The Place of Coins and their Alternatives in the Silk Road Trade

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Earlier studies of coins found in Central Asia and western China — many by contributors to this volume — have identified rulers, named dynasties, and established chronologies for periods and places that are otherwise unknown. An exclusive focus on coins, though, results in the neglect of those aspects of the Silk Road history that did not involve coins. This essay examines documents, artifacts, and coins from three major Silk Road sites — Niya, Turfan, and Dunhuang — for what they reveal about the place of coins, and substitutes for coins, in the Silk Road economy. Just how important were coins to the Silk Road trade of the first millennium A.D.? We often assume that coins were necessary to the flow of goods, yet we rarely consider how trade functioned in those periods when few coins circulated. In some cases people bartered one item for another, apparently hammering out a price on the spot. In others, they used pre-measured units of cloth or grain as an alternative to coins.[1]

Let me start with a few working definitions: money, in various forms — silver, bronze, cowries, or grain — existed for millennia before the first coins appeared in different parts of the world around 650 B.C. Leslie Kurke has summarized modern understandings of money: "In anthropological terms we can define money as any object or material that functions as a store of wealth, a measure of value, or a means of payment and exchange" (Kurke 1999). Recently Joe Cribb (1986:12) has broadened this definition considerably: "Money is any object (or record of the same) which is regularly used to make payments according to a law which guarantees its value and ensures its acceptability." Cribb (2005) reminds us that money requires an authority, whether expressed in law or custom, to back it before it can circulate as currency. We will also encounter forms of fiat money — anything that the authorities declared acceptable for

use as currency — and special money — coins issued by the ruler on special occasions that could circulate as currency (Rutherford 2002).

A range of different commodities served as money in the ancient world. Some, like grain, had to be weighed or measured each time they changed hands (unless, of course, they were placed in standard containers). As we will see below, lumps of metal in standard weights circulated in both ancient Lydia (the Aegean coast of western Turkey, then part of the Achaemenid Empire of ancient Persia) and China; presumably these did not have to be weighed each time because people recognized them by size. Many Chinese exchanged bolts of cloth. They sometimes wrote down the dimensions of the cloth and its type (usually linen, silk, or cotton), but sometimes people used a standardized length of plain tabby silk. Coins, in contrast, usually bore an indication of their weight on their surface and did not have to be weighed at each use. The narrowest definition of a coin is simply a piece of metal, either cast or stamped, usually with an image of a ruler on it; more abstractly, a coin can be a unit of account.[2] As we will see below, the use of coins as a unit of account poses problems in using contracts to study coins: parties to a given transaction might conceivably have recorded the value of an item in coins yet in actuality used an entirely different means of payment that leaves no traces in the documentary record. We will encounter at least one instance at Dunhuang (see below).

The First Coins of Lydia, India, and China, ca. 600 B.C.

Before analyzing the Central Asian case, it is instructive to consider the first time in world history that people used coins alongside other media of exchange, namely the moment when the earliest coins came into use. Coins arose nearly simultaneously ca. 600 B.C. in three different regions of the world: Lydia, India, and China.

The earliest Lydian coins are from the Artemision, a temple to the Greek goddess of hunting, Artemis, at Ephesus, Turkey.[3] Under the temple to Artemis at Ephesus was the Basis Treasure, a collection of jewelry, beads, pins, and figurines, which have been dated on stylistic grounds to 600 B.C. Of the 28 coins in the Basis Treasure, two-thirds (19) were stamped coins and more than a third (9) were "pre-coins," or unstamped lumps of metal, all of the same weight. The early Lydian pre-coins and coins were made from electrum, an alloy of gold and silver that occurs naturally in the pebbles of the Pactolus River flowing near Sardis, the capital of Lydia.

The composition of the Basis Treasure clearly shows that pre-coins functioned as a currency before the first coins were issued and that the first stamped coins had just come into use at the time the Basis Treasure was buried. E. S. G. Robinson (1956) concluded that the first coins must have been minted sometime between 650 and 625 B.C., about a generation before the burial of the Basis Treasure in 600 B.C. In the soil outside the Basis Treasure archeologists found a later group of 64 coins, dating to approximately 560 B.C., of which only 8 were pre-coins, an indication of how rapidly stamped coins replaced pre-coins. One coin bears the initials .WALWE, probably the name of the Lydian King Alyattes (reigned ca. 615-560 B.C.), but others say .KALL, most likely the name of the metalsmith who made the coins since no kings of that name are known.

The earliest Indian coins also show the marks of metalsmiths who made them by cutting sections off a bar of silver and then weighing them; if they were too heavy, the metalsmith clipped their corners to reach the desired weight (Errington 2003). On the obverse side (the face of the coin), the metalsmith, or perhaps the issuing ruler, punched marks in a consistent number; on the reverse, different individuals, most likely the people who owned the coin, made a small mark to demonstrate ownership and possibly to test the value of the coin. Writing in the fifth century A.D., one thousand years after the first Indian coins came into use, the Buddhist monk Buddhaghosa described the possible reactions of a child, a peasant, and a banker to the coins. The child appreciates their beauty but does not understand their function; the peasant understands both their attraction and their function; and the banker:

knows all the varieties: he knows that by looking at the coins, or by striking them and listening to the sound, or by finding out what smell or taste they have, or by holding them in the hand. He knows further that they were made by such and such a master in such and such a village, market town, city, or on such and such a hill, or by the banks of such and such a river (Buddhaghosa 1931:506 [XIV:2]; discussed in Schaps 2006:17).

This passage suggests that private metalsmiths continued to mint coins for one thousand years after the first Indian coins circulated.

The different shapes of the first coins — flat disks of electrum with the ruler's face on one side in Lydia, punch-marked bars of silver with the corners removed in India, and cast spades, knives, or cowries of bronze in China — are so distinct that scholars concur that they must have been discovered independently of one another. But why? And why at

nearly the same time in such distant places?

In a recent conference paper, David M. Schaps (2006) reviews the various theories proposed to explain the invention of coins. Some Lydian coins were so small — a seventh of a gram of electrum (Schaps 2004:98) — that they point to use by private individuals, not the state. As is well-known, early cast bronze money in ancient China took the form of spades, knives, ring coins, or "ant-nose" coins and showed the same range in size, with some examples of knife money weighing a single gram (Peng 1994: 23-41, 32). These different forms of money circulated in different regions of ancient China, which was not unified before 221 B.C. Even before these well-known currencies came into circulation, lumps of bronze, ranging from 10 grams to 1 kilogram in weight, circulated. These were cut from larger cakes. After determining that the metal composition of these lumps was 50-60% copper, 40-50% leads, with a trace of tin, Dai Zhiqiang and Zhou Weirong (1995) concluded that these lumps functioned as even earlier type of currency in the lower Yangzi valley. These lumps also suggest private rather than governmental use.

