



THE GLORY OF THE  
**SILK ROAD**  
ART FROM ANCIENT CHINA

LI JIAN  
General Editor

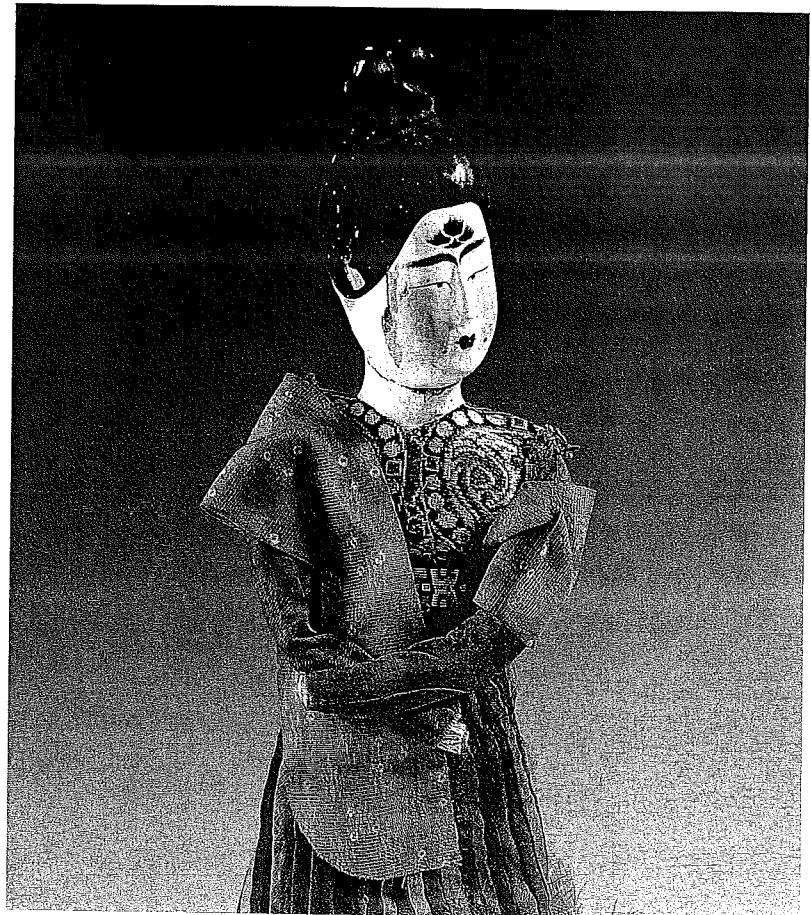
WITH ESSAYS BY  
Valerie Hansen  
Angela Sheng  
Katherine R. Tsiang  
Wang Binghua

THE DAYTON ART INSTITUTE

# THE ASTONISHING FINDS FROM THE TURFAN OASIS

What They Reveal about the History of the Silk Road

Valerie Hansen  
YALE UNIVERSITY



The people who crossed the Eurasian landmass in the premodern era faced formidable geographic obstacles: the highest mountains on earth, the Taklamakan Desert, and the freezing Siberian steppe. Neither a sedentary urbanite nor an expert mountain climber can easily grasp how our ancestors traveled all the way from China to Rome on the Silk Road. But long ago—perhaps as early as 20,000 B.C.—travelers found that they could walk across Eurasia. They could cross certain mountain passes at the right time of year. They could traverse deserts by going from oasis to oasis, pausing to drink their fill of water, to eat, to sleep, to learn about the route ahead, and perhaps even to hire a guide.

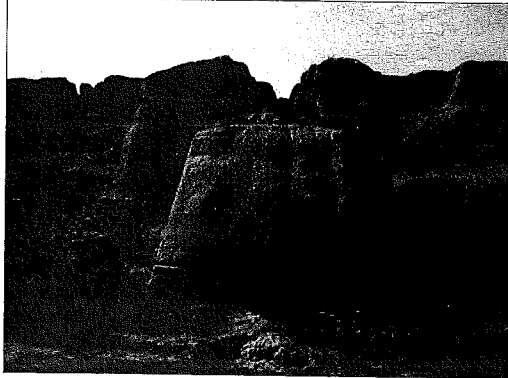


Fig. 1. Gaochang's city walls. Photo courtesy of Jonathan Karam Skaff, The Silk Road Project, Yale University.

