 cash per *dou*, but prices were never this low during dade. The silver price of 5 strings per ounce (first chapter, "Commuting Double Mutual Difference Method") is the price at the time the Zhiyuan Certificate was issued. In another place, however (middle chapter, "Seeking Difference Divide Equally Method"), it gives a price of 125 cash per ounce for silver, and 875 cash per ounce for gold. These could not have been Yuan Dynasty prices. The gold-silver exchange price in the book is 1:7, which must have been the ratio prior to the issue of the Zhiyuan Certificates.

⁸James E. Thorold Rogers, *A History of Agriculture and Prices in England*, p. 245. This was the average price during 1261-1400.

⁹Li Degu, *Duke Li Wei's Collected Works*, 15, "Petition on Chastising the Uighurs" (which occurred in huichang 2, 5th month, 5th day).

¹⁰*Yuan History*, 44, "Annals of Emperor Shun, 7."

It was in this year that Liu Futong raised Han Lin'er and Zhu Yuanzhang to the rank of general. In the 6th month, the authorities acquired military provisions from the rice-producing regions for a price of 5 ounces in new certificates per picul. Undoubtedly this was a forced purchase at a controlled price.¹¹ In the 12th month, they printed another 6 million ingots' worth of Certificates for the following year, which was an increase of several fold in one jump. This had become a nasty currency inflation. There were paper notes everywhere. There was a popular wisecrack then, "Men eat men, and Certificates buy Certificates."¹²

¹¹The *Ding Ju Calculating Methods* (written in zhizheng 15) contains the following prices (expressed in Zhizheng Certificate ounces):

| | | | | | |
|--------|---------|--------|--------------------|-------------|--------|
| rice | picul | 2.63 | salt | catty | 0.28 |
| seed | picul | 3.5 | thin silk | chi | 0.126 |
| grain | dou | 0.125 | Xiaochun hemp bolt | food, 7 dou | |
| wheat | catty | 3.7776 | silk | catty | 3.252 |
| salt | voucher | 13 | | catty | 6.94 |
| flour | catty | 0.4 | | catty | 12.0 |
| pepper | catty | 2.369 | | catty | 35.0 |
| hay | catty | 5.6 | hemp | chi | 0.193 |
| wax | catty | 2.35 | length | | 10.036 |
| gauze | chi | 0.162 | sugar | catty | 6.48 |
| | chi | 0.234 | chicken bird | | 2.5 |
| | bolt | 12.5 | heavy silk bolt | | 12.88 |
| wheat | catty | 2.4 | cotton | catty | 5.74 |

These are not necessarily zhizheng 15 prices. For some articles there are two or more prices with rather large differences between them. This is something that would have actually happened when prices were rising without interruption. For example, the price of an ounce of silver was 5 ounces in Certificates, and two prices of gold were given, 81.12 and 150, the second being nearly double the first. Under the circumstances of those times, it would not have required much time for the price to have doubled. Another example would be the price of silk floss, for which the figures per catty given are 3.252, 6.94, 12, and 35. These must be explainable in the same fashion.

¹²*New Yuan History*, 87: "The Certificates accumulated in public and private hands were in appearance like bad mulberry paper, and the state's needs were placed in difficulty. At the time there was a popular satirical verse that went,

Halls upon halls,
Great Yuan, Nasty and fawning power grasping men,
They open rivers, change the notes and spoil their origin,
Provoked Red Turbans in myriads then;
System's under strain,
Punishments heavy again,

The labels for paper notes were as numerous as those for the Northern and Southern Dynasties'

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private coins. There were Guanyin Certificates, Painting Certificates, Broken-waist Certificates, Wave Certificates and the *Lubulan*.¹³ These sound like Northern Wei's Blue-red, Thick-body, Constricted Coin, Auspicious Coin, Live Obstructed and Red Back coin names, but the harm these notes caused was far in excess of that inflicted by the Northern Wei coins.

During Yuan, copper coins had retreated across the frontiers, or been melted down, or transported to foreign countries.¹⁴ There were places that still used copper coins. This separated them from paper money and allowed them to form independent arrays of prices.

