

*Coiled dragons and filmy fleeces:  
jade and silk*

SOME SEVEN THOUSAND YEARS before the Silk Roads were first given that name, goods were traded between the oasis towns surrounding the Central Asian deserts and China. One of the earliest materials to have been transported from the Khotan area on the southern Silk Road was jade. Since jade is still transported by road from Khotan to China, it might have been more appropriate to use the term 'Jade Roads' rather than Silk Roads, were it not for the fact that, unlike jade, silk was traded over a far greater distance. It was once thought that all the neolithic jade carved in China came from this area, but other sources have since been discovered around Lake Tai in southeastern China.<sup>1</sup> The jade-carvers of the Xinglongwa and Chahai cultures (in western Xinjiang and southern Inner Mongolia) made ring-shaped pendants and long scoops from greenish jade from Khotan as early as 5000 BC. Jade-carvers of the subsequent Hongshan culture (c.4000–2500 BC) in the same area of northeastern China later described as 'beyond the Great Wall' – a traditional Chinese term for a non-Chinese or outlandish culture – carved hoof-shaped cups of translucent greenish jade, bird ornaments of yellow jade and little coiled dragons which were placed in graves.<sup>2</sup>

One of the most extraordinary aspects of the use of jade at this early period is its extreme toughness and consequent difficulty to work. These early pieces would have been worked with abrasive sands which were mixed into a 'sludge' which was ground into the stone with wooden tools or hemp cords. Holes were drilled by means of a wooden drill and abrasive sand. Polished and finished jade pieces were far more durable than ceramics and have survived for many millennia. These beautiful items were highly prized in early China. The tomb of Fu Hao, a Shang dynasty queen who died in c.1200 BC, contained more than seven hundred jades, some of which were already thousands of years older than she was.

Though jade was prized by many neolithic peoples throughout the world, it did not always retain its pre-eminent position after the arrival of metal-working techniques. In China, however, it remained a highly important material and acquired further significance in its symbolism. Confucius (550–479 BC) is supposed to have seen it as a paradigm of the human virtues that he most admired: 'Anciently superior men



