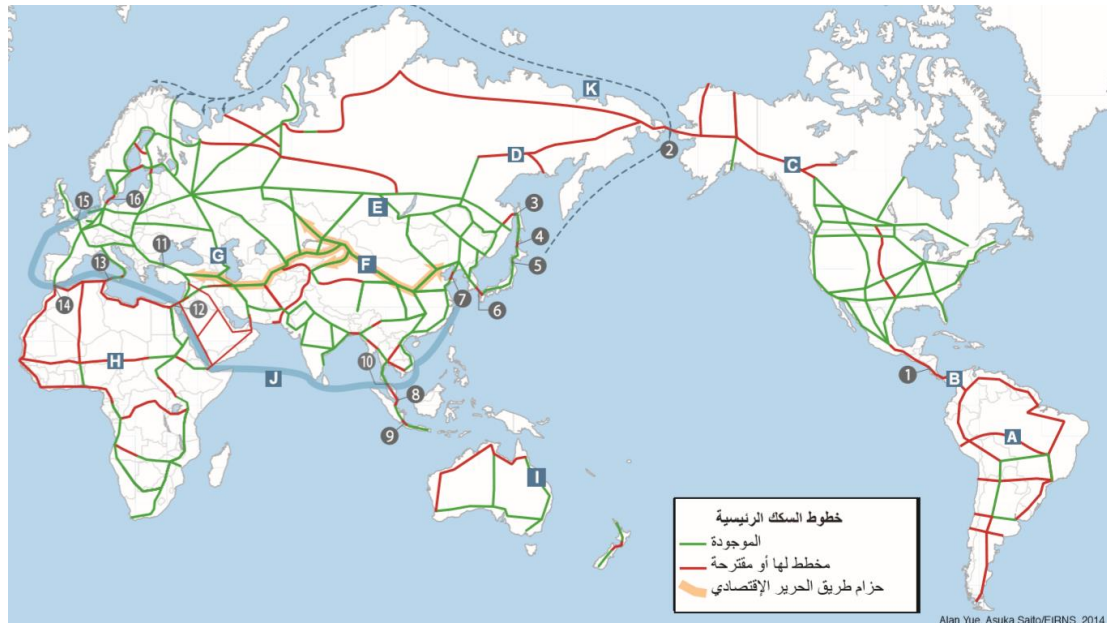


The Silk Road as a Vehicle of Civilizations

How the Introduction of Chinese Papermaking Technology into the Islamic World Revolutionized Global Science and Culture.

Hussein Askary
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As Helga Zepp-LaRouche, the Chairwoman of the Schiller Institute and the Silk Road Lady as she is now known in China, has repeatedly emphasized, and as my colleagues in Executive Intelligence Review and I have illustrated the concept of the "Development Corridor", the New Silk Road is not about the transfer of merchandise from point A in the East to point B in the West or vice versa. [See my video presentation "The Silk Road: An Ancient Image of the Future", here: https://www.youtube.com/watch?v=30_Mwml9DqA&feature=youtu.be]