During the first millennium A.D., many travelers stopped at Turfan, located on the northern rim of the Taklamakan Desert. Oasis towns such as Turfan make it possible to write the history of the Silk Road, for the arid climate of northwest China has preserved a remarkable array of artifacts, including the textiles, figurines, books, sheets of paper, and many other items on exhibit here.<sup>1</sup>

One of the Silk Road's most famous travelers, the Chinese monk Xuanzang (602?–64), went to Turfan after fleeing from China in A.D. 629. He was on his way to India to obtain the original Sanskrit versions of several important Buddhist texts that he wished to study. Leaving China was difficult, because the Tang dynasty, founded only eleven years earlier, had forbidden all travel abroad.

Xuanzang made his way to the northwest border town of Dunhuang and one night escaped under the cover of darkness. He then had to choose the safest route to his destination. He initially planned to bypass Turfan, even though the oasis lay on the eastern end of the much-traveled highway to Samarkand (in today's Uzbekistan), the glorious commercial center of the Silk Road. From Samarkand it was possible to travel further south to India or west to Syria and even Rome.

But Xuanzang joined the vast majority of Silk Road travelers who passed through Turfan, the capital of the Gaochang Kingdom, when the king personally invited him to visit. Although the Gaochang king himself was not ethnically Chinese, Chinese influence was evident everywhere in his independent kingdom. The political structure of the government mirrored that of the Chinese state, with officials using Chinese as the language of administration. The capital city at Gaochang was surrounded by walls with named gates on four sides, just like other Chinese cities (fig. 1). Many of the city's residents were refugees from war-torn China. They spoke Chinese at home, their children studied Confucian texts at school, and their king was a devout Buddhist.

The king was so devout, in fact, that he kept Xuanzang up the entire night of his arrival so that the two men could discuss Buddhist teachings. Xuanzang's biographer, his disciple Huili, explains that, after ten days, the monk grew eager to continue his journey. The king tried to persuade the monk to stay in Turfan:

I propose that you stay here, where I will provide for your wants to the end of your life. I will order the people of my realm to become your disciples. I hope you will instruct the clerics here, who, although not numerous, number several thousand.<sup>2</sup>

Even with its large Buddhist population, Turfan did not tempt Xuanzang, who still wanted to go to India, the source of all Buddhist learning. When the king denied him permission to leave, Xuanzang launched a hunger strike. After four days, the king relented. He promised to provide Xuanzang with ample travel expenses, a mounted escort, and, most important, letters of introduction to all the rulers whose kingdoms lay between Turfan and India. In exchange Xuanzang agreed to preach to Turfan's residents for one month before he departed. He also assured the king that he would return to the oasis on his way back from India.

Xuanzang's pledge proved impossible to keep. In 640, when the powerful armies of the Tang empire invaded the Gaochang Kingdom, the king died from fright, according to the Chinese official histories.<sup>3</sup> After his son, the last Gaochang king, surrendered, Turfan became one of three hundred identical administrative units within the empire, each subject to the regulations detailed in *The Tang Code*.

The conquering Chinese first took a census of all households, listing all members on individual household registers. They counted 37,700 people living in 8,000 households.<sup>4</sup> After surveying the cultivable land in the oasis, local officials classified it into two categories: personal share land and perpetual holdings. Each person was entitled a certain amount of both types of land. As the name suggests, the perpetual holding land was theirs forever. The state hoped that permanent tenure would encourage individual families to invest in long-term uses of the land. Each family also received some personal share land that reverted to the state after three years, when officials would update the household registers and redistribute the personal share land all over again.



Fig. 2. Dried silk flowers. After Xinjiang 1975, fig. 183.

This, in brief, is the sum of what traditional Chinese historical sources record about Turfan. These sources reveal more about government institutions than private businesses and more about rulers and famous monks than about the ordinary people of Turfan. We learn almost nothing about Silk Road merchants—both Chinese and foreign—nor about the women whose sacrifices made it possible for their husbands to travel long distances.

Fortunately, Turfan's climate has preserved an unmatched body of excavated documents and artifacts that provide a needle-sharp image of the Silk Road trade at its peak. All visitors to Turfan marvel at its unusual geography: the Turfan depression lies 154 meters below sea level at its lowest elevation. The region is unbearably hot in the summer months, with August temperatures often as high as 140 degrees Fahrenheit (60 degrees Centigrade). It hardly ever rains. The snow-covered Tianshan Mountains supply the oasis with sufficient run-off to fill its irrigation canals, and the local people grow the grapes and melons for which the oasis is famous.