*Coiled dragon from a  
grave at Hongshan,  
c.3000 BC*

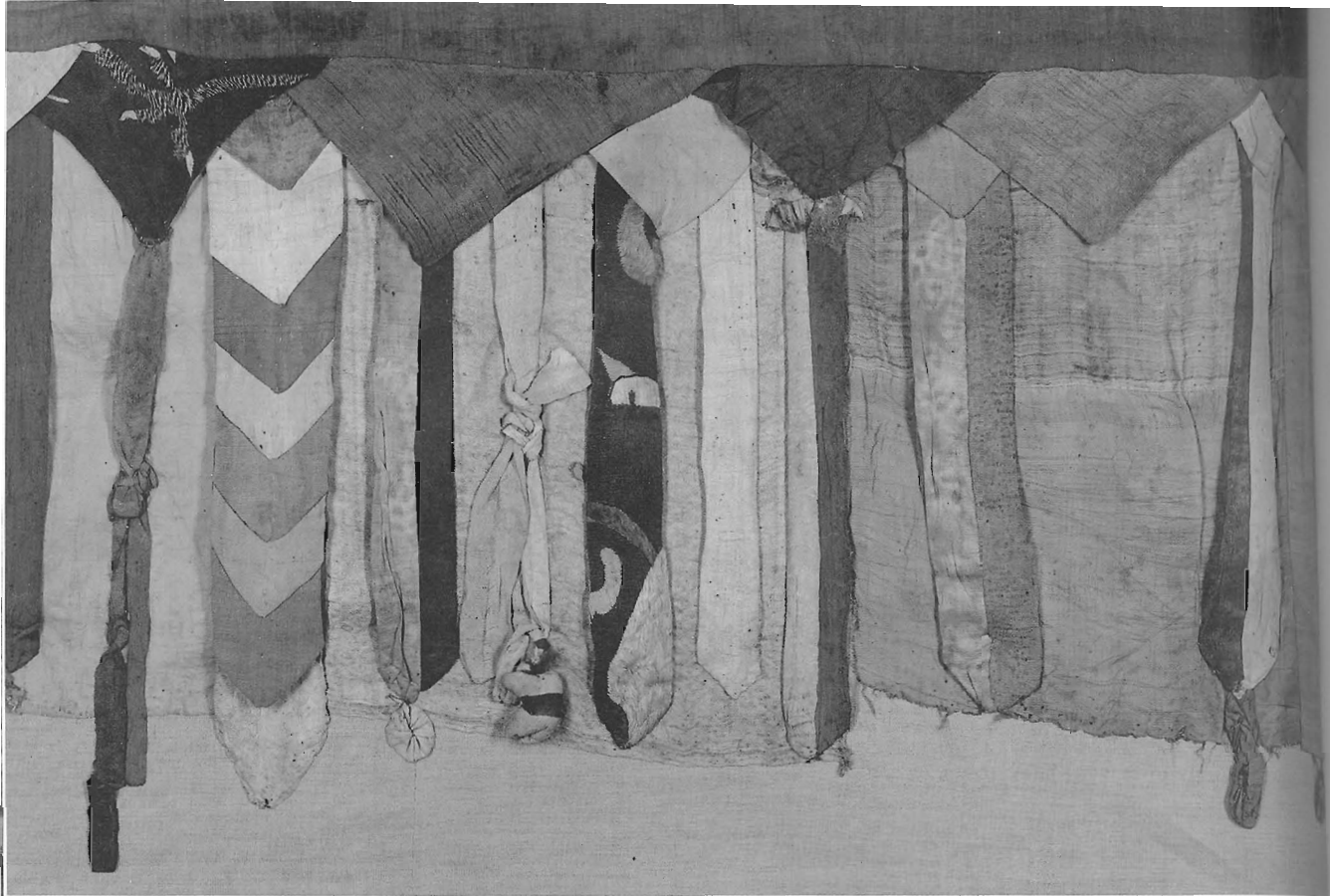
Women diving for jade, from a later Japanese edition of the seventeenth-century Tiangong kaiwu



found the likeness of all excellent qualities in jade. Soft, smooth and glossy, it appeared to them like benevolence; fine, compact and strong, like intelligence; angular, but not sharp and cutting, like righteousness; hanging down (in beads) as if it would fall to the ground, like (the humility of) propriety; when struck, yielding a note, clear and prolonged, yet terminating abruptly, like music; its flaws not concealing its beauty, nor its beauty concealing its flaws, like loyalty; with an internal radiance issuing from it on every side, like good faith; bright as a brilliant rainbow, like heaven; exquisite and mysterious, appearing in the hills and streams, like the earth; standing out conspicuous in the symbols of rank, like virtue; esteemed by all under the sky, like the path of truth and duty.<sup>3</sup>

Such was the demand for jade that it continued (and continues to this day) to be transported from the rivers of Khotan (Hetian) along the southern Silk Road. Its mystery was increased by the belief that it had a special affinity for women, and fanciful seventeenth-century 'geographical' texts include illustrations of women divers who were sent to plunge into the icy melt-waters of the White Jade river and the Black Jade river. Needless to say, raw jade boulders are very heavy, and diving for jade would have been a perverse way of committing suicide.

Thus, the material that gave its name to the great east-west trade route was by no means the only artefact to be carried along it. Silk, however, does have enormous significance in trade between China and the Mediterranean, for it was known in Rome, certainly from the first



*Part of a rare surviving altar valance from Cave 17, Dunhuang, eighth or ninth century. Such valances were very common in Buddhist temples*

century BC, at a time when it could only have been produced in China.