As Herodotus reports in his description of the financial reforms of Darius (reigned 521-486 B.C.), the Achaemenid rulers of the Persian empire did not store coins: "The method adopted by the Persian kings of storing their treasure is to melt the metal and pour it into earthenware jars; the jar is then chipped off, leaving the solid metal. When the money is wanted, the necessary amount is coined for the occasion" (Herodotus 1996: 193). Similarly, as the documents found at Shuihudi, Hubei, reveal, the rulers of Qin-dynasty China placed a thousand coins in a clay jar and sealed it; they only broke the seal of the jar when they needed to disburse the coins (Hulsewé 1985:52, document A-42.). The melting down of the coins into lumps in Persia and the storage in sealed jars in China indicate that coins were issued in denominations too small to be used for major expenditures by either the Achaemenid or Qin state.

After reviewing the evidence about the origins of coins in the three different areas, David Schaps (2006) queries R. M. Cook's (1958) view that the state issued the first coins as payments to mercenaries. If markets had not already existed, no mercenary would have wanted to be paid in coin. But if, as the existence of different types of pre-currency — like actual spades, sheepskins, bronze implements, iron spits — suggests, markets already existed, then people were already using these different media to trade for goods. Very broadly speaking the economy — in China and India certainly, in Lydia and

Greece, possibly — was shifting from an agrarian, subsistence one to a more commercial one based on flourishing cities. Continuous warfare characterized each of these three world areas, and we can grant, as Schaps argues, that the number of paid soldiers moving from place to place was increasing. The appeal of coins is obvious: the soldiers needed something to spend in the market, and local governments had every reason to make sure that local markets flourished. The authorities would have issued enough money to keep local markets prosperous, and they would have stamped the coins issued locally in an effort to keep those coins circulating in local markets.

Scholars, particularly those working on ancient Greece and Rome, have devoted considerable ingenuity to explaining why coins came into being and who needed them most. Clearly coins provided a convenient way to pay soldiers and others in government service, yet it is just as evident that coins had other uses as well. They could be used to pay tribute, taxes, fines, rewards, and, of course, for trade as well (Cribb 2005:432; Howgego 1990). Let us keep these different theories about the role of coins in mind as we examine exchanges on the Silk Road in the first millennium.

The Use of Coins at Loulan

The links between coins, government authorities, and soldiers in the ancient world are all suggestive for our topic of coins on the Silk Road, because the Han and Tang dynasties in China maintained armies in Central Asia, where many coins and the earliest documents about them have been found. In 77 B.C., the Han dynasty established the Xiyu zhangfushi office to oversee its activities in the Western regions in Loulan, where it remained until the fifth century A.D. The garrison was part of the tuntian system of military colonies whose inhabitants were expected to grow their own food at the same time they stood ready to serve in the army. They used draft animals, like cows and horses, to plow the land, which they irrigated, to raise wheat, barley, and millet. Regulations stipulated that each soldier was entitled to 1 peck (dou) 2 pints (sheng) (approximately 2.4 liters of grain) each day — but local officials could not always provide the stipulated amount, and the rations sometimes dipped as low as six pints (sheng) (1.2 liters) (Itô 1991:20).

When the grain grown by the farmer-soldiers ran short, Chinese officials, surviving

documents reveal, bought extra grain from the local people using colored silk (cai) to do so. Extant documents describe it as coming in various colors and in two lengths, long and short. One bolt of plain tabby silk found by Stein at Loulan in 1901 — found in two pieces, one measuring 33 cm long, the other 16 cm — may be examples of such silk. Unusually, one bolt has an indication of length written in Brahmi script, not in Kharosthi, even though before 400 A.D. Kharosthi was used more often in Central Asia to record Indic languages than Brahmi (Stein 1921:373-374, 432, 701 plate XXXVII; Whitfield 2004: item #41 [L. A. I. 002], p. 149; color photo p. 147; Helen Wang's contribution in this volume). A second example, which Stein found at the base of watchtower # xv at Dunhuang (T.xv.i.a.3, Stein 1921:700-701), was almost of the same width as that of the larger bolt from Loulan, an indication that the silk was a standard size used for payments. The Dunhuang textile had a Chinese inscription, which Helen Wang (2004:xiv; see also 38, 55) concluded, "reveals that in the late first or early second century one roll of plain silk had a value of 600 coins, which was equivalent to one month's salary for an official at the rank of captain (hou)."

The Loulan garrison received funds from units based to the east in the city of Dunhuang or possibly Wuwei, both in Gansu, sometimes in the form of silk, sometimes in the form of round bronze coins with square holes, of the wuzhu (literally "five-seed," a measure of weight) type in use between 118 B.C. and A.D. 621 (Itô 1995). In February 1907, on the route between the Loulan sites of L.A. and L.E., north of Mesa L.J., Stein discovered the physical remains of such a shipment: 211 wuzhu coins distributed evenly over an area some 30 yards (27 m) long and 3-4 feet (ca. 1 m) wide (Helen Wang 2004:25-26 alerted me to this find; Stein 1928: 287-292 describes it in detail). Of the original 211 coins, fifty coins are now in London; they are dated between 86 to 1 B.C., putting the date of the earliest wuzhu coins in modern Xinjiang before the Wang Mang era (9-23 A.D.) Stein describes the find:

> Rapid but careful examination showed that these coins, two hundred and eleven in all, were lying in groups or small heaps over a strip of ground nowhere more than three or four feet across. The coins were all Wu-chu [wuzhu] coins of the large inscribed type, and with the exception of a few which had suffered breaks, were in perfect condition. They were all of uniform size and cast, and showing neither wear nor clipping seemed as if fresh from a mint. Examination with the compass proved that the well-defined line along which they lay ran from north-east to south-west. It was clear that all these coins had

> dropped from a caravan moving in the very direction in which I had supposed the ancient route to lie. They must have got loose from the string which tied them and gradually dropped out unobserved through an opening in their bag or case. The swaying movement of the camel or cart in which this receptacle was carried sufficiently explains why the line marked by the scattered coins had the width above indicated (1928:290).

About 50 yards (ca. 45 m) away from the last coin, one of Stein's workmen found a pile of unused arrowheads, surely part of the same shipment of military supplies as the wuzhu coins. The coincidence of coins and arrowheads suggests that in Han China, as in ancient Greece and Rome, payments to soldiers constituted a major source of fresh coins in a given region. The documents excavated from Juyan (Ejina Banner, Inner Mongolia, 90 km northeast of Jinta county, Gansu) and Shule (near Dunhuang and Jiuquan, Gansu) confirm this impression: they record large expenditures of over 100,000 coins (either qian or quan) by the garrisons. The documents from these Han-dynasty garrisons in the northwest date to between 140 B.C. and A.D. 32. Individual soldiers are paid in coin, and they make purchases, often of clothing, using coins advanced to them by the garrison (Helen Wang 2004: 47-56 provides extensive, detailed analysis of these materials). When coins were not available, grain and cloth served as money instead.