From zhizheng 16 [1356] on, the military situation became still more critical. In the 3rd month, Xu Shouhui attacked Xiangyang, and Zhu Yuanzhang took Zhenjiang. In the 7th month, Zhang Shicheng again attacked Hangzhou. In the 9th month, Li Wu and Cui De smashed Tongguan. Mongol controlled territory was becoming ever smaller in extent, and their expenses for rewards to the army required daily printing of notes in incalculable numbers. It was being said that rice was becoming as expensive

Men's resentments plain,
Men eat men,
Certificates buy certificates again,
Can thieves officials remain,
And toffs turn thief,
Virtue and dirt a muddle gain,
Alas, what a shame!

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¹³Kong Qi, *Peaceful Studio Straight Record of Zhizheng*, 1, "Suffering from Mulberry Paper Money": "In zhizheng year renzhen [12th year], the Empire was in great disorder, and the Certificate system was in difficulties. In year guixi, it was again in difficulty and was obstructed. By year yiwei, the Certificates were about to be abandoned. Subsequently there were such names as Guanyin Certificates, Painting Certificates, Broken-waist Certificates, Wave Certificates and *Lubulan* Certificates. The Guanyin Certificates bore an unpainted sketch which resembled a beautiful Goddess of Mercy [Guanyin]. Painting Certificates were like paintings. The Broken-waist Certificates were torn in half in use. The Wave Certificates were popularly said to have a hurried gait, that is they left one without bestowing any pleasure. The *Lubulan* were like broken sinews, but were not used when broken. Exchange was carried on only with copper coins."

¹⁴*Yuan History*, 44, "Annals of Emperor Shun, 7," zhizheng 16, 2nd month, yichou: "It was forbidden to melt down or sell copper coins."

as pearls.¹⁵

In zhizheng 17 [1157], six Public Convenience Treasuries were established in the capital to which people could bring damaged Certificates to exchange for new ones. The following year there was a military crisis in Shaanxi, but because Shaanxi was too distant from the capital for the capital to find it convenient to respond to its needs, an office was set up there to print Treasure Certificates.

In zhizheng 19, rice sold for up to 25 strings per *dou* in Hangzhou.¹⁶ In his ode "The People of the South," Wang Mian (1287-1366) has the phrase "A *dou* of grain is worth thirty thousands."¹⁷ It was this period he was probably referring to. He was from Zhuji, Zhejiang. In Yanjing, even 10 ingots worth of Certificates would not buy you a *dou* of grain.¹⁸

If we accept as accurate the Hangzhou rice price of 250 strings per picul, equal to 2,500 strings of Zhongtong Certificates, then the price had gone up 2,500 fold since the beginning of Yuan. To move a bribe in the capital required loading a cart with mulberry paper money.¹⁹ This was the same sort of

thing that happened with the iron coins of Emperor Wu of Liang, but at least iron coins had some intrinsic value. The histories say that the people no longer used the notes, and that exchange was carried on either with copper coins,²⁰ or by means of barter.²¹

We lack figures for the amounts issued after zhizheng 16 [1356], and our material on prices stops with zhizheng 19. As to whether thereafter, they did not use paper money at all, or merely did not use damaged certificates, or certain places did not use them at all, we may conjecture that conditions differed by locality.

In Hongwu 1, there was published a commodity price table for use in calculating the value of stolen goods.²² Prices in this table are in strings. An ounce

¹⁵Yuan Yan, *Zhang Shulin Outer Collection*, 5, year bing-shen [zhizheng 16]: "

The Chinese Longhairs gallop, fifty and more,
Difficulties arise wherever one's looks bore;
A generation abandoned as never before,
Rice these days as dear as pearls or more.

¹⁶*South Village Rest from Plowing Record*, 11, zhizheng year yihai, Winter, 12th month: "Inside the city rice jumped to a high price of 25 strings per *dou*."

¹⁷*Bamboo Studio Ode Collection*, 2. The text of the ode reads:

The south's people,
Truly pitiable,
Pestilence added to fire.
Millions of troops sit on their pyre,
A *dou* of grain is worth thirty thousand to hire . . .

¹⁸*Yuan History*, "Treatise on Food and Money, 5, Certificates": "And All Within the Seas was in great disorder. Army supplies, gifts and rewards required daily printing of incalculable amounts. They were transported by boats and carts, the latter travelling axle to axle they were so numerous. So fully distributed among the people were they that there was no place without them. Damaged ones were no longer to be used. In the capital, even 10 ingots worth of notes would not buy a *dou* of grain. That being the case, in other localities everywhere else, goods were used to exchange for goods. Certificates accumulated in public and private hands eventually no longer circulated at all. People looked upon them as bad mulberry paper, and for this reason the state's requirements were not met."