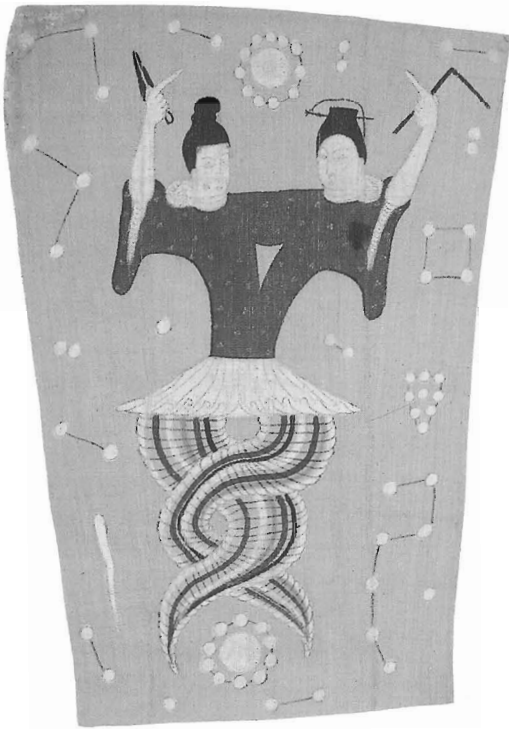
According to Chinese legend, the creation of silk is credited to Xi Ling, the wife of the legendary Yellow Emperor who is supposed to have lived from 2698 to 2598 BC. Though legends usually place inventions back in the dim and distant past, recent archaeological discoveries in China have produced dates anterior to the supposed inventor. Weaving implements and dyed silk gauzes dated to 3600 BC were found in a neolithic site at Hemudu in Zhejiang province, which is still one of the major silk-producing centres in China. More complex woven patterns, including damasks dated to 2700 BC, have been excavated from another Zhejiang site.<sup>4</sup> These finds perhaps help to substantiate the claim made that a silkworm cocoon, found in 1927 at an earlier neolithic site dated to c. 5000–4000 BC, had been artificially cut.

By the Han dynasty (206 BC–AD 220) silk was produced in a variety of weaves and treated in a variety of ways. The tomb of the Marchioness of Dai, who died soon after AD 168 near Changsha, included painted silk hangings, forty-six rolls of silk and silk dresses, skirts, socks, mittens, shoes, a pillow, scent sachets, mirror cases and wrappings (for other grave furnishings). There were plain silk taffetas and gauzes dyed brown, grey, vermilion, dark red, purple, yellow, blue, green and black. There were painted silks and figured silks with woven designs, both self-colour and polychrome.<sup>5</sup>

## Coiled dragons and filmy fleeces

Despite the archaeological record, Xi Ling's contribution to Chinese culture and industry was commemorated in the Hall of Imperial Silkworms and the Altar of Silkworms that used to stand in Beihai park, part of the imperial complex of the Ming and Qing dynasties (AD 1368–1911) at the centre of Peking. Two stone altars were used for the examination of mulberry leaves which were then fed to the imperial silkworms kept in stone houses along the outer walls of the Hall. During the third lunar month, empresses came to make offerings to Xi Ling, the Goddess of Silkworms.

Chinese silk appears to have reached the Mediterranean during the second century BC and it was the first significant commodity to be exported from East to West. The Romans' knowledge of its origin was hazy: the 'Seres' or 'silk people' was a term applied, not specifically to the Chinese, but generally to inhabitants of remote East Asia. It is probable that silk in Rome was transported across the Silk Roads, probably in several stages, but some also arrived by sea. In the *Periplus Maris Erythraei* of c. AD 50, one of the descriptive itineraries ('voyages around', usually following a sea coast, listing places, products and local perils) which informed much early geography, there is a description of silk, in the form of floss, cloth and yarn, being imported through India to Egypt.<sup>6</sup> Strabo's *Geography* (first century BC) also describes silk as originating in India.<sup>7</sup> Despite the fact that there were



Silk gods Fuxi and Nüwa entwined.  
Right, silk-weaving, from a Ming vase





*Scantily clad in silk, a Roman girl dances before a musician, from a mosaic of circus scenes, second or third century AD*

wild silkmoths (a different species from China's domesticated *Bombyx mori*) in the Aegean, Mediterranean writers were very vague about the origin of silk. 'What filmy fleeces from leaves the Serians cull?'<sup>8</sup> Virgil's description of a silk harvest in the first century BC, with the threads being combed from leaves, reflected a widely held view which persisted for centuries. Strabo, as well as saying it grew in India, described silk as 'dried out of certain barks'.<sup>9</sup>