This combination of heat and dryness creates almost perfect conditions for archeological preservation. Just outside the northern walls of the capital city of Gaochang, the Astana graveyard contains over 3,000 tombs, of which 465 have been excavated since 1959. Over the course of excavations in the twentieth century, these tombs have revealed artifacts that survive almost nowhere else: desiccated human corpses with skin and hair intact, petrified

food (including both Middle Eastern nan bread and Chinese wontons), and artificial silk flowers with their original bright colors still visible (fig. 2). Alas, with very few exceptions, grave robbers have ransacked the Astana graves so that we almost never know the precise archaeological context of these striking artifacts.

The brilliantly colored tomb figurines in this exhibition present an unforgettable portrait of Turfan's mixed population at the height of the Silk Road trade in the seventh and eighth centuries. Male figurines with black hair, small noses, and little facial hair—all Chinese characteristics—wear official robes or carry military equipment (cat. nos. 34, 36). Other men, with larger noses and heavy black eyebrows, lead camels laden with goods (cat. nos. 31, 32). They are Iranians from Samarkand who spoke Sogdian, the dialect of Middle Persian used throughout the markets of the entire Silk Road. Delicate Central Asian women sport the low-cut fashions of their home region, while Chinese women wear more modest outfits (cat. no. 33).

Equally significant are the nearly two thousand documents found in some two hundred tombs at Astana. The residents of Turfan had an unusual custom: they outfitted their dead with paper boots, hats, belts, and shoes (cat. no. 47). And because paper was scarce, they often recycled government documents, contracts, and other records to make these funeral vestments. After disassembling the paper shoes and hats, scholars have painstakingly deciphered the handwritten documents, which have proved to be among the most revealing texts about the Silk Road.

## THE SILK ROAD TRADE

---

What goods would a typical Silk Road caravan carry? Thanks to the German geographer Ferdinand von Richthofen, who coined the term "Silk Road" in the 1870s, today we take it for granted that silk was traded on the Silk Road. After all, only Chinese craftsmen knew how to raise silkworms and how to spin silk thread before A.D. 500. Even after they lost their de facto monopoly to Byzantine and Persian weavers, Chinese craftsmen continued to produce high-quality weaves and much sought-after textiles.

Silk was used not just as a textile for clothing and interior furnishings but also as a medium of exchange. Throughout the course of the Tang dynasty (618–907) silk, and not bronze coins, was the preferred currency of the Chinese state. The price of silk fluctuated much less than the price of coins, and silk was much lighter as well (a string of one thousand bronze coins could weigh more than nine pounds, or four kilograms).<sup>5</sup> After 640, when the Tang assumed direct control of Turfan, the central government sent large quantities of silk to Turfan to pay the salaries and cover the expenses of the many soldiers and officials in the oasis.

Yet silk was not the only good traded along the Silk Road. Eleven documents (cut up to make shoes for a dead woman) capture the activity of a single tax station in the vicinity of Turfan. They record thirty-seven separate tax payments made over the course of a year, probably around 600.<sup>6</sup> The Gaochang Kingdom collected a scale-fee every time someone bought goods that had to be weighed. For each transaction, tax officials recorded the type of good purchased, its weight, the amount of the tax levied, the date of the transaction, and the

names of the buyers and sellers. The merchants paid the tax with silver coins minted by the Sasanian Empire (in modern-day Iran). This alternative currency (cat. no. 52) enjoyed wide use in Turfan, because these silver coins were famed for their purity.

The scale-fee receipts reveal that a few commodities were traded several times in the course of the year: spices (nine times), gold (six times), silver (six times), silk thread (five times), and ammonium chloride (six times). Ammonium chloride was used as a flux, both in the melting of metals and in dyes, and one purchaser bought 251 catties (probably around 125 kilograms) one time. The merchants traded other commodities only once that year: brass, medicine, copper, the spice turmeric, and sugar.

