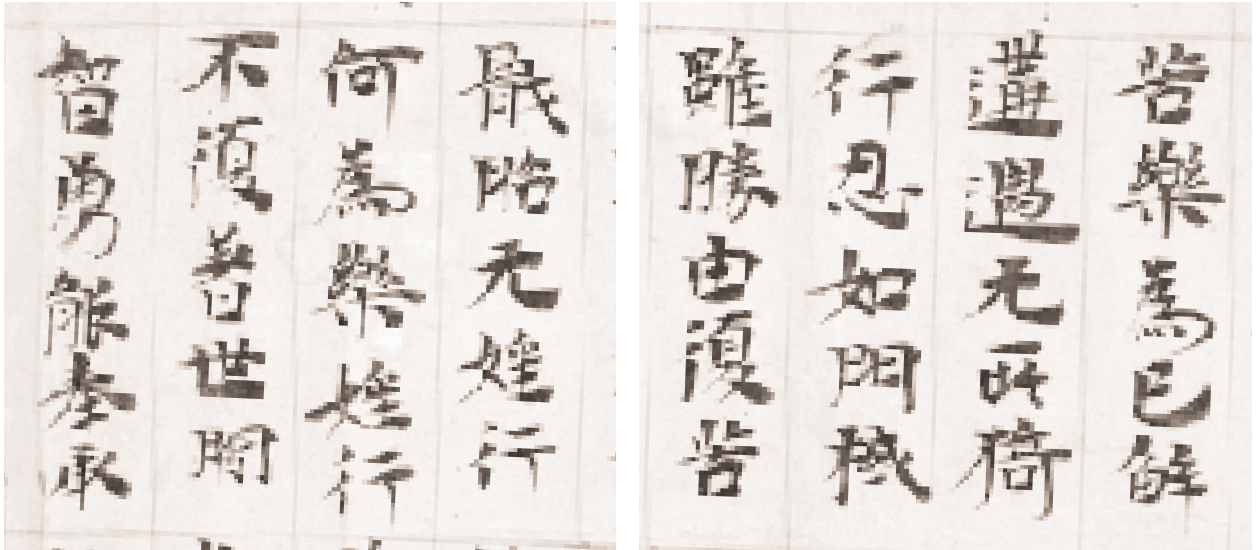


5 Travel of Ideas and Techniques



Good ideas travel easily and far along trade routes, and the Silk Road was no exception to that rule. A famous example of a Chinese invention that helped to transform the world is paper. Paper was invented during the Han dynasty, probably just at the time the Silk Road trade was beginning to flourish. (Many accounts ascribe the invention of paper to a Latter Han official at the beginning of the 2nd century CE, but actual paper at least two centuries older than that has been archaeologically excavated from Han tombs.) Far superior to the narrow wooden strips or hard-to-handle rolls of silk that the Chinese had previously used for writing, paper soon became the writing material of choice throughout China and East Asia. It was found also in the Buddhist temples of China's northwest, but seemed not to make inroads beyond that for a long time, perhaps in part because the Chinese tried to protect the secret of its manufacture, and perhaps in part also because other writing materials, such as parchment and papyrus, were well established in the west.

But under the Mongols in the thirteenth and fourteenth centuries, a group of Chinese workmen set up a papermaking establishment in Samarkand. Their product quickly spread by trade and imitation, and paper soon supplanted other writing materials in most of western Eurasia.

Section of Faju Jing
(Dhammapada Sutra)
Before 368 CE. Discovered in
1900 at Dunhuang, Cave 17,
Gansu. Height: 24.9 cm;
length: 135 cm. Handscroll,
ink on paper. Gansu Provincial
Museum, Lanzhou.

In China, the invention of paper stimulated the invention of printing, sometime during the 6th century CE—a development energetically supported by Buddhism, according to which the duplication of sacred texts was an act of religious merit. The re-invention of printing in Europe centuries later did not employ East Asian-style printing technology, but it may have been stimulated by accounts of Chinese printing that could have circulated in the Middle East.

Another invention that spread entirely across Eurasia was the *noria*, or irrigation waterwheel. This simple, ingenious device, invented in Roman Syria, consists of a vertical waterwheel to the rim of which are attached a series of pots or tubes. As the current of a river rotates the wheel, the pots fill with water at the bottom of the cycle and empty into a chute at the top; a large *noria* can lift water as much as forty feet with no input of human or animal energy. This inspired invention was obviously a good idea, and rapidly spread along the Silk Road and its tributaries. There is a famous example in Toledo, Spain, others along the upper reaches of the Yellow River in China, and many more in between.

Foodstuffs also count in this category of the travel of ideas and techniques. Apples spread, in prehistoric times via the steppe belt, in both directions from the region of modern-day Kazakhstan; oranges went (via the maritime route) from China to the Mediterranean world; grapes went from the western reaches of the Silk Road to China.

These examples and dozens more that could be mentioned make the point clear: ideas, inventions, devices and techniques spread readily and far along the Silk Road, and the traffic was very much a two way, or perhaps one should say a multi-way, street. In the process the Silk Road enriched not just the merchants who carried and exchanged goods, but the people of countries and cultures all across Eurasia.

It is perhaps worth noting, however, that long-distance trade can have unexpectedly bad side effects as well as direct beneficial effects. For example, the Black Death plague that devastated Europe in the 14th century is believed to have come via the Silk Road from Central Asia, where plague is endemic among local rodents. One theory holds that a load of marmot pelts (destined to be used on fur-trimmed garments), contaminated with plague-bearing flea eggs, was brought from somewhere in Central Asia to a Middle Eastern port. There the eggs hatched into fleas that infested some local rats; some of the rats eventually went on shipboard and were carried to port cities in Italy. There the plague spread, via fleas, to other rats, and then to people; and a disaster was in the making.✿