In both Greece and Rome, some writers associated silk with hedonism or, worse, decadence. Seneca the Elder was appalled by the transparency of fine silk: 'Wretched flocks of maids labour so that the adulteress may be visible through her thin dress, so that her husband has no more acquaintance than any outsider or foreigner with his wife's body.'<sup>10</sup> He exhorted women to greater modesty and warned of the inevitable consequences of going out 'naked hardly less obviously than if you had taken off your clothes'.<sup>11</sup> Despite the strictures of such critics and occasional attempts to curb its consumption for economic reasons, silk remained popular in Rome and the prices of silk garments and raw silk were listed in the Edict of Diocletian (AD 301), an attempt to curb inflation and fix maximum prices.<sup>12</sup>

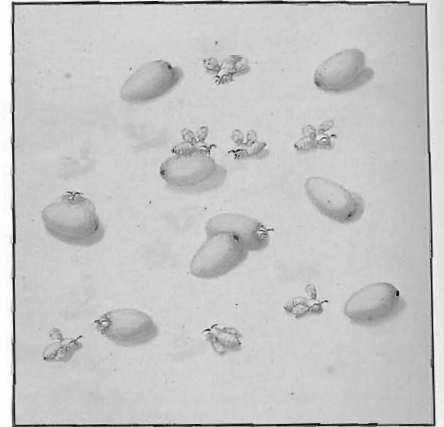
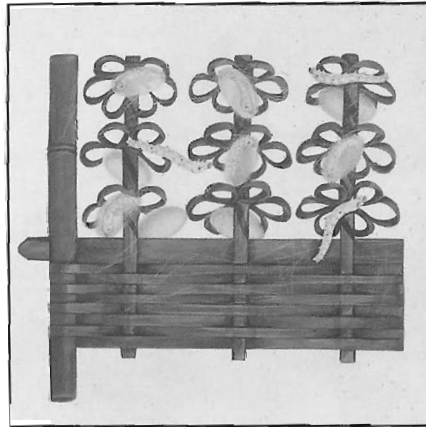
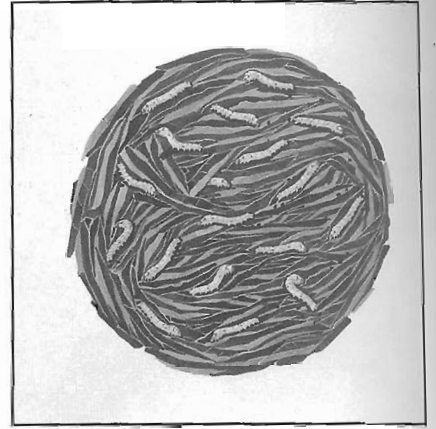
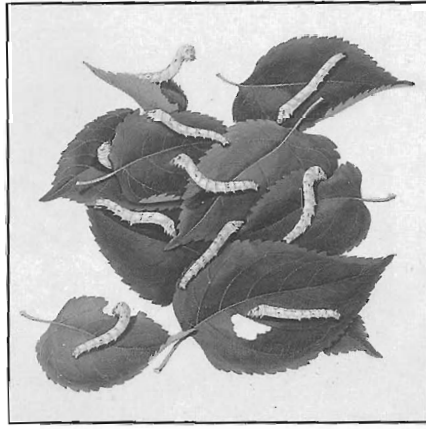
Chinese silk is the thread produced by unravelling and joining the strands of cocoons made by the caterpillars of the moth *Bombyx mori*. The caterpillars feed on mulberry leaves for about five weeks (it takes about two hundredweight of leaves to produce a pound of silk) and grow from 1 mm to 70 or 80 mm before spinning their cocoons. The material for the cocoons is produced in two glands that run along the caterpillar's body and it consists of a protein substance called fibroin (which forms the fibre) and a gummy mixture called sericin or 'silk gum'. The caterpillar extrudes a little of the silk solution from a pair of holes on the top of its head, fixes it to a support and then draws its head back to stretch the fibroin out. Moving its head from side to side, the caterpillar lays its double filament in a figure-of-eight pattern,