The buyers and sellers in the scale-fee documents were mainly Sogdians. Forty-one of the forty-nine people have Sogdian surnames, clear evidence of Sogdian dominance of the Silk Road trade. The dynastic history of the Tang explains the business acumen of Sogdian traders:

When they give birth to a son, they put honey on his mouth and place glue in his palms so that when he grows up, he will speak sweet words and grasp gems in his hand as if they were glued there. . . . They are good at trading, love profit, and go abroad at the age of twelve. They are everywhere profit is to be found.<sup>7</sup>

These documents offer one major surprise: not one of the merchants bought silk cloth. Because silk was sold by length, and not by weight, it was not subject to the scale fee. The omission of silk reminds us that this snapshot of Silk Road trade is only partial. These receipts mention neither animals nor slaves, but there was considerable trade in both. The sole Sogdian language document found at Astana records the sale of a young-Sogdian girl to a Chinese monk in 639 (cat. no. 48). For her, the purchaser paid 120 Sasanian silver coins, which the seller insisted had to be of the highest purity.

#### DEATH OF A BUSINESS PARTNER

Whenever business thrives, commercial disputes are never far behind, and it was no different on the Silk Road. A series of affidavits about a partnership between two merchants, one Chinese and one Sogdian, captures a business conflict that occurred around 670. Had the Chinese merchant Li Shaojin borrowed 275 bolts of silk and failed to repay his Sogdian partner? Or was Merchant Li telling the truth when he denied borrowing the silk? The Sogdian's death made it even more difficult to determine what had happened.

The deceased merchant's brother, Cao Lushan, sued on his brother's behalf. His name marks him clearly as a non-Chinese person; "Cao" was a surname Chinese assigned to Sogdians who lived north of the Zerafshan River (which runs through Samarkand), and "Lushan" was the Chinese transcription of the Persian name "Rokhshan" (dawn), the masculine equivalent of our "Roxanne." Rokhshan claimed that Merchant Li had borrowed the silk from his older brother when on a trip to Gongyuecheng (modern-day Almaligh), which lies in the Yili River basin in northern Xinjiang, close to the modern border with Kazakhstan. The two business partners did not share a common language but communicated through an interpreter.

After lending the silk to his Chinese partner, Rokhshan maintained, his brother had left for the Kuche oasis on the northern Silk Road. At the time he was leading two camels, four cattle, and one donkey, which carried his wares: silk, bowls, bows and arrows, and saddles. The Sogdian merchant never arrived at his destination. His cargo of weapons and saddles made him a particularly attractive target, and one witness speculated that he might have died at the hands of Turkish bandits.

In his affidavit Merchant Li denied borrowing anything from his Sogdian partner. But then the court officials confronted him with the testimony of two surprise witnesses: Sogdian merchants who had witnessed the original loan of the 275 bolts of silk at Gongyuecheng. Although the copy of the contract belonging to the Sogdian partner had disappeared, and although the Chinese merchant denied its existence, the two Sogdian witnesses vouched that the Chinese merchant had indeed borrowed the silk. According to Tang law, their testimony had the same legal standing as a copy of the contract. Ruling in Rokhshan's favor, the court ordered Merchant Li to pay back 275 bolts of silk, in addition to interest.

We have no way of knowing whether the Chinese partner ever paid the Sogdian back, because here the documents stop. After all, these documents were salvaged from scraps of recycled paper used to make funeral clothing. They may be the most enlightening, yet frustrating, historic documents on earth.

Each of the localities mentioned in this suit, as well as every trading town on the Silk Road and in the interior of China, had its own resident community of Sogdians.<sup>8</sup> What did these Sogdian enclaves offer their residents? Certainly a market where they could do business, inns with familiar food, and a place to worship.

Many Sogdians followed the Iranian religion known as Zoroastrianism, named for the legendary prophet Zoroaster (also spelled Zarathustra). Scholars today prefer the term Mazdeism (derived from the name of the supreme deity, Ahura Mazda) for the later phase of the religion, in which multiple deities coexisted, and reserve the term Zoroastrianism for the religion in its early centuries. Mazdeans performed animal sacrifices at fire temples, because fire was the ultimate source of purity.

The other important Iranian religion, Manicheism, was named for its Iranian prophet Mani (216–74?). Mani taught that everything in the world was the product of a battle between the forces of dark and the forces of light. Although banned in the Iranian heartland, Manicheism was popular among Sogdians resident in China. The number of Sogdian refugees in China steadily increased with each victory of the newly formed Islamic state. In 651 the caliphate's armies conquered the Sasanian Empire, and in 712 they took the Sogdian capital at Samarkand.

