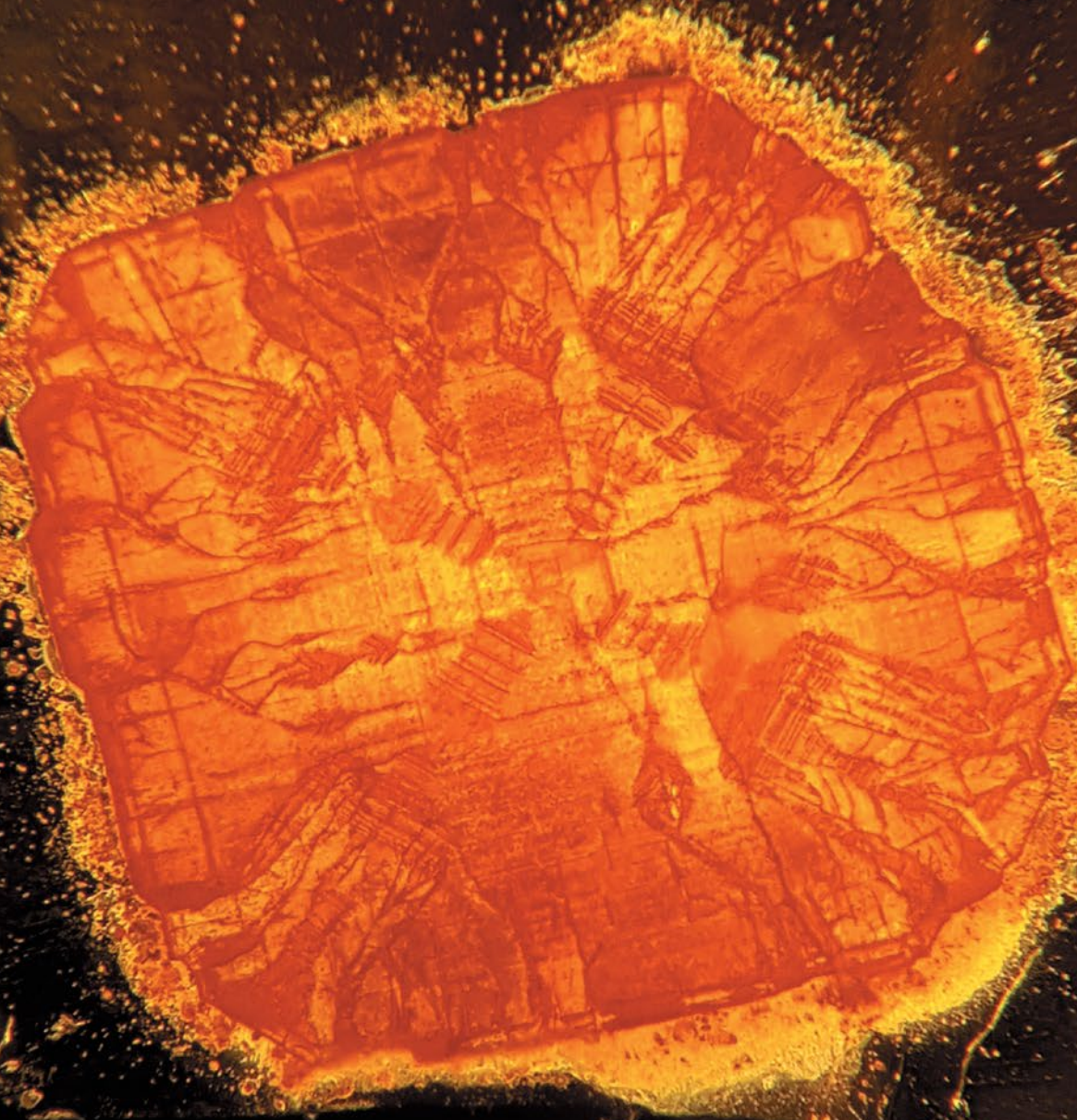


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GEMS OF THE
URAL MOUNTAINS

TRAVERSING THE
SILK ROUTES

DIAMOND SECURITY
WITH OPSYDIA

BACK IN TIME WITH
REFRACTOMETERS



Gem-A
THE GEMMOLOGICAL ASSOCIATION
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PRECIOUS GEMS OF THE SILK ROUTES

Inspired by her 20-year career in the gemstone and jewellery industries, Sandrine Martin GG explores the historic 'Silk Road' and considers its place in the fascinating timeline of gemstone trading between East and West.