forming a cocoon around itself as the sericin hardens. Left to itself, the caterpillar would turn into a chrysalis inside its nut-shaped cocoon and, after a week or so, a fat, hairy moth. The moth's exit from the cocoon would break the filaments so that they could not be reeled into a silk thread; thus the majority of the chrysalises are stifled by hot air or steam. Their cocoons are then placed in hot water which softens the sericin, making it possible to find the end of the filament and reel it. Five to seven filaments are reeled together to form a fine thread which can be woven into cloth.<sup>13</sup>

Though silk was produced in many parts of China, from Sichuan province in the southwest to Shandong (Shantung) province in the northeast, the Yangtze delta area was one of the most important. The combination of mulberry and silkworm production has affected both the economy and the landscape of the Yangtze delta area. Known traditionally as the land of fish and rice, it was criss-crossed by narrow waterways whose banks were often lined with stunted mulberry bushes. Though the wild mulberry grows to a height of fifty or sixty feet, the cultivated bushes are so constantly cut that they acquire the appearance of knobby grapevines. Silkworms were reared on large flat basket-work trays within the whitewashed farm-houses of the

*A painted silk robe  
from the tomb of the  
Marchioness of Dai,  
Changsha c. AD 168*



*Worms making silk.  
From a series of Chi-  
nese export paintings,  
nineteenth century*

area. There were ten rules laid down for their care: 'The eggs when on paper must be kept cool; after having been hatched they require to be kept warm; during their period of moulting they must be kept hungry; in the intervals between their sleeps they must be well supplied with food; they should not be placed too close together nor too far apart; during their sleeps they should be kept dark and warm; after they have cast their skins, cool and allowed plenty of light; for a little time after moulting they should be sparsely fed and when they are full grown ought never to be without food; their eggs should be laid close together, but not heaped upon each other. Wet, withered or dusty leaves are not to be given to them.' There were further recommendations: 'The greatest care is taken to keep the silkworms from noise, which they dislike; so far indeed do the silkworm carers take their precautions that they become superstitious, the silkworms at certain places being informed by their keepers of the arrival of travellers, and if this is omitted, any luckless wight, chancing on a village unannounced, will receive but scant courtesy, and be driven away with curses, if nothing worse.'<sup>14</sup>

### *Coiled dragons and filmy fleeces*

Many children in China kept silkworms as pets. Chiang Yee, who lived in the Yangtze town of Jiujiang as a small boy in the early twentieth century, described his favourite hobby in considerable detail. 'Like other members of my family, particularly girls, I fed silkworms as a hobby . . . we never had more than a few hundred silkworms altogether, and I rarely tended more than ten or a dozen . . . One of my aunts, who lived in the country, kept a large number of silkworms, but we in the city learnt how to feed them only because Grandmother considered it good for us to understand country ways. From looking after silkworms we should acquire, it was felt, skilful hands and careful minds for dealing with bigger things.' In keeping with the tradition that silk was women's work, Chiang Yee's sisters were given more encouragement: 'We were . . . under no obligation to feed silkworms; girls were encouraged to do so more than boys, and some of my boy cousins, being uninterested, did not do it at all. Personally I found the job of tending them a nice quiet occupation.

'The task of keeping new-laid silkworm eggs from one year to the next was extremely difficult. At rearing time – about the middle of spring – my aunt used to bring eggs to us from the country. I always asked for just a few more than ten, lest some should fail to hatch out. She told us to watch for the new buds on the mulberry tree in our garden and then to place the eggs in a rather warm place. We did not have fires in our house after the Lantern Festival [fifteen days after the Chinese New Year] so I used to put my eggs under the mattress of my bed. At first the eggs were yellowish in colour, but after a few days they turned blackish-blue. I looked at mine every day. Soon creatures that looked like small black ants began to hatch out. I put these into a wooden box with some chaff on the top. Then I cut the new mulberry-leaf buds and put them in the box. Presently the ant-like silkworms climbed up the leaves and ate them. The chaff could then be cleared away. These young leaves only served as food for a few meals and had to be specially prepared. We dried them in the air for a few days in order to reduce the moisture they contained because too much water could easily make the silkworms develop disease. As the bodies of my ant-like silkworms grew, they turned greyish-white in colour and lost their ant-like appearance.