These Sogdian exiles contributed money to Manichean monasteries, Nestorian Christian priests, and Buddhist monks, but at death they had to choose among cremation (the Buddhist method of disposing of corpses), exposure (the Mazdean practice), or burial in a tomb (the traditional Chinese solution). If they followed the traditional Mazdean practice, they left the corpse outdoors, where scavenging animals cleaned the bones before they were

placed in a container called an ossuary. Yet many of the Sogdians resident in China opted for a Chinese-style burial. Some of the most exciting archeological finds in China within the last five years have been Chinese-style tombs of Sogdians.<sup>9</sup>

#### A CHINESE MONEYLENDER BURIED AT ASTANA

We know more about a Chinese moneylender named Zuo Chongxi (d. 673) than we do about anyone else buried at Astana. Moneylender Zuo's tomb contained fifteen intact contracts that looked, at the time of excavation, as though they had been deliberately placed there.<sup>10</sup> These contracts record fifteen different transactions: the purchase of a slave girl in 661 and of ninety bundles of hay in 668, five rentals of fields, and eight loans of bolts of silk or silver coins. Dated 665, one contract (cat. no. 49) records the loan of forty-eight silver coins to a military guard named Zhang Haihuan for ten days with no interest. Usually Moneylender Zuo charged interest from the first day of the loan; perhaps in this case the loan was for a joint business venture that both men expected to be completed within ten days.

The contract specifies what the lender could do should Zhang Haihuan not repay him on time: he could confiscate his household goods or his land (the contract specifically mentions his personal share land). The contract names the wife and mother of Zhang Haihuan as guarantors and states that, should Haihuan fail to repay his debt, "Haihuan's mother will repay the debt for her son. Otherwise, she will pay the interest."

Whenever a debt was repaid in full, the lender and the borrower each destroyed their copy of the contract. Since Moneylender Zuo retained his copy, we can conclude that Zhang Haihuan never repaid the loan. Moneylender Zuo's relatives buried this contract in his tomb. Perhaps he hoped to collect on these unpaid debts when he encountered his debtors in the next world—or perhaps he had hoped to sue Zhang Haihuan in the courts of the underworld.

Belief in underworld courts was widespread in premodern China. Many records of visits to the netherworld courts during dreams describe a court system much like that of the real world, with a presiding judge who heard the dispute, weighed testimony from witnesses, considered the evidence, and then issued his decision.<sup>11</sup>

Whatever the reason for their burial, the fifteen contracts in Moneylender Zuo's tomb show that, in the years immediately following the Chinese conquest, the residents of Turfan did not always follow the letter of the law as recorded in *The Tang Code*. Zhang Haihuan used personal share land as security for a private loan, but officially that land belonged to the state and could not be transferred. Moneylender Zuo charged between 10 and 15 percent interest per month, whereas *The Tang Code* limited interest on loans to a maximum of 6 percent each month.<sup>12</sup>

The most interesting departure from *The Tang Code* concerns the definition of household head. Chinese lawmakers envisioned a world in which adult men headed all households. If an adult male could not serve in this position, an elderly relative or a young man might take his place. But the Turfan documents record over and over again the existence of families headed by women.



The documents use a term for these female household heads that appears nowhere in the official histories: "big woman."<sup>13</sup> The contract dated 665 between Moneylender Zuo and Zhang Haihuan designates Haihuan's mother as a "big woman," meaning that her name appeared as the household head on the government household register. Accordingly, she bore responsibility for paying her family's taxes when Zhang Haihuan's job as a military guard took him away from home.

Many women in Turfan were called "big woman." A survey of seventy census documents from the period of Chinese occupation showed that between 16 and 30 percent of all Turfan households were headed by women. Several scholars have argued that households concealed the presence of men and gave the name of a woman as head because women paid lower taxes than men. It is equally likely that women managed these households because their husbands were really away from home, either for military service or on business trips.

## THE END OF CHINESE RULE IN TURFAN

---

Although the Astana documents say little about the end of Chinese rule, the official histories recount how a general of mixed Sogdian and Turkish parentage named An Lushan, or Rokhshan in Sogdian, led a mutiny that began in 755. The Tang dynasty suppressed the rebellion, but at a high price.

Rebellious troops forced the reigning Emperor Xuanzong (r. 712–56) first to strangle his consort, Yang Guifei, because of her rumored involvement with the Sogdian general, and then to abdicate his throne. By 763 the central government had regained direct control of a portion of the empire, but only after hiring Uighur troops as foreign mercenaries.