Linking the east of China in X'ian to the West, the 'Silk Road' as we know it today came into existence during the Han dynasty when Emperor Wu (reign 140-87 BC), hoping to establish an alliance with the Yuezhi people living in the Ferghana region (today Uzbekistan) against their common enemy to the north, the nomadic tribes of the Xiongnu based in modern day Mongolia, sent his imperial envoy Zhang Qian to Central Asia in 139 BC. The famous explorer and diplomat's accounts (circa 112 BC) are the first written testimony available.

Coined in 1877 by German geographer Baron Ferdinand von Richthofen, the term 'Silk Road' is very recent. While we can distinguish three main roads, two overland and one sea route, the 'Silk Road' is in fact composed of a myriad of hazardous trails linking China, as well as Japan and Korea, to India, Parthia and Rome. 'Silk Routes' therefore appears to be more relevant (1).

This article focuses on the most glorious era of the Silk Routes (approx. 200 BC to 1000 AD) (2). Such splendour could emerge thanks to the well-established and powerful Empires of the time; in the East, China during the Han and Tang dynasties and its neighbours the Kushan and later the Gupta Empire. Further west; the Roman world, followed by the Byzantine Empire. While a large amount of precious gems, including agate, Baltic amber, diamond, emerald,

garnet, ivory and turquoise were traded, seven have been selected for their significant economic, cultural and artistic impact: lapis lazuli, jade, coral, pearl, sapphire, ruby and spinel.

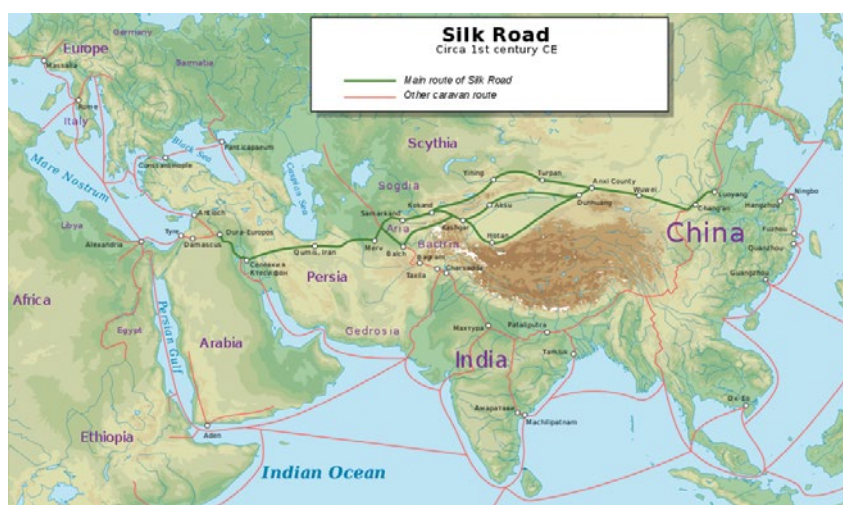
LAPIS LAZULI

One of the earliest known traded gems, the 'sappir spotted with gold' was apparently traded from the mines of Badakhshan (modern Afghanistan) as early as the second half of the 4th millennium BC. Nestled in the centre of the Hindu-Kush Mountains, the mines of Sar-E-Sang are one of the oldest sources of lapis and have historically delivered the finest quality of this starry gem.

The earliest known use of lapis lazuli is in the form of

3: Naquada I, Egyptian female figure circa 3700 BC, bone with lapis lazuli inlay (British Museum). Credit: Jon Bodsworth, Wikimedia Creative Commons.