Scholars who work with the materials from Loulan have not been able to satisfactorily explain why, even though the official histories record that the site was occupied as early as 77 B.C., when the Xiyu zhangfushi office was established, almost all excavated documents and artifacts found at the site date from the third and fourth centuries. Only one Kushan coin, a bronze tetradrachm from the reign of Wima Kadphises (reigned ca. 110-127) was found at Loulan (Helen Wang 2004:33), and it is considerably earlier than the time of the documents. Opinions vary: some, like Wang Binghua, former director of the Xinjiang Archeological Institute, believe that an earlier layer of occupation exists at Loulan and should be excavated (talk at Yale, October 31, 2006), while others maintain that Stein's site of L.A. may not be the same place as the Loulan recorded in the histories. Huang Shengzhang (2000) offers a very thorough survey of the different positions in a lively debate that has persisted for more than a century and concludes that Stein's L.A. site is indeed the most likely location of the city of Loulan during the Han dynasty.

Whatever the explanation, all analysts concur that the earliest documents found at

Loulan date to the third and fourth centuries A.D., the time when the Shanshan kingdom ruled the region and when the different Chinese dynasties based in north China who succeeded the Han dynasty, primarily the Wei (220-265) and the Western Jin (265-316), stationed troops in Loulan. Soon after the discovery of the Kharosthi and Chinese documents, researchers realized that Loulan was the Chinese transliteration of Kroraina, the name of both the Shanshan kingdom and its capital in the Kharosthi documents.

Loulan produced about fifty Kharosthi documents, but over seven hundred Chinese documents, either short texts (usually no more than ten characters) on bamboo slips or on tiny scraps of paper (Hou and Yang 1999). The Chinese often recorded private transactions on paper, while officials tended to use wooden slips for their records (Itô 1995:4, 7). Most of the Chinese documents were dated between 263 and 272 (Hu 2000: 190-192), with a long gap until 330, the date of only a few remaining documents.

The fragmentary excavated documents from Loulan show that officials used silk to buy grain and horses for their men, and the soldiers themselves also used silk and grain to buy shoes and clothing, evidence that silk and grain functioned as currency. Itô Toshio (1995) has carefully transcribed and studied all these documents, many of which give the exchange rates for conversions among coins (qian), colored silk (cai), and grain (gu, mi, mai). He (1995:15-16) also lists the verbs used for these exchanges: shi, shimai, gu, di, maimai, mai, shou, zhuanshou, zhuanyun, songzhuan, jizang, jishou, and shu. The Chinese living in at Loulan clearly used at least three different types of money — silk, grain, and coins — and regularly converted from one to another (Itô 1995:16).

The Loulan documents mention a few much larger transactions as well. One bamboo slip (Chavannes 1913:886; Hou and Yang 1999:61-62), dated 330, reports that the Sogdians at Loulan ("Sute hu Loulan," literally "Sogdian non-Chinese at Loulan"), traders originally from the Samarkand region, presented 10,000 piculs, most likely of grain, and two hundred coins (qian) to the authorities. Although the back of the slip has the seals of two Chinese officials, the document does not explain why the Sogdians made these payments. This may have been a tax payment or one of an on-going series of transactions to supply the Chinese garrison.

Another fragment records a large payment of 319 animals (again, the word is missing, but the measure word is pi, suggesting that the transaction involved horses) in exchange for 4326 bolts of colored silk (Conrady 1920:W. 235; Hou and Yang 1999:99).

Someone (the word is missing) made the payment to "zhuren" (literally, "people living there"), a term whose meaning is debated. While Meng Fanren and Duan Qing think it refers to merchants, Itô argues that the zhuren are the long-term Chinese residents of the garrison (Itô 1995:4-5). It seems most likely that this recorded a payment by Sogdian merchants to the Chinese authorities. Fragments of two Sogdian-language documents found by Stein provide direct evidence of the Sogdian presence at Loulan at this time (de la Vaissière 2002:64). In later centuries, Sogdians played a key role in supplying Chinese armies, and it is quite likely they had begun to do so in the early fourth century A.D. at Loulan.

The Chinese documents found by Stein and Hedin at Loulan came from a just a few findspots (see chart in Meng Fanren 1986:33). As is frequently the case with excavated documents, the very unusual circumstances leading to the preservation of documents mean that that only a tiny portion of the original evidence survives. We should exercise caution when we generalize, and we must acknowledge that armies and bureaucracies document their transactions more often than do merchants or ordinary people. Still, these documents give the overwhelming impression that the transactions at Loulan exclusively involved the garrison, or individual soldiers, using grain and silk to obtain different items from the local people. The few mentions of coins are in larger quantities, most often as payments to or from the garrison. As Itô (1995:22-23) has pointed out, the documents do not mention any profit-seeking activities, which fits well with our understanding of the garrison's major role in the local economy.

The Use of Different Media of Exchange at Niya

Stein and others found an even larger group of excavated documents at the site of Niya (modern-day Jingjue, 80 km north of modern Minfeng, Xinjiang) on the route skirting the southern edge of the Taklamakan Desert. The Niya documents differ from those found at Loulan. Written on wooden slips, nearly a thousand are in Kharosthi script (Burrow 1940). Lin Meicun (1998) has estimated that the documents covered about one hundred years from 246-359. Only one hundred Chinese documents have been found (Hansen 2004:308n4; Wang Binghua 2003:91). It seems that only a handful of Chinese lived in Niya and the surrounding villages. They owned land (#255 speaker hears about

the availability of land "from the mouth of this Chinaman,") and received runaway cows (#686A and B).

The residents of the Niya oasis often exchanged animals, rugs, and grain, for livestock — horses, camels, cattle — or slaves. Women participated fully in this economy; they could initiate transactions, serve as witnesses, and bring disputes to the attention of officials. The Niya documents record payments and debts in units of grain, a clear indication that weighed grain functioned as money. As Helen Wang (2004:65-74) explains, muli (from the Sanskrit mulya "price" or "value") meant "price," and one muli was the equivalent of one milima, a unit of grain. The residents of the village at Niya were supposed to pay taxes to the Kroraina king who probably lived at Loulan, yet they often fell into arrears. The people in one district submitted pomegranates, cloth, grain, cattle, ghee, sacks, baskets, sheep, and wine, all in order to pay back-taxes. While the cloth and grain may have been in fixed quantities and served as money, the sheer variety of items suggests that wide-ranging barter trade existed in the village as well (Burrow 1940:#207; Atwood 1991:167-169).

Niya was one stop on the route from Khotan to Loulan, and the rulers of the Khotan kingdom and the Kroraina kingdom (called Shanshan in Chinese) frequently exchanged envoys in the third and fourth centuries (Burrow 1940: #5, 14, 22, 135, 189, 214, 223, 248, 251, 253, 306, 362, 367, 400, 478, 637). Envoys were entitled to transport, usually by camel, guides, and provisions including food, meat, and wine; they complained when they did not receive the appropriate escort (Burrow 1940: #14). When someone traveled as a representative of the king or queen, or if the king or queen traveled, they used money -- in the form of gold or silver coins or gold specie. Helen Wang suggests that these may have been special monies, given by the king as an award to his courtiers — to buy whatever they needed from the local people. The residents of the Niya oasis also valued gold that had not been minted into coins. In one case, someone paid off a debt by using a gold necklace (#133). (See also #177, #494, for other transactions involving gold but not gold coins.)