The Uighurs were one of several Turkic-speaking peoples active in Central Asia in the middle of the eighth century.<sup>14</sup> Having extensive contacts with Sogdian traders, the Uighurs borrowed many Sogdian words and even adopted the Sogdian script to make their first written alphabet. In 762, when the Uighur army occupied the central Chinese city of Luoyang in its campaign to defeat the An Lushan rebels, the Uighur leader encountered Manichean missionaries. They must have impressed him deeply because, in the same year, he designated Manicheism the official religion of his kingdom and recorded his decision in a tri-lingual inscription (in Uighur, Sogdian, and Chinese) on a stone tablet.<sup>15</sup> For the first and only time in world history, Manicheism became the official religion of a state.

The collapse of the Tang dynasty prompted a long period of protracted warfare in Turfan that came to a close only in 803 when the Uighurs defeated their rivals. They then established their capital in Turfan, in the same location as the Tang city, where the ruins of Gaochang can be seen today.<sup>16</sup> The local people of Turfan continued to record their purchases and sales of land, slaves, and animals in contracts, but now they used Uighur, not Chinese, as their written language.<sup>17</sup>

Some of the most intriguing documents from Uighur rule were found by Albert von le Coq, who led four separate German expeditions to Turfan between 1902 and 1914. He and his

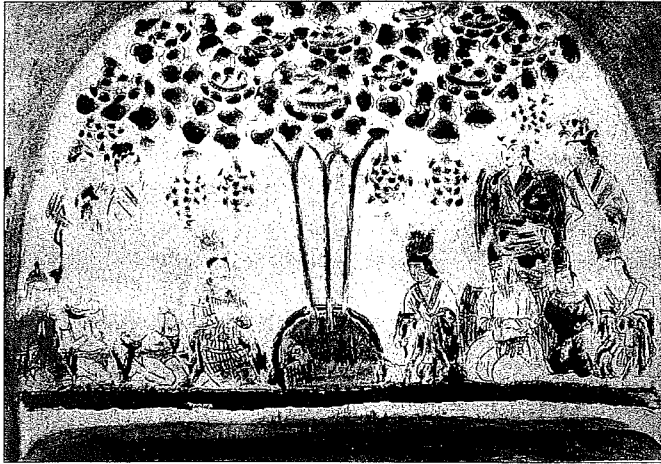


Fig. 3. This painting from cave 38 at Bezeklik (1.5 m. high, 2.4 m. wide) depicts a tree of life with three intertwined trunks. The base of the tree contains Uighur-language prayers giving the name of the donor who requested the protection of guardian deities. The male donor, wearing an unusual bird headdress, kneels at the left of the tree; his wife, with a similar headdress, faces him on the right side. Behind her stand two guardian deities, with three other guardians kneeling in the foreground. Although partially effaced, the figures behind the male donor also include three kneeling and two standing guardian deities. After J. Hackin 1931, pl. 1. Copy made by Alexandre Jacovleff.

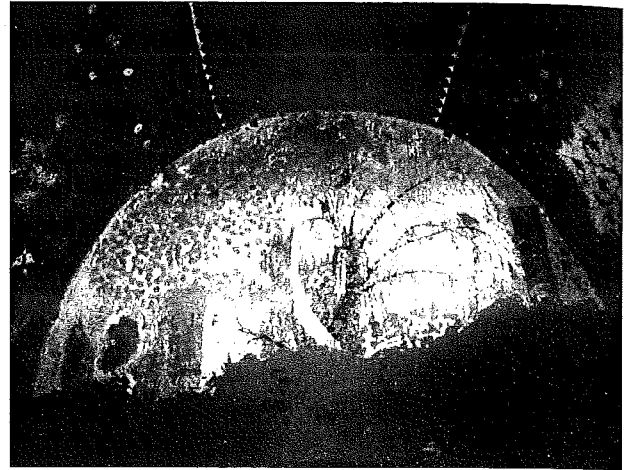


Fig. 4. Painting of intertwined trees of light and dark from Cave No. 4 at Sengim. Photo courtesy of Yamabe Nobuyoshi, The Silk Road Project, Yale University.

colleagues excavated two important Manichean libraries, which produced a wide range of church materials, including hymns in the dead liturgical language of Parthian, spoken in Mani's time, as well as other texts in Uighur. Many of the Manichean hymns celebrate the victory of the forces of light over the forces of darkness:

All beings of Light, the righteous [elect] and the auditors, who have endured much suffering, will rejoice with the Father. . . .For they have fought together with Him, and they have overcome and vanquished that Dark One who had boasted in vain.<sup>18</sup>