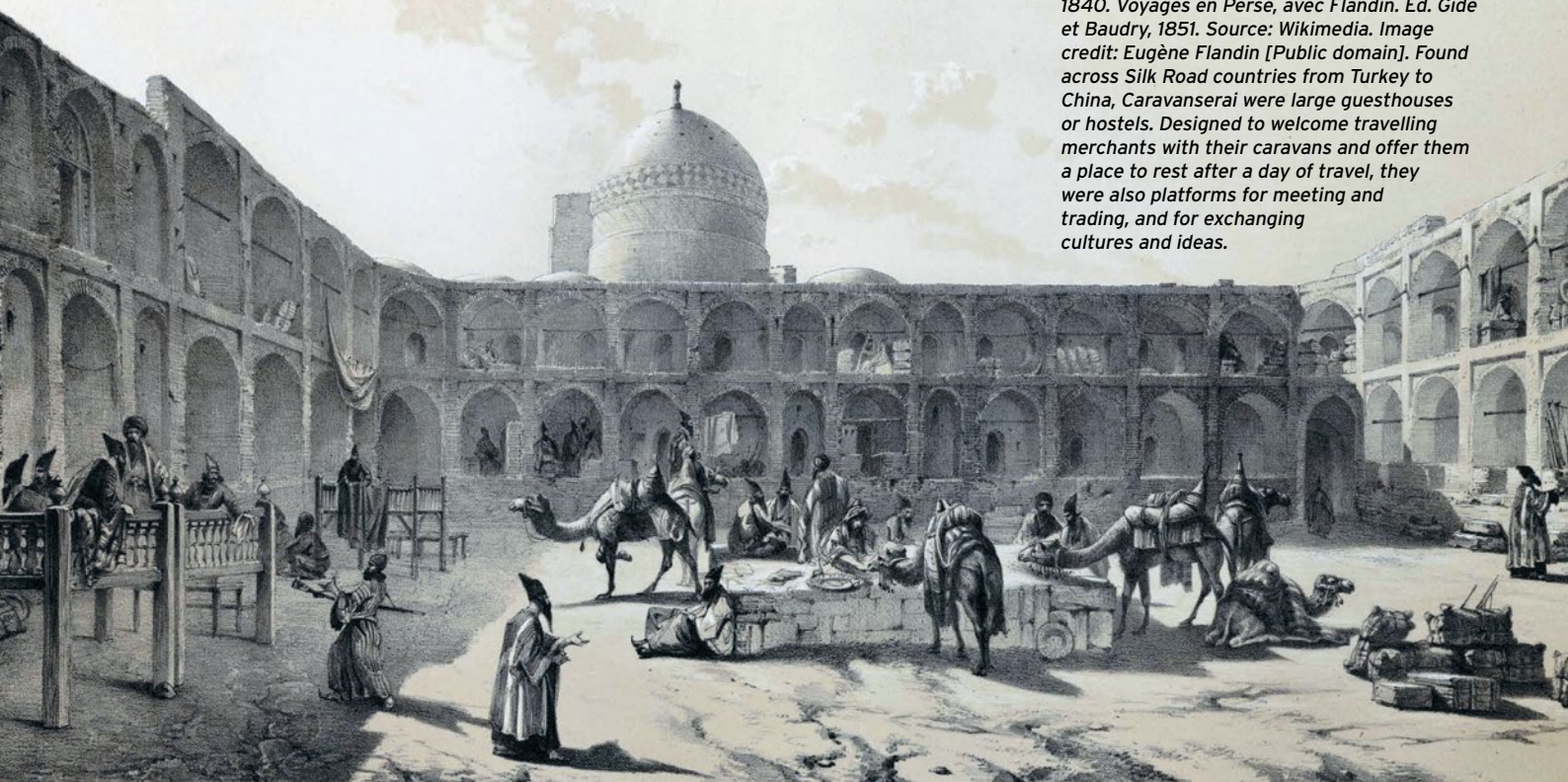
beads, found at Neolithic burials in Mehrgarh (7000-3200 BC) in the west of Indus Valley, Pakistan. Praised by ancient civilizations for its intense color, the use of lapis as a gem and as an object of ritual is supremely



1: A map of the main Silk Routes and other, additional routes taken by traders. Image Creative Commons-Wikimedia.org (Kaidor [CC BY-SA 4.0 creativecommons.org/licenses/by-sa/4.0]).



4: Golden funeral mask of King Tutankhamun. Egypt Archive Cairo Museum. Credit: Jon Bodsworth, Wikimedia Creative Commons.