Those who came from the capital tried to collect taxes in currency used in the capital but did not always succeed in doing so. In a report describing the various taxes paid by the people in one district, one official gave a specific example: "On another occasion the queen came here. She asked for one golden stater. There is no gold. Instead of it we

gave carpet (tavastaga) thirteen hands long." (Burrow 1940: #431-432). Stater, derived from the Greek, was the name of a gold coin issued by the Kushan empire. It may also have been used as a unit of weight, denoting the amount of gold in a stater coin (Helen Wang 2004:37-38). The indication of the carpet's length points to a barter transaction: if carpets with fixed dimensions had been commonly used as money, it would not have been necessary to say that it was thirteen hands long.

The only gold staters found to date appeared on the market in 1896, when Petrovsky purchased two armlet fragments containing 14 quarter-dinars, but their provenance is highly uncertain; they may have been from a hoard uncovered in Yotkan, Khotan (Helen Wang 2004:33). As Helen Wang notes, Stein himself acknowledged that gold coins would not survive long in the frenzied archeological market of the early twentieth century. As best as we can tell, the authorities did not mint any coins, but the residents of Niya accepted payment in gold staters (Burrow 1940: #419). Only one transaction recorded at Niya involved silver coins, when a Chinese man paid two gold staters and two silver drachmas as compensation for a slave he received from the Supis,[4] a raiding people living south of Khotan (#324), which suggests that silver coins were even less common than were gold ones.

Some bronze Kushan drachma and tetradrachm coins have been found in Khotan, the oasis 240 km west of Niya, and the Khotan kings minted their own bronze coins in imitation of the stater (with Chinese on one face, Kharosthi on the other), which are called Sino-Kharosthi coins.[5]

Silk, measured in bolts, also served as a currency in the oasis. One man, most likely an official, returned from the capital with different rolls of silk, one specifically designated as "royal silk" (#660). Royal laws specified penalties for violating legal procedures in silk (#345, 348), as well as violations of monastic rules (#489). These laws and regulations suggest that silk circulated more often in the capital among those writing the laws than in the village of Niya, where such payments were usually converted into the equivalent amount of grain, rugs, or animals.

The coexistence of these different currencies meant that anyone buying something at Niya had to decide whether to use coins, gold bullion, or silk to buy the item or to use something else to make a barter exchange. The situation was far more complex than the simple binary opposition between barter and coin economy suggests. The Niya

documents mention ten different purchases of slaves. Helen Wang's Table 22, "Purchases of slaves" (2004:70) lists the eight barter transactions (Burrow 1940: #3 [Wang's 2 is an error], 209, 590, 437, 589, 591, 592, 575), as well as two (#436, 551) for which the payment is unknown. #625 is a compensation case. Some, we would readily grant, involved money, whether a payment of two gold and two silver coins or of 41 bolts of silk. The purchaser who paid coins as compensation for the slave was Chinese, while the man who bought the female slave with 41 bolts of silk was a high official named Sugita. Others appear to be barter transactions: one official traded one three-year-old camel, 5 milima of grain, and three other goods for a male slave (Burrow 1940: #575). Yet even here, the measured grain might have functioned as money. As these purchases of slaves show, barter was more frequent among local people, and usually only the royal family or outsiders used silk or coins.

On another occasion the same official Sugita was involved a dispute involving silk, and the king issued a wedge-shaped tablet that ordered:

> Sugita is to be prevented. At present there are no merchants from China so that the debt of silk is not to be investigated now.... When the merchants arrive from China, the debt of silk is to be investigated. If there is a dispute, there will be a decision in our presence in the royal court. (#35)

This appears to be an example of credit: clearly the authorities associated the use of silk as currency with the Chinese and sought their expert advice. The authorities felt that they had to wait for the Chinese merchants to arrive before they could settle the dispute about the price of silk, which must not have been used to make payments very often.

The constant political instability probably reinforced the tendency of local people to trade only commodities with intrinsic value. Officials frequently allude to the losses of warfare, including cavalry attacks and plundering by the Khotanese (Burrow 1940: #272, 376, 415) and raids by marauding outsiders, the Supis, who are frequently labeled as "dangerous" (Burrow 1940: #86, 119, 139, 183, 212, 272, 514, 515, 722). Such raids occurred so often that the local officials on repeated occasions refused to hear property disputes about lost items: "The established law here is that what has been given or received before the plundering of the kingdom by the Khotanese cannot be the object of a legal dispute" (#494).

The Kharosthi documents regularly use the word "fugitives" (Pali "palayamna-")[6] to

refer to the people displaced by these raids and counter-raids (Burrow 1940: #136, 355, 358, 403, 471, 629, 632, 674). Reports of thefts to the authorities allow us to see which goods travelers carried, and by extension, which goods best retained their value, in those uncertain times.

One robbery victim, identified as a "fugitive," reported the theft of "four roughly woven cloths, three woolen cloths, one silver ornament, 2,500 masa [a unit whose meaning is unknown], two jackets, two somstamni [another term whose meaning is unknown], two belts and three Chinese robes" (Burrow 1940: #149). The official writing the report called the three robes "Chinese" but did not similarly characterize the other textiles. The term masa has puzzled analysts, but Helen Wang (2004:68) makes the intriguing suggestion that it may denote Chinese wuzhu coins, which this fugitive could have used for his travel expenses.

Another report (#566) listed the stolen goods as "seven strings of pearls (mutilata), one mirror, a lastuga of made of many-colored silk, and a sudi ear ornament." During the years of the Silk Road trade, pearls often came from modern-day Sri Lanka, where divers plunged into the ocean to find them, while mirrors and multi-colored silk were made in China. The thief confessed but claimed to have received no payment for the goods. Even so, all the listed goods were light and easily portable, and they could easily have been resold. (See also Burrow 1940: #318, another robbery report that lists different textiles that were stolen and recovered.)

In sum, the Kharosthi documents portray a local economy in which some items, like grain, silk, and possibly Chinese coins, functioned as money, while other items, like animals and rugs, were used in barter transactions. Most of the payments of gold and silver coins, gold in bulk form, and silk are made by the royal family, people living in the capital, Chinese, or fugitives.

Turfan: The Shift to the Use of Coins

During the period of about one hundred years covered by the Kharosthi documents, the economy of Niya does not seem to have changed much. In contrast, the documents from Turfan, spanning 273 to 769, portray three distinct phases in the local economy. In the first phase, the residents of Turfan, like those at Niya, bartered rugs or used grain

and silk for most of their transactions. Then sometime in the 580s, in the second phase, the first documents mentioning coins appear — these are Sasanian silver coins — the currency used by many Central Asian peoples including the Sogdians, the Hephtalites, and the Western Turks — and these coins become the currency of choice until about 700, the beginning of the third phase, when the residents of Turfan shifted to bronze coins of Chinese manufacture (Skaff 1998a).