¹⁹*Yuan History*, 139, "Biography of Niudegai," zhizheng

18: "A rich commoner of Xinghe Circuit had been accused of flirting with children and women. He loaded a cart with mulberry paper money and carried it to the capital as a bribe. As a consequence, the officials of the Board of Punishments delayed a long time in reaching a decision in the matter."

²⁰*Peaceful Studio Straight Record of Zhizheng*.

²¹*Yuan History*, 97, "Treatise on Food and Money: Certificates."

²²*Ming Collected Statutes*, 179, "Temporary Calculation of Plunder": "An order of Hongwu 1 stated that whenever evaluating booty, the prices of the goods at the time of the offense should be the basis. If evaluating rented objects which had been stolen, this too was to be done in accord with the objects' prices at the time of the offense. No matter how many times the good was rented, it was not permitted to be evaluated higher than the original price of the object."

"Gold, silver copper and tin category: 1 ounce of gold is 400 strings; 1 ounce of silver is 80 strings; 1,000 copper cash are 80 strings; 1 catty raw pure copper, 4 strings; 1 catty iron, 1 string; 1 catty tin, 4 strings; 1 catty black lead, 3 strings."

"Pearls, jewels and jade category: 1 plate of jade, 2 *cun* long, 1 wide and 5 *fen* thick, 80 strings; precious pearl, 1 seed, weight 0.01 ounce, 16 strings; treasure stone, 1 seed, weight 0.01 ounce, 8 strings; green jade, 1 piece, 10 strings."

"Gauze, satin, plain cloth, heavy silk, silk floss, cotton category: *sha* thin silk, 1 bolt, 80 strings; 1 bolt thin silk, 120 strings; 1 bolt sackcloth silk, 250 strings; 1 bolt gauze, 160 strings; 1 bolt *gaiji* changed loom, 160 strings; 1 *chi* cotton, 8 strings; 1 bolt Korean linen, 30 strings; 1 bolt large blue three shuttle linen, 55 strings; 1 bolt large white three shuttle linen, 40 strings; 1 bolt middle fine white cotton-linen cloth, 20 strings; 1 bolt *ying* cotton-linen, 10 strings; 1 bolt *ying* sackcloth linen, 22 strings; 1 bolt fine sackcloth linen, 24 strings; 1 bolt coarse woolen cloth, 40 strings; 1 bolt brocade of thin silk, 50 strings; 1 bolt large cotton-linen, 20 strings; 1 bolt hempen cloth, 8 strings; 1 bolt grass cloth, 20 strings; 1 bolt large heavy silk, 50 strings; 50 silk; 1 bolt small heavy silk, 20 strings; 1 bolt fine brown wool, 240 strings; 1 length fine damask, 50 strings; 1 length Ti-

of gold had a face value of 400 strings. An ounce of

betan serge, 50 strings; 1 catty floss cotton, 24 strings; 1 catty clean cotton bolls, 3 strings; 1 catty hemp, 500 cash.

"Grain category: 1 picul nonglutinous and glutinous rice, 25 strings; 1 picul wheat, 20 strings; 1 picul barley, 10 strings; 1 picul sesami, 25 strings; 1 picul glutinous millet, 12 strings; 1 picul yellow, black or green peas, 18 strings; 1 picul *sumi*, yellow rice, 18 strings; 1 catty wheat flour, 500 cash.

"Livestock category: 1 horse, 800 strings; 1 mule, 500 strings; 1 donkey, 250 strings; 1 camel, 1,000 strings; 1 water buffalo, 300 strings; 1 yellow ox, 250 strings; 1 large pig, 80 strings; 1 sheep, 40 strings; 1 deer, 80 strings; 1 small pig, 12

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strings; 1 dog, 10 strings; 1 roebuck, 20 strings; 1 cat, 3 strings; 1 rabbit, 4 strings; tiger and leopard skins, 40 strings each; horsehide, 16 strings each; cowhide, 24 strings each; deer's skin, 20 strings; 1 catty of horsemeat, muleflesh, beef, donkey meat, pork, mutton, roebuck or deer flesh, 1 string; 1 goose, 8 strings; 1 duck, 4 strings; chicken and wild chicken, 3 strings each; pigeons, quail or dove, 500 cash each; wild swan, 20 strings; 1 catty fish, turtles, shrimp or crab, 1 string.