2: Caravanserai. Lithographie Eugène Flandin, 1840. *Voyages en Perse, avec Flandin*. Ed. Gide et Baudry, 1851. Source: Wikimedia. Image credit: Eugène Flandin [Public domain]. Found across Silk Road countries from Turkey to China, Caravanserais were large guesthouses or hostels. Designed to welcome travelling merchants with their caravans and offer them a place to rest after a day of travel, they were also platforms for meeting and trading, and for exchanging cultures and ideas.

unveiled by the treasures of the royal Sumerian tombs of Ur (2500 BC), within which were discovered statuettes, beads and delicate bowls, all made of lapis. Other civilizations as well, such as the Hebrews, the Babylonians, the Akadians and the Assyrians favored the azure gem for ornamentation in their jewellery and seals.

Embraced by the Ancient Egyptians as an ornament and amulet, lapis was associated with the wisdom of the 'all-seeing' Eye of Horus and was prized for its eye-opening qualities (3 & 4). It was ground and used as an eye wash, while Egyptian ladies used its vibrant-hue powder as an eyeshadow.

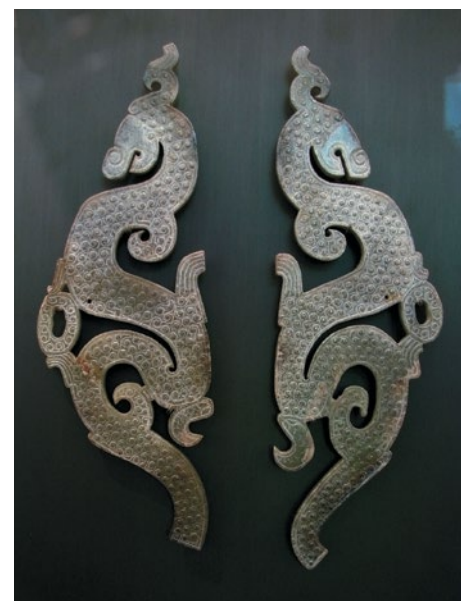
Introduced in Europe under the name *ultramarinus* – 'beyond the sea' – as early as the 5th century, the use of ground lapis as a pigment developed throughout the centuries. As exemplified by the 6th-century Sogdian and Buddhist frescoes, and the Byzantine churches of the 10th century, the ultramarine pigment was favoured by artists in their works (Colomban, 2005). Often reserved for religious images, lapis remained the most precious blue pigment throughout the Middle Ages and into the Renaissance, until the discovery of an artificial ultramarine substitute in 1826.

JADE

For millennia, Chinese culture has attributed jade with divine and imperial characteristics. A symbol of purity and moral integrity, prized for its durability and magical qualities, jade has seduced scholars and artists, and has for centuries been associated with the Son of Heaven (the sacred imperial title of the Chinese emperor). Jade was carved as early as the Neolithic period when it was used for sacrifice and ritual objects. The starting point of the three main Silk Roads – within the modern region of Xinjiang – was perhaps the main source of jade. Under the mid-Shang (ca. 1600-1050 BC) and the Zhou (ca. 1046-256 BC) dynasties, jade was uncovered in the rivers of Khotan (an ancient Iranian Saka Buddhist kingdom) and Yarkand (5). For thousands of years, the acknowledged source of nephrite for both Chinese and western Asian societies was Khotan (Keene, 2004).

The expansion of the Greek Empire was a major step in the history of the Silk Road. The conquest of India by Alexander the Great in 327-326 BC, followed by the establishment of the Indo-Greek rulers of Bactria in the Punjab and adjacent territories in 180 BC, left a deep imprint in the Indian territory.

Hence, a considerable volume of trade between India and the West came into existence. During the first century BC, the Greeks established in India imported silk and other articles from China, including jade, as demonstrated by jade objects dated from the Greek period excavated from the ancient Indian site of Taxila (Marshall, 1951). →



5: Jade Huang pendants. Han dynasty 2nd century BC. Musée Guimet Paris [Public domain]. Credit: Vassil, Wikimedia Creative Commons.



6: *Madonna and Child with Angels*, Giovanni dal Ponte, Florence, 1410s, tempera and gold leaf on panel – Blanton Museum of Art – Austin, Texas. Credit: Daderot, Wikimedia Creative Commons [Public domain]. Note the coral necklace on the baby Jesus' neck.