Hymns like this have permitted scholars to reconstruct the major tenets of Manicheism, but they provide little detail about the day-to-day workings of the Manichean church. One lengthy document in Uighur, found by the Chinese archeologist Huang Wenbi at Karakhoja, offers a valuable corrective (cat. no. 50). Although incomplete, its 125 lines provide a detailed series of instructions about how a Manichean monastery should be run.<sup>19</sup>

Like all the excavated documents discussed in this essay, it leaves much unsaid. Scholars debate the document's authorship: is it a charter issued by the state? More likely, it was composed by the monastery's own leaders, then ratified by the Uighur authorities, who stamped it in eleven different places with a red seal in Chinese characters. On the basis of the handwriting and use of certain terms, scholars think that the undated charter was drawn up in the ninth century, when the Uighur kings patronized Manicheism.

Scholars have yet to explain why so few Manichean ruins or cave paintings have been found in the one place where Manicheism was the state religion. All observers concur that only one painting from the Bezeklik cave complex is definitely Manichean: it shows a donor couple, beside a tree of life who ask ten guardian deities for their protection.<sup>20</sup> Badly deteriorating today, it is much more visible in a reproduction published in 1931 (fig. 3).

In recent years much energy has been devoted to unearthing evidence of Manicheism at Turfan, but with few results. One of the most intriguing cave paintings, from the site of Sengim (near Bezeklik), shows a white tree intertwined with a black tree (fig. 4). Is a tree of

light struggling with a tree of darkness? If so, then the painting must be Manichean, but opinion remains divided, especially because no known text mentions such a battle.

In 1991 Werner Sunderman offered a compelling explanation for the lack of Manichean art at the site: sometime around the year 1000 the Uighur authorities withdrew their support from the Manichean monasteries and transferred it to the Buddhist monasteries instead.<sup>21</sup> At Bezeklik there are caves with two layers of walls: an earlier, Manichean layer covered by a second, later layer with Buddhist paintings.

In 1283 the Mongols defeated the Uighurs, bringing four centuries of rule in Turfan to a close. The Mongols, and their immediate successors, the Chagatai Khanate, ruled Turfan until 1756, when the Qing dynasty's armies invaded and initiated a second period of Chinese rule. During the Mongols' reign the region's inhabitants converted to Islam, the dominant religion in modern Turfan. The Mongol occupation also marks the end of excavated documents and artifacts from Turfan, because the local archeological authorities have not excavated any sites later than 1283. For the later period historians must depend on more conventional sources, such as chronicles and official documents, to trace the history of Turfan. As a result, we know much about rulers and government institutions but little about the colorful, diverse Silk Road inhabitants who emerge so vividly from the excavated documents of earlier times.

#### NOTES

---

1. I first learned about these documents and many of the other materials from Turfan about Sogdians from Wu Zhen's presentation at The Third Silk Road Conference at Yale University (1998 July 10–12). After the conference ended, Professor Zhang Guangda and I translated Professor Wu's article into English, and Professor Zhang patiently explained many important details to me. Etienne de la Vaissière, who published his doctoral thesis on Sogdian merchants this year (Vaissière 2002), kindly answered many queries.
2. Hansen 1998, 58.
3. Xin Tangshu 1975, 146A: 6,221.
4. Jiu Tangshu 1975, 198: 5,295.
5. Trombert 2000.
6. The most thorough study, Skaff 1998, presents all the information from these documents in a very helpful chart on p. 91.
7. Jiu Tangshu 1975, 221b: 6,243–44. See also Sims-Williams 1996; Pulleyblank 1952.
8. Rong 1999 identifies twenty-eight Chinese cities with Sogdian districts, and Professor Rong is sure to find more as he continues his study.
9. Juliano and Lerner 2001.
10. For more about this tomb, see Hansen 1995a, 33–39; Hansen 1995b.
11. Hansen 1995a, 149–229.
12. Hansen 1995a, 35.
13. Deng 1999. The Chinese term for "big woman" is *danü*.
14. Mackerras 1990.
15. Klimkeit 1982.
16. Hansen 2000, 221–28.
17. Clark 1975.
18. Klimkeit 1993, 40–41.
19. For an English translation, see Klimkeit 1993, 353–56.
20. Moriyasu 1991, 18–27.
21. Sundermann 1991.