"Vegetable and fruit category: 1 catty walnuts, peaches or hazelnuts, 1 string; 1 catty jujube, chestnut, or persimmon cakes, 1 string; 1 catty water caltrop or chicken-head, 1 string; 1 catty pine cones, 1 string; 1 catty grapes, 1 string; 1 catty arbutus, 1 string; 10 watermelons, 4 strings; 100 peaches or pears, 2 strings; 100 apricots, plums or grove-apples, 1 string; 20 oranges, tangerines or stone pomegranates, 1 string; 30 persimmons, 1 string; 100 catties green vegetables, 2 strings; 10 catties ginger, 1 string; 10 lotus roots, 2 strings; 20 lotus heads, 1 string; wintermelon, 500 cash apiece; 100 garlic sprouts, 500 cash.

"Turbans, hats, clothing category: Thin silk hat, 20 strings each; 1 barbarian hat, 8 strings; sable shoulder throw, 40 strings; 1 [?] grass hat, 8 strings; scholar's and clerk's turban, 8 strings; sackcloth, silk, gauze hats, 6 strings each; felt hat, 4 strings; sash, 1 string; felt socks, 4 strings per pair; felt shirt, 40 strings; deerskin boots, 24 strings per pair; hornless deerhide boots, 40 strings a pair; cowhide boots, 10 strings a pair; *weng* shoes, 2 strings a pair; slippers, 1 string 500 cash a pair; sackcloth, silk floss or gauze purse, 1 string; 1 square of wrapper, 1 string; 1 handkerchief, 2 strings; mesh turban, 3 strings; cotton, sackcloth, or silk floss coverlet, 100 strings; light silk coverlet, 40 strings; thin or heavy silk coverlet, 20 strings; felt strip, 40 strings; 1 strip flowered carpet, 80 strings; cotton, sackcloth, or silk floss bedding, 10 strings; linen bedding, 16 strings; fine linen or cotton boll coverlet, 30 strings; linen or cotton boll coverlet, 20 strings; used set of sackcloth, or silk clothing, 30 strings; new set of sackcloth, or silk clothing, 80 strings; used set of gauze clothing, 24 strings; new set of gauze clothing, 70 strings; used thin silk garment, 20 strings; new thin silk garment, 60 strings; used cotton garment, 5 strings; new cotton garment, 16 strings; used sackcloth and silk small coat, 20 strings; new sackcloth and silk small coat, 40 strings; used thin silk and gauze

white silver or 1,000 copper cash was priced at 80 strings. The strings here must be strings of certificates.

small shirt, 10 strings; new thin silk and gauze small shirt, 30 strings; used sackcloth and silk skirt, 25 strings; new sackcloth and silk skirt, 50 strings; used gauze and light silk skirt, 20 strings; new gauze and light silk skirt, 40 strings; thin and fine silk garment, 20 strings; fine wool garment, 80 strings; used Xia linen garment, 5 strings; new Xia linen garment, 10 strings; cotton small shirt, 5 strings; cotton skirt, 5 strings; cotton pants, 4 strings;