CORAL

Harvested from the coasts of Italy for centuries, the precious *Corallium Rubrum* (precious coral or red coral) has been an important Mediterranean resource since antiquity. At the turn of the Common Era (AD), the most significant of the overseas trade for the Roman Empire was with south India and the *Periplus of the Erythraean Sea* (an ancient manuscript that lists ports and coastal landmarks as a form of naval log) makes references of Greco-Roman merchants selling in Barbaricum (modern Karachi) "figured linens, topaz, coral, (...)."

Pliny the Elder observed that the red gem was highly treasured in India, just as pearls were in Rome, and that the great demand for Mediterranean coral, especially among Indians, had made its uses in its region of origin quite rare. Aside from jewellery use, the affection for coral also came from its spiritual associations. According to Vedic astrology (Hindu astrology), coral symbolises life and blood force, and is ruled by the planet Mars. The Mediterranean gem is also one of the seven treasures in Buddhism.

Precious coral travelled as far east as Japan: it is said that the crown worn at the consecration of the Great Buddha of Todaiji Temple by Emperor Shomu and Empress Komyo in 756 AD, was inlaid with 10 hanging beads of red coral from the Mediterranean Sea.

PEARLS

Moving in opposite directions, coral and pearls played a leading role in the 'Indo-Sino-Mediterranean' trade of the time. "It is the Indian Ocean that principally sends them to us. The most productive of pearls is the island of Taprobane (...) But those which are most highly valued are found in the vicinity of Arabia, in the Persian Gulf", reports Pliny the Elder. Celebrated in the Greco-Roman world since classical time, 'margarites', the first specific word for pearl, was introduced by Theophrastus (ca. 372 – ca. 287 BC), successor to Aristotle in the Peripatetic school of philosophy in Ancient Greece. In Ancient Rome, 'unio' was a more common name as Pliny the Elder explained that each pearl was unique. Valued for their singularity and for their brilliance, owning a pearl was a great luxury amongst the Roman elite (7 & 8).

The balance of the trade between Rome and India was very much in favour of India, to such a degree that Roman conservatives would deplore the insatiable appetite of Roman society for oriental



7: *'The catching of pearls'*. Bern Physiologus, 9th century, diving for natural pearls. Source: Wikimedia Creative Commons.

luxuries, including pearls, being (according to them) destructive of civic values and depleting the wealth of the Empire.

Equally rewarding for India was the mercantile activity with China. The Celestial Empire has a long history of using the 'Queen of Gems'. During the Han dynasty, the Chinese region of Jiaozhi (modern Liangguang and northern Vietnam) acted as a crucial link in the maritime trading system with the Western world.

8: *Pair of gold earrings with pearls and sapphires*. Byzantine, 6th-7th century. Image courtesy of Metropolitan Museum of Art, New York.



Ancient Chinese texts provide a glimpse of the wealth traded in Jiaozhi, including pearls. The Han Wei Congshu reads that during the Han, men of the Annamese coast rode elephants into the sea to find and bring back the treasures from the deep, in particular the beautiful pearls (Schafer, 1985).

SAPPHIRES

One of the oldest sources of gemstones, Sri Lanka was most probably the original source for sapphires and rubies. According to ancient Indian works on gemmology, gems are classified as Maharatna 'precious' and Uparatna 'semi-precious' stones. Diamond, pearl, ruby, emerald and sapphire are identified as 'precious'. The Chitrastotra (ca. 5th AD), the Indian text that discusses 'The Art of Painting', says: "A king should be drawn just as a god. The handsome looking King (...) wears a tiara of floral motif from which hang string of pearls and sapphire."



9: *An intaglio of a Ptolemaic dynasty princess wearing a diadem*. Ceylon sapphire, 2nd century BC. Cabinet des Médailles, Paris. Credit: Marie-Lan Nguyen, Wikimedia Commons.



10: Map of Ceylon (Taprobane) Alain Mallet, 1686. Credit: Geographicus Rare Antique Maps (geographicus.com/mm5/cartographers/mallet.txt) [Public domain].