The earliest document from Turfan, a contract dated 273 records the exchange of twenty bolts of degummed lian silk for a coffin.[7] Like the residents of Niya, in this early period, the residents of Turfan used rugs as a medium of exchange. One contract, dated 367, says "Wang Nian sells Camel Ci to Zhu Yue and receives Camel Jia. Neither side profits. If either camel absconds, the two owners will each resolve the problem. If someone changes his mind about the transaction, he will be fined ten carpets to contribute to the other party (Hansen 1995: 23-24; Yamamoto and Ikeda 1987:#2). Even before the founding of the Gaochang kingdom in 502, multiple contracts record the rental and sale of land for payments made in grain (Hansen 1995:23-29). These contracts suggest that grain was not widely used as a currency: one contract for the purchase of land gives the volume and the weight of the grain, as well as its value in silk (Hansen 1995:26; Yamamoto and Ikeda 1987:cankao #10). In periods when grain is frequently used as a currency, contracts give only the volume.

The contracts of the second period give prices in silver coins, and silver coins from the Sasanian empire based in western Persia have been found Turfan. Famed for their purity (between 85% and 90% silver) (Skaff 1998a:68), Sasanian coins are distinctive. The front side bears the profile of the reigning ruler, each identifiable by his characteristic crown, with his name below, while the reverse shows two attendants tending a fire altar that represents the state religion of Zoroastrianism. The earliest Sasanian coins date to the fourth century and have been found in three hoards of ten, twenty, and one hundred coins buried in the dirt ruins of Gaochang. Many of these early coins show little wear, and it is possible that they did not circulate widely (Skaff 1998a:71-72; Qian Boquan 2006:29-30).

Excavated documents first mention these coins (they use different words for them and do not specify that they were Sasanian), starting in the sixth century. The first Chinese-language document from Turfan to do so is a list of goods placed in the grave

to accompany the dead, dating to 543 (Tulufan chutu wenshu 2:60; Thierry 2000:128). It mentions 100 silver and 100 gold coins each, large quantities of textiles, and a cloth to climb to heaven that is one hundred million nine thousand decafeet (zhang) long. These amounts are so large — possibly figurative — that the author may not have had actual silver coins in mind.

The first certain mention of silver coins appears in a contract dating to 584 in which someone rents a field of one mu for five silver coins (Tulufan chutu wenshu 5:154; Hansen (2005:303). Similar contracts continue until 677; people use silver coins to rent land, trees, ox-carts, or homes, buy land, hire people to staff beacon towers in their place, make loans, and pay taxes (Skaff 1998a:108-109, Table of Dated Turfan Documents that Mention Silver Coins). The one surviving Sogdian-language contract from Astana records the sale in 639 of a female slave for 120 silver drachm coins, which it specifies must be "very pure" and "minted in" Sasanian "Persia" (Yoshida 2003).

To date, some 1300 Sasanian silver coins have been excavated in China. Of those, the vast majority were found in Xinjiang. The site of Wuqia (Uighur: Ulugart) in western Xinjiang, just north of Kashgar, produced fully 947 silver coins along with thirteen gold bars. Miners discovered the Wuqia hoard in a rock crevice, where they had presumably been placed for safe-keeping by someone traveling between the capital of the Western Turks on the northwestern edge of Lake Issyk-kul in today's Kyrgyzstan, Sogdiana, and Turfan (Helen Wang 2004: xiii; Li 1959; Skaff 1998a; Shiruku rôdo gaku kenkyû/Silkroadology 2003). The find-spot, on the side of a hill, is so remote that Wang Binghua believes that only bandits could have used it (personal communication, June, 2006). In 2006 Stephen Album was able to examine about one hundred of the Wuqia coins held in the Xinjiang Museum; he estimated that over one quarter were "contemporary imitations" of Sasanian silver coins, or "Peroz-style coins from Hephtalite mints" (Stephen Album conference presentation, December 6, 2006; see his contribution to this volume). The mixed composition of the find suggests that both silver coins and gold ingots functioned as stores of wealth.

Apart from the Wuqia horde, 130 Sasanian silver coins were found in the ruins of Gaochang and 30 in the Astana cemetery, many from seventh- and eighth-century tombs, where Stein's assistant Mashik wrested them from the jaws of the dead (Helen Wang 2004:34-36). In a recent study of these coins, the Chinese archeologist Luo Feng

(2004) has suggested that placing silver coins in the mouths of the dead may have been a predominantly Sogdian practice.

In addition to those coins found in Central Asia, about ten Sasanian coins have been found in central China, all from the fifth century. The Sasanian coins fall neatly into three clusters of different dates: those from the second half of the fourth century in hoards from Gaochang, from the second half of the fifth century in central China, and the late sixth through eighth centuries in the Astana graveyard. Since the coins from the three periods appear in different places, it seems most likely the pattern of distribution reflects shifts in trade routes. In the first and third periods, the trade routes used by the Sogdian merchants ran through Turfan while in the second they did not (Helen Wang 2004:34-36; Zeymal 1991/92:165-169; Skaff 1998a).

The Sogdians were content to use Sasanian coins for their transactions in China, and, after the fall of the Sasanian empire to Islamic forces in 651, they used Arabo-Sasanian coins minted by Arab governors. The Arabo-Sasanian coins, like their predecessors, weighed about four grams; they replaced the portrait of the Sasanian emperor with that of the Arab governor and added an Arabic inscription to the face of the coin (Skaff 1998a:68).

Far fewer gold coins than silver have been found in China. 11 have been excavated in Xinjiang, 37 in central China, for a total of 48 (Luo Feng 2004: 117-120; Thierry and Morrison 1994). These coins are all solidus coins, containing 1/72nd of a Roman pound's worth of gold (327.45 grams), or 4.55 grams (Helen Wang 2004:34). First minted by Constantine (reigned 274-337), they show the reigning Byzantine emperor on the face and have an image of the cross or Christ on the back (Helen Wang 2004:34). The mints of the Byzantine empire produced bronze coins for domestic use; it is not clear why the mints produced gold coins, unless perhaps for use as imperial gifts.

The earliest Byzantine solidus coins found in China (there are two examples) were minted in the reign of Theodosius II (409-450) and buried some time in the early sixth century; the latest, in the mid-eighth century (Luo Feng 2004:147). Islamic troops conquered large chunks of the Byzantine empire after defeating the Sasanians in 651. Just as Sasanian silver coins acquired new elements when minted by Arabs, so too did the late Byzantine coins undergo a parallel transformation in which all Christian elements were removed.