"Utensils category: Doors, 5 strings apiece; board screen, 10 strings; window, 30 strings; wooden board, 1 *chi* wide, 5 *chi* long, 5 *cun* thick, 4 strings; table, 10 strings; stool, 4 strings; square stool, 2 strings; armchair, 24 strings; *qin* lute, 60 strings; fan, 1 cash; wooden box, 8 strings; large screen, 24 strings; bamboo screen, 2 strings; shuttle [?] clothing, 30 strings; bamboo hat, 1 string; 2 rain umbrellas, 1 string; waterproof basket, 1 string; 1 *zhang* length of bamboo fencing, 10 strings; large pottery vase, 1 string; large pottery crock, 10 strings; lacquer plate, 4 strings; small lacquer plate or bowl, 1 string; 10 pair ebony chopsticks, 4 strings; 10 pair bamboo chopsticks, 500 cash; 10 pottery small plates or bowls, 2 strings; large wooden bucket, 5 strings; large wooden basin, 3 strings, with 1 *hu* capacity, 5 strings, with 1 *dou* capacity, 2 strings, of 1 *sheng* capacity, 500 cash; large iron wok cooking pot, 8 strings; copper wok cooking pot, 20 strings; iron hoe, 2 strings; iron plough, 2 strings; iron spade, 2 strings; large cart, 300 strings; small cart, 24 strings; boat with capacity of 100 piculs, 500 strings; horse saddle, 60 strings; drum, 5 strings; grinding stone, 30 strings; woman's palanquin, 80 strings; scales, 500 cash; 1 length iron cable, 1 string; lock, 500 cash; bow, 8 strings; 1,000 arrows, 4 strings; spear, 4 strings; sword, 5 strings; knife, 2 strings; crossbow, 8 strings; fish fork, 1 string; grain fork, 1 string; large musical stone, 20 strings; cymbals, 4 strings; small cartload of firewood and kindling, 15 strings; 100 catties firewood, 8 strings; 10 catties lime charcoal, 1 string; 1 catty charcoal/coal, 8 strings; 100 tiles, 10 strings; 100 bricks, 16 strings; 1 tree

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(1 *chi* around, 1 *zhang* long), 6 strings; beam, 4 strings; *miao* bamboo, 2 strings; rush mat, 1 string; brush bamboo, 500 cash; 1 large cartful of millet, hemp or grain hay, 40 strings; 1 catty white wax, 10 strings; 1 catty yellow wax, 2 strings; 1 catty sesame oil, 1 string; 1 catty tea, 1 string; 1 jar stillbeer or vinegar, 1 string; 1 catty true powder, 500 cash; 10 catties salt, 2 strings 500 cash; 1 catty honey or powdered sugar, 1 string; 1 catty thyme wood, 8 strings; 1 catty pepper, 8 strings; 1 catty flower pepper, 1 string; 1 catty silver vermilion, 10 strings; 1 catty alum, 500 cash; 1 ounce coarse vermilion sand, 4 strings; 1 catty *liu* yellow, 1 string; 100 sheets poster paper, 40 strings; 100 sheets lining paper, 10 strings; 100 sheets memorial paper, 16 strings; 100 sheets hand paper, 7 strings; 100 sheets various colored writing paper, 20 strings; 1 catty ink, 8 strings; 10 brush pens, 2 strings."

These prices for estimating the values of stolen goods were probably determined on the basis of the circumstances of different locations, and these amount to average prices. Prices could be higher in particular places.

Using these average prices, we may conclude that during the last eighteen years of Yuan, paper money's purchasing power fell to

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one-eighth of that of silver. During the century of the Yuan Dynasty, prices had risen by nearly a thousand fold. Nevertheless, during the nine years from zhizheng 19 to Hongwu 1 [1368], our information about the circulation of money and prices is virtually nil. Did the Zhizheng Certificates have even that high a purchasing power?

Yuan Dynasty price records are fewer than those for other dynasties. Therefore, if we calculate prices in terms of gold and silver for that hundred-odd years, we can only make estimates based on a small number of items.

The silver price of rice during the last half of the thirteenth century was probably 0.9 ounces per hectoliter.²³ During the first half of the fourteenth

century, it seems to have risen to 1.2 ounces per hectoliter.²⁴ Over the entire course of the Yuan Dynasty, the value in silver of a hectoliter was around 1.05 ounces or 39 grams.

Before zhiyuan 24 (1287), the Yuan Dynasty's gold-silver exchange ratio was 1:7.5. From that year on it moved toward 1:10. During the last half of the

1, it went for 15 strings, and was discounted variously for different sorts of rice. Thus, during the latter half of the thirteenth century, a picul of rice was about equal to 0.83 or 0.84 ounces, and a hectoliter was 33 grams of silver.

²⁴The cost of rice during the first decade of the fourteenth century was 1 ounce per picul, since *Yuan History*, 96, "Treatise on Food and Money," contains under date 7, "If there is no rice, then on the occasion, the equivalent price will be given, but no matter how expensive that is, no more than 20 ounces per picul [in Zhongtong Certificates] will be given." *Water Cloud Village Confused Draft*, 14, states that in date 10 [1306], the normal times rice price of 10 strings per picul had risen to 30 strings per picul. (Cf. chapter 6.2.3, note 32.) One might also encounter rice at 20 strings per picul.