'At first our one small mulberry tree provided enough leaves, but as the silkworms grew, the supply became insufficient and some boy-cousins had to go out in search for more. Mulberry leaves could be bought, too, from farmers. We often heard stories of the mulberry-leaf pickers in Jiangsu and Zhejiang provinces, where silkworms were cultivated systematically and whole fields of mulberry trees had to be grown. The pickers went out to gather the leaves in groups, women and men, girls and boys, singing folk-songs. Romantic stories were





*Sorting silk cocoons in a factory at Khotan. The fibres are loosened for removal from the inner shell of the cocoons by soaking them in boiling water. Below, the new silk sorted into two-kilo skeins*

woven about them. Some of my cousins had not the patience to do the feeding work, but they were ready to go out searching for mulberry leaves. Not that they were concerned in those days, I think, with romance.

‘At seven days old the silkworms were two-thirds of an inch long and gradually turning a brownish colour; the heads waved to and fro. After that they began to eat less and less and at last refused to eat at all. The head-waving also gradually declined to immobility. This was their period of sleep during which they changed their skins. The new skin grew beneath the old one. Then a reddish spot appeared near the head and the old skin broke at this point and the silkworms gradually emerged in new skins. After a couple of hours they began to eat fresh food again, much more of it than before. This, of course, resulted in rapid growth. They generally underwent four such periods of sleep



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and changes of skin, each taking two or three days. Unfortunately not all the silkworms went to sleep at the same time, and this was a serious problem for those who fed them on a large scale. It did not worry me much. I kept a pair of new bamboo chopsticks with which I lifted out the sleeping silkworms and placed them in a bamboo sieve. All this time, the silkworms had to be kept in a warm room, free from draughts as well as flies. On waking from the last period of sleep they developed much larger appetites and ate considerable quantities of leaves. This generally placed us in a difficulty, the mulberry trees being by that time nearly denuded of leaves. We managed somehow.' Chiang Yee did not rear his silkworms in order to produce proper thread and unprofessionally saved the moths from being boiled alive. 'Eight or nine days after the last period of sleep, when the silkworms were as long as three inches, their bodies became transparent. They stopped eating and were ready to spin silk. I used to put a piece of paper on top of a small bowl and place one or two silkworms on that. They would crawl around paying out their silk until the paper was covered. If two could not manage to cover the paper, I added another. By the time they had finished, their bodies had changed from being long thin things to barrel-shaped objects with a point at each end. They remained like that for some days, then their eyes came out, they grew wings, and I put them out on the trees . . .

'I was always amazed at how beautifully the silk was woven, as though with a mechanical instrument. Some silks were pure white and some golden yellow. My sister used her small pieces to make powder puffs. She embroidered ordinary silk very well to make the outside of the puff and used this raw silk for the fluffy surface with which the powder was applied. Unlike me, she also made large pieces of silk, keeping hundreds of silkworms for the purpose. When the insects were ready to spin she would cover the surface of a table with large sheets of paper and let any number of silkworms spin on that until they had made her a sheet of silk large enough to use for wrapping up her embroidery silks. Coloured unwoven silks were very sticky and clung to the fingers, so it was necessary to use some smooth material to keep them in.

'These were the results of our careful labour. My sister and girl-cousins used to compete against each other to see who could produce the best piece of silk. My aunt judged the pieces when she visited us. I am sorry to say that among the members of my family belonging to the generation after mine, most have not even had a chance to see what a silkworm looks like!'<sup>15</sup>



# The Silk Road

TWO THOUSAND YEARS  
IN THE HEART OF ASIA

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