Many of the Byzantine gold coins from China turn out to be copies. (Luo Feng 2004:146 lists 32 genuine and 15 imitation coins). Experts can spot these fakes because they diverge from the originals in a variety of ways. Sometimes they weigh less than the standard weight. Or the iconographical details of the emperor's portrait are wrong. Or the lettering on the inscription is incorrect (Lin and Maitelixi 2005:70-72). Many have holes punched in them, an indication that they were sewn onto clothing, most likely for use as talismans that were believed to protect the wearer from evil spirits or forces. The largest number of gold coins found at any one time is five (in the N. Zhou tomb of Tian Hong; Luo Feng 2004:118, items 21-24). It is far more common to find a single coin. Archeologists have not found anything like the hoards of over one hundred silver coins from Wuqia and Gaochang, yet another indication that the Byzantine gold coins were used as talismans and did not circulate as currency, either in Turfan or in central China (Luo Feng 2004:121-123).

The author of the most recent and the most convincing survey, Luo Feng, points out that the gold coins are often found in conjunction with Sasanian silver coins. Rather than see the coins as evidence of direct trade between China and Byzantium, Luo suggests that the coins indicate the presence of Sogdian traders in China, many of whom believed in the utility of sewing gold coins on the clothes of the dead (Luo Feng 2004:149).[8] In most cases those buried with Byzantine coins were Sogdians. Only the Astana graveyard at Turfan contains multiple tombs in which the deceased, although not Sogdian, are buried with imitation Byzantine gold coins (Lin and Maitelixi 2005:71) — perhaps because the residents of Turfan adopted the practice from their many Sogdian neighbors?

Most numismatic scholars concur that Sasanian silver coins circulated widely in Turfan starting in the late sixth century, through the seventh century, and tailing off in the eighth (Skaff 1998a; Thierry 2000; Helen Wang 2004). Gold Byzantine coins differed. Although some of the Astana tomb inventories mention gold coins, no contract from Turfan records a transaction using gold coins, and those that have been excavated were often used as talismans. The gold coins listed in the grave inventories did not necessarily exist: the large numbers suggest that they were either figurative amounts or referred to paper models of gold coins placed in tombs. The Wuqia horde, with its 974 silver coins and thirteen bars of gold, confirms our impression that silver coins circulated and gold coins did not. Gold was carried in bars — not minted into coins.

The latest Astana document mentioning silver coins, a tax receipt dated 692 (Tulufan chutu wenshu 7:441), specifies the equivalent value in bronze coins: two silver coins are worth 64 bronze coins. Bronze coins were the preferred coinage in central China during the Tang dynasty, and people in Turfan began to use them instead of silver coins sometime around 700 — some sixty years after the Tang conquest of Turfan (Skaff 1998a:99-104). We still do not know why the people of Turfan stopped using Arabo-Sasanian coins around 700 and started to use Chinese coins instead. The currency reforms of 697 and 699 in the Islamic world, which drastically reduced the size of the silver coins and replaced the pictures of rulers with Arabic inscriptions, may have prompted the shift.

What happened to the Turfan economy after the withdrawal of Chinese troops from Central Asia following the An Lushan rebellion? The documents excavated so far from Turfan will do not provide answers to this question since they began to peter out in the 750s, with the latest document dated to 769.

The Dunhuang Economy in the Ninth and Tenth Centuries

The contracts and loan documents recorded on the backs of Buddhist sutras or in copybooks constitute our main source for understanding how the economy of Dunhuang functioned in the ninth and tenth centuries. The differences from the contracts at Turfan are immediately obvious: purchasers exchange silk, measured in lengths and described by weave and color, or grain, weighed in certain amounts, to purchase or rent land or to buy animals (Yamamoto and Ikeda 1987: 13-18;Trombert 1995; Hansen 1995; Hao Chunwen 1998). In their magisterial survey of contracts from Dunhuang, Yamamoto and Ikeda explain: "That the Dunhuang contracts provide evidence of the discontinuation of the use of money is a fact that cannot be overlooked. From the period of Tibetan control onward, money was not used in this region, the media for disbursement being grain or cloth" (1987: 16). They note, too, that contracts often give the dimensions of each piece of cloth, and in the tenth-century parties to a transaction often sketched the piece of cloth in question on the back of the contract. Because the size of cloth was no longer standard as it had been at the height of the Tang, it did not serve as a currency. We have seen above that grain occupies a middle position on the range between barter and money: if circulated in fixed units, it resembled money, but it could

just as easily have been weighed on the spot for an individual transaction.

In 788-790 the financial records of a storehouse at Dunhuang referred to coins; this was the latest Chinese-language mention of coins known to date (Ikeda 1980:316-317, citing P 2763, P 2654). Tibetan-language contracts confirm the decline in the circulation of coins: with only a few mentions of dmar, the Tibetan word for "copper," which possibly refers to bronze coins, the contracts record exchanges in grain and cloth (Takeuchi 1995: 25-26). Takeuchi notes that several Tibetan-language divination texts from Dunhuang (P 1055, 1056) mention bronze coins (Tibetan dong-tse = Chinese tongzi), as do some texts from Khotan, raising the intriguing possibility that some Chinese coins, possibly those minted before 755, continued to circulate in the ninth and tenth centuries.

The coinless economy seems to have functioned well. In 822 (the dating is tentative because the contract says only "year of the tiger"), Linghu Chongchong exchanged a bull for nineteen piculs of wheat; the contract ends with a note that three piculs of millet were substituted for wheat, but otherwise the exchange went forward (Yamamoto and Ikeda 1987: #259 [S 1475]; Hansen 1995:54-55). A contract for the sale of land dating to 815 or 827 gives the price as 160 pecks, 150 of wheat and 10 of millet, and stipulates a penalty in wheat if one party changes its mind. If an imperial amnesty is issued, the contract bravely declares, then the seller will be fined an extraordinarily high 5 taels of gold (approximately 6 kg) — a penalty so high that its sole goal seems to be discourage the seller from ever questioning the transaction (Yamamoto and Ikeda 1987: #260 [S 1475]; Hansen 1995:55-56). We cannot take this penalty clause to mean that the residents of Dunhuang were using gold bars for their transactions.

As Zheng Binglin has shown in his fine articles (collected in 1997, 2003), markets at Dunhuang continued to exist even in this period when so little coinage was available. Foreign-made goods were for sale, and envoys traveled to nearby kingdoms — Khotan and Uighur-ruled Ganzhou — to present gifts from rulers (Rong Xinjiang 2004).

Conclusion

The documents and coins found along the Silk Road during the first millennium A.D. suggest four distinct phases of monetary use. In the first phase, between 140 B.C. and A.D. 32, documented most clearly at Juyan and Shule, soldiers stationed at Han garrisons were paid most often in coins (or silk and grain, if coins were in short supply)

and spent both at local markets. (We cannot know whether the markets predated the Chinese presence.) Surviving materials do not permit us to assess the impact of the Han-dynasty military spending on the local economy, but the overall pattern confirms what scholars of early coins have noticed elsewhere in the world: the first coins circulate not because traders need them but because the Han-dynasty government financed its garrison and paid soldiers with coins, and the soldiers then spent those coins in local markets.