During the second decade of the century, the government made relief sales of rice for 25 strings per picul. (*Yuan History*, "Treatise on Food and Money, 4, Relief Measures.") The market price must have been 28 strings. This was equal to 1.1 ounces of silver.

During the third decade, the government's relief price for rice in taiding 2 was 20 strings per picul. (*Yuan History*, "Treatise on Food and Money, 4.") The market price was 23 strings. In zhihe 1, a picul was 15 strings, and the market price 18 strings. On the average, this equalled 1 ounce of silver.

During the fourth decade, there was the zhishun 2 [1331] commutation. According to the *Yuan History*, 35, "in the 10th month, an official was sent to help with 100,000 ingots worth of Certificates and 35,000 salt vouchers. . . . 300,000 piculs of rice were purchased harmoniously at an aid price." In tianli 2 [1331], the price of salt was 150 strings per voucher. Therefore, the price of rice was equal to 34 strings per picul, and this was equal to 1.1 ounces of silver. For the fifth decade, we have the figures from Sugimura Yutsuku. (Cf. chapter 6.2.3, notes 30 and 35.) Each picul was equal to 1.24 ounces of silver.

For the prices of gold and silver during Yuan, we have only the price of 2 strings per ounce of silver and 15 strings per ounce of gold at the time of issue of the Zhongtong Certificates, and Sugimura Yutsuku's gold and silver prices for zhizhen 6. Over some 80 years, the price of gold rose twenty fold, and silver rose fifteen fold. Rice rose 30 to 40 fold. Therefore, on average, silver rose in price by 1 string every three years. Based on this rule, in date 7, the price of silver would have been 20 strings per ounce, and in zhida 4, the official price would have been 25 strings. The following year, however, the Zhida Silver Certificates were abolished, and prices fell back. Hence the price of silver also changed to 20 strings per ounce. In tianli 3, it was 30 strings. The gold-silver exchange ratio was 1:10.

²³During Southern Song's baoyou period [1253-1259], a hectoliter of rice cost 1.04 ounces of silver. Cf. chapter 5.2.6, note 4. *Yuan History*, 93, "Treatise on Food and Money, 1, Tax Grain": "Zhongtong 2 . . . commoner households which hasten to the river granaries to pay their taxes may commute each picul to 7 qian in Zhongtong Certificates." This refers to the price of rice in the husk. In the south, the price of unhusked rice was normally three-fourths that of husked rice. (Cf. note 22 above, "Estimating the Current Value of Stolen Goods.") In the north, however, it probably took two piculs of unhusked rice to be equal to 1 of husked rice. Therefore, the price of the latter must have been 1.4 ounces in Zhongtong Certificates per picul. This would make its silver price 0.7 ounces.

Superfluous Words on Agricultural Fields says that when the Mongols first occupied the south, rice was 1 string per picul. Cf. chapter 6.2.3, note 31. *Yuan History*, 13, "Annals of Emperor Shizu, 10," also says that before Lu Shirong set up the alcoholic beverage impost, people bought rice to make stillbeer for an official price of 1 string of Certificates per picul. In zhiyuan 24, when the changeover to Zhiyuan Certificates occurred, rice cost 10 strings per picul, or 1 ounce of silver.

Yuan History, "Treatise on Food and Money, Relief Measures," says that in yuazhen 1 [1295], rice was expensive in the capital. The government sold off rice and white non-glutinous rice for 15 ounces in Zhongtong Certificates per picul, and white rice for 12 ounces, but these prices are reductions of from 3 strings to 5 strings from the market prices per picul. If, prior to zhiyuan 16 [1279], 1 ounce of silver was priced at 2 strings of Zhongtong Certificates, then thereafter it was priced at 5 strings. Beginning in zhiyuan 24, it was priced at 10 strings. In yuazhen

thirteenth century, it was 1:8. During the first half of the fourteenth century, it was 1:10.

The cost of rice during the last half of the thirteenth century was 4 grams of gold per hectoliter. During the first half of the fourteenth century, it was 4.47 grams. The average for the whole period was 4.2 grams. During that period, the price of wheat in Europe was 14 grams of silver per hectoliter and 9 mg of gold, which was lower than the Chinese price. In terms of gold, the price of wheat in Europe was less than half the price of rice in China.