At the beginning of the Common Era, sapphire was, with natural pearl, one of the most important items exported from Sri Lanka to the Western world (9). During the reign of Emperor Claudius (41 to 54 AD), Pliny wrote about ambassadors visiting Taprobane (the Ancient Greek name for Sri Lanka), mentioning its quantity and variety of precious stones (10). The wealth of Sri Lanka was equally praised by the Chinese and Yi Jin, the 7th century Buddhist monk and traveller, named it 'Baozhu', literally 'Jewel Isle' (Kakakuso, 1896).

RUBIES

The belief in India that offerings to the gods will bring prosperity and happiness is revealed in many ancient and modern Hindu writings. The Hâiti Smriti reads: "Coral in worship will subdue all the three worlds. He who worships Krishna with rubies will be reborn as a powerful emperor, if with a small ruby, he will be born a king. (...)" (Kunz, 1971). Called ratnaraj in Sanskrit, rubies were considered a symbol of permanent, eternal fire. References to fire were also commonplace in Greco-Roman times.

For the period of our interest (approx. 200 BC to 1,000 AD), available literature mostly connects rubies with Ceylon (Sri Lanka). In his sixth-century

'Christian Topography', Cosmas Indicopleustes, the Byzantine merchant, traveller and later monk, who made several voyages to India and Ceylon writes: "In this island they have many temples, and on one, (...) there is a ruby as large as a great pine-cone, fiery red, and when seen flashing from a distance, especially if the sun's rays are playing round it, a matchless sight." He continues: "The island being, as it is, in a central position, is much frequented by ships from all parts of India and from Persia and Ethiopia, and it likewise sends out many of its own."

Unearthed in October 1970 at Hejiacun village in the southern suburbs of Xi'an (where the Xinghua Workshop of the ancient capital Chang'an — meaning 'Perpetual Place' had been located during the Tang dynasty) during the Tang Dynasty had been located) the Hejiacun hoard attests to the use of rubies and sapphires in China during the Tang. Over 220 silver and gold objects, silver ingots, drinking vessels and belts made from glass, rock crystal and jade, as well as rubies, sapphires and amber were discovered.

SPINELS

Afghanistan is not only the land of the precious lapis lazuli, it is also home to the mythical red spinels of Kuh-i-Lal. Located in a remote valley in Tajikistan, it is said that the traditional historic source of spinels was discovered in the 7th century, after an earthquake had unearthed some of the precious red stones. Named 'balas rubies', it took centuries for the Afghan jewel to unveil its true identity, and it was not until 1783 that spinel was identified as a different mineral to the red corundum.

Meanwhile, the red to pinkish red gem was coveted by the rulers of ancient Timur and later by the Mughal emperors (11). Throughout history, exceptional spinels from Kuh-i-Lal have adorned kings and emperors, such as the Timur Ruby, an exceptional spinel of over 350 carats that was in the possession of the Mughal Emperor Jahangir and is now in the private collection of HM Queen Elizabeth II, and the legendary Black Prince's Ruby (about 177 carats), which is set in the front of the Imperial State Crown, part of the Crown Jewels of the United Kingdom.



11: Imperial Mughal spinel necklace, displaying 11 polished spinels. Three of the gems are engraved: two with the name of Emperor Jahangir, one with the three names of Emperor Jahangir, Emperor Shah Jahan and Emperor Alamgir, also known as Aurangzeb. Photo credit © Denis Hayoun, Art Photo Diode SA. Image courtesy of Christie's.

CONCLUSION

With its caravans transporting mysterious treasures from China across the Eurasian steppe to Arabia and the Western world, the 'Silk Routes' continue to spark the imaginations of many. For centuries, the dynamic of these legendary routes not only facilitated the transmission of migrants and merchandise, it also expanded cultures, ideas, religions, technologies and arts, allowing them to spread and interconnect, thus shaping civilizations in Europe, Arabia, Persia, India, and China. Precious gems have played a significant role in this diffusion: as we have seen, the vibrant trade of gems did not only move and inspire merchants, but also skilled workers, artisans and artists (12). ■

An unabridged version of this article and a full list of references, are available upon request.



12: Inspiring artists across the globe. Consider Johannes Vermeer's masterpiece: Girl with a Pearl Earring. Credit: Mauritshuis Museum, Wikimedia Public Domain.