In the second phase, after the fall of the Han dynasty in 220 A.D., during the third and fourth centuries, we see the simultaneous use of several different exchange media. At Loulan, Chinese soldiers used silk and grain in small and large transactions alike. Only the garrison, it seems, used coins. At Niya, as best as we can tell from the documentary record, the spending patterns of local people and outsiders differed: where local people used grain and cloth as money or bartered, outsiders like the members of the royal family, visiting envoys, Chinese merchants (?), and fugitives paid gold coins, silver coins, gold, silk, textiles, and mirrors and ear ornaments made of silver and bronze. At Turfan, from the third to the fifth centuries, a similar type prevailed, but then, during the sixth century, local people began to use Sasanian silver coins for their daily-life transactions. The first contract from Turfan using silver coins, dated to 584, marks the beginning of the third phase of the Silk Road trade.

The timing fits perfectly with the political situation of the time in which first the Hephtalites and then the Western Turks challenged Sasanian rule in Central Asia. Starting in the late fifth century and continuing through the sixth century, the Hephtalites regularly defeated Sasanian forces in battle and demanded payment in silver coins as reparations. The Sasanian ruler Pêrôz II (r. 459-484) once sent thirty donkeys laden with silver coins to the Hephtalites as tribute (de la Vaissière 2005:111). When the Hepthtalites killed Pêrôz II in 484, they took over some Sasanian mints. They consciously altered the original design of the coins by adding four dots around the edge of the coins (at 3, 6, 9, and 12 o'clock), as well as two Bactrian letters, which stood for Hephtal, their name for themselves (Michael Alram, personal communication at the conference). Similarly, when an alliance between the Sasanians and the Western Turks defeated the Hephtalites in 557, they demanded large payments of silver coins; the Western Turks countermarked these coins for use within their territory, which extended all the way from Samarkand (in today's Uzbekistan) to Turfan.

The Northern Zhou (557-581) and Northern Qi (550-577) dynasties of China paid the Turks 100,000 bolts of colored brocade (hui xu jin cai) each year so that they would not intervene in China (de la Vaissière 2005:209; Zhou Shu 50:911). These payments were not the same as the Han-dynasty payments to their garrisons in Central Asia, but it seems likely that they had a similar effect: namely of injecting vast amounts of cloth — converted into Sasanian coins, we can presume, by Sogdian traders — into the region's economy. These payments from the Chinese to the Western Turks did not continue past the founding of the Sui, but it seems likely that the Turks continued to use Sasanian silver for most of their outlays.

Starting around 550, the ruling family of the Gaochang Kingdom (whose capital was at Turfan) joined the powerful confederation of the Western Turks (Tujue) that controlled much of Central Asia (Golden 1992). In 630, when the king of Gaochang reluctantly allowed the Chinese monk Xuanzang to continue on his journey, he gave him enough money to cover the travel expenses of his party of thirty people for an estimated twenty years: five hundred bolts of damask (ling) and silk (juan), 30,000 silver coins, and one hundred ounces of gold (Huili 2000:21; 1995:33). His gift, like the Wuqia hoard, consisted of silver coins and gold specie, further indication that gold coins were not used at the time. This one-time payment gives a sense of how many silver coins must have been circulating in the Turkish realm at the time. Yet, as generous as this gift was, it constituted only 1/200th of what the Zhou and Qi dynasties paid the Western Turks annually. Yes, the Gaochang king respected Xuanzang, but he would not have bankrupted his treasury for him. Surely he had much more silver at his disposal, as did the different rulers in the coalition, not to mention the kaghan of the Western Turks himself.

In that same year, 630, after defeating the Eastern Turks, the Tang dynasty poured funds into the Western Regions to support its military campaigns against the Western Turks. Although we speak of a Tang army, in fact the Tang authorities hired local soldiers, many of them Turkish, to conquer Turfan in 640 and Kuche in 648 (Skaff 1998: 330). Under the equal field system, each able-bodied male was obliged to pay three types of taxes: corvée labor, grain, and cloth. Local authoristies gathered these for each prefecture and then sent them to designated gathering places. To finance their campaigns, the Tang state shipped bolts of cloth from central China out to the frontier (Arakawa 2001:13; Ôtsu 1990); over twenty examples of this type of tax cloth have been found in

Xinjiang, each labeled with its place of origin (Wang Binghua 1981).

Immediately after the 640 conquest, the Tang forces in Turfan probably numbered several thousand (Skaff 1998:224). The level of military expenditures by the Tang continued to grow during the seventh century, and the temporary loss of Kuche to the Tibetans from 670-692 resulted in ever increasing expenditures in the eighth century. One budget document from 674, brilliantly reconstructed from fragments now held in Japan and China by Ôtsu (1990), shows that national and local officials recorded tax payments carefully, giving the amounts of different cloth or grain forwarded by each prefecture to the center. Tang officials collapsed these different units — strings of coins, piculs (shi/dan) of grain, and bolts of cloth (usually silk, but also hemp and cotton) to create an aggregate accounting unit whose value has been debated greatly by all those who have tried to make sense of the internally contradictory figures that survive (Skaff 1998a is the most recent and sustained effort in English; Jia 2006 is equally thorough and helpful).

Du You (735-812), who wrote the great institutional encyclopedia Tongdian (Encyclopedic history of institutions), put the costs of defending the frontier at 2 million strings of coins in 713, 10 million strings in 741, and 14-15 million strings in 755 (Skaff 1998:82n147, Table 2.1: "Frontier Military Spending during Xuanzong's reign [In combined units of bolts of cloth and shi of grain], 86; Trombert 2000:108; Tongdian 6:110-111; 172:4478-4480). No matter how one understands these figures, the outlays are staggering. By the 730s or 740s, the central government was sending 900,000 bolts of cloth of various types each year to four military headquarters in the frontier regions of the Western Regions: Yizhou (Hami), Xizhou (Turfan), Beiting, and Anxi (Kuche). (Skaff 1998: 86; Twitchett 1970:86). By 742 some 5000 Tang soldiers were stationed in Turfan, yet, according to a recent estimate, the tax receipts from local inhabitants could only cover 9% of their expenses (Skaff 1998: 244). The Tang state's subsidy for the military injected vast sums of money, in the form of cloth, into the local economies of the Silk Road oases.

One document from Dunhuang (P 3348) shows exactly how the Tang state made such payments. The central government deposited two shipments of silk, both bleached and unbleached, in a commandery in Liangzhou, about 700 km east of Dunhuang, location of the headquarters of the Military Governor of Hexi (modern Guzang, Gansu province). From there, the silk was shipped to a garrison at Dunhuang (P 3348, transcribed in Ikeda

1979:463-64; Trombert 2000:111; Jia 2006:123-124, 159-160). As Trombert trenchantly remarks, "One has here a concrete example of two military convoys, each carrying more than 7000 bolts of silk, that has nothing in common with the images of caravans of private merchants to which we are accustomed." These individual payments of 7000 bolts of silk each dwarf all the individual transactions recorded in the Turfan documents. My earlier study (Hansen 2005; 2005b) examined the evidence about the Silk Road trade in the Turfan documents; the largest recorded transactions involve only a few hundred bolts of silk (Tulufan chutu wenshu 6:470-479). This Dunhuang document not only records the shipment of the silk but also its conversion first into coins and then from coins into grain, some used to feed the soldiers in the garrison, some paid directly to the local merchants.

This document gives different conversion rates into coins for four types of grain (barley, oats,[9] garden peas, millet) and seven types of tax cloth (undyed and uncooked woven tabby silk [da sheng juan], loosely woven silk from Henan Prefecture [Henan fu shi], plain silk tabby dyed pink [man fei], plain silk tabby dyed green [man lü], silk floss [da mian], loosely woven silk from Shaan Prefecture [Shan jun shi], and cooked tabby [dalian]) (Wang Yongxing 1991).[10] Officials first converted the seven types of tax cloth sent by the central government into a total aggregate expressed in coins, and then used that figure to calculate payment for four types of grain, again using individual conversion rates. This is an excellent example of using coins as a unit of account since the officials handled only cloth and grain but recorded their value in coins.

The calculations were even more complex because the local officials made advance payments in silk and had to figure the interest on those loans to the merchants. The document names several "xingke" (literally moving guest households) as the people who provide grain and whom the local authorities pay: the context indicates that these are merchants. One person, named Cao Tingshun, is called both a moving guest household and a "bingke" (literally, an army guest household), apparently a merchant attached to the military (Jia 2006: 126). Cao is, of course, is one of the eight last names used by Sogdians; it indicates someone from Gubdan, the area north of the Zerafshan River (Hansen 2005:287). This document shows clearly how closely the Tang garrisons were tied to local markets: paid by the central government in cloth, they had to use local merchants and markets to convert that cloth into grain for their soldiers. Just as military

officials often frequented local markets, Jia Zhigang points out, local merchants entered military garrisons. Clearly central government payments to soldiers had a direct impact on the economy of Central Asia.

When, following the outbreak of the An Lushan Rebellion of 755, the central government withdrew its armies from Central Asia, this stimulus came to a sudden end. 755 marks the abrupt start of the fourth phase of the Silk Road trade. As Chinese- and Tibetan-language contracts from Dunhuang show, the local people reverted to a barter economy in which they calculated all prices using lengths of cloth (silk, hemp, and cotton) and grain.

This paper (and the larger book project — entitled A New History of the Silk Road — from which it is drawn) hopes to persuade the reader to cast aside the prevailing image of the Silk Road trade, conducted by individual merchants (always riding on camels), in favor of a different scenario. I propose instead that the indigenous peoples living in the oases to the north and south of the Taklamakan had little need for coins, since they could — as we have seen the residents of Niya, Turfan, and Dunhuang did — exchange grain, bolts of cloth, or rugs for the things they needed, including draft animals, land, or slaves. When coins appear on the Silk Road, they are often in the hands of outsiders, whether the soldiers stationed at Loulan or the members of the royal family of the Shanshan kingdom, envoys, Chinese merchants (?), and fugitives passing through Niya. Some local rulers of Central Asia did issue coins, often modifying existing coins to make hybrid coins like the Sino-Kharosthi coins of Khotan, which copied Kushan coins, or the Qiuci wuzhu coins modeled on the Chinese wuzhu coins issued by the Han and Tang dynasties (Wang 2004: 37-41). It is not clear why local rulers issued these coins: possibly because they emulated the powerful dynasties of North India or China, or perhaps to pay their troops. This pattern is consonant with what we have seen of the use of coins in ancient Greece, Persia, and Rome.

When local people begin to spend coins, as those living at Turfan did sometime in the sixth century, it is because outside governments, whether the Turkish confederation or the Chinese dynasties that contested their hold on Central Asia, flooded Central Asia with huge payments. It seems likely that the Turks paid their soldiers with coins. The example of the Gaochang king's generous gift to Xuanzang demonstrates that the members of the Western Turk confederation controlled sizable amounts of coinage. The

Tang dynasty used silk to provision their troops, and it seems that someone — maybe Sogdian merchants? — converted the silk paid by the Tang into coins and grain disbursed to soldiers who then spent their pay in the markets of Turfan and other oases.

Let me close by returning to the question with which this paper opened: just how important were coins to the Silk Road trade? Let me suggest that we have assumed that coins were necessary to the flow of goods without considering the possibility that trade continued even in periods when coins were scarce. If much of the overland Central Asian trade was intensely local, perhaps coins were not so important to the Silk Road after all.

Notes:

[1] Let me express my thanks to the scholars attending this conference, including Stephen Album, Michael Alram, Chen Zhiqiang (Mark), Lin Meicun, Rong Xinjiang, and Nicholas Sims-Williams for their comments and suggestions. Helen Wang gave me extensive, probing written comments that I was only partially able to answer in my revisions. I' d also like to thank Wang Jinping for her patience in skillfully translating this paper and the revised draft into Chinese. This paper was originally intended for publication only in Chinese. At the request of the Shanghai Museum, I have provided an English text, which overlaps in some places with my forthcoming book, A New History of the Silk Road (to be published by Oxford University Press).

[2] William Goetzmann, School of Management, conversation on August 21, 2006; see also the extensive and helpful discussion of definitions in Helen Wang 2004:9.

[3] Schaps 2004:93-96 provides a very helpful review of the literature about the 1904-05 excavation by the British Museum expedition, published as Chapter 5 of Hogarth (1908); see also Robinson (1956).

[4] Paul Pelliot (1963:712-718) accepts the suggestion of F. W. Thomas (1935:9-10, 42, 156-9) that the Supiye and Supiya in the Kharosthi documents were the same people as the Sumpa people mentioned in the Tibetan documents of the seventh and eighth centuries. There is a place called Sumpa in the Amdo region of Tibet, but the many sources Pelliot surveys do not agree on the location of the Supis' homeland.

[5] Helen Wang (2004: 37-38), citing Jiang Qixiang' s articles in Zhoushan Qianbi 1990.1:6-11; 1990.2:3-10; 1990.3:8-13; 1990.4:3-11, calculates the world total of Sino-Kharosthi coins at 352, of which 256 are in the British Museum. Thierry 2000: 122-25 provides a very helpful overview of documents and coin finds in Khotan and Niya.

[6] Stanley Insler, Edward E. Salisbury Professor of Sanskrit and Comparative Philology, Yale University, email, November 14, 2006: "The word in question is 'palayamna-' and is the participle to the verb palayati 'runs away, flees, escapes' . … I see no problem with Burrow's 'fugitive' , although escapee, run-away might be better."

[7] Yamamoto and Ikeda 1987:#1. This contract may have served as a symbolic stand-in replacement for an actual coffin, which would have been a large expense for the grieving family (Wu Zhen,

personal communication, March 2006).

[8] The Chinese-language literature about these coins is too extensive to list here. See Luo Feng's thorough notes instead.

[9] The meaning of the word "qingmai" is not certain. Éric Trombert (1995:46-47) suggests oats ("avoine") or a type of young barley.

[10] Professor Angela Sheng (Art History department, McMaster University), personal communication, June 15, 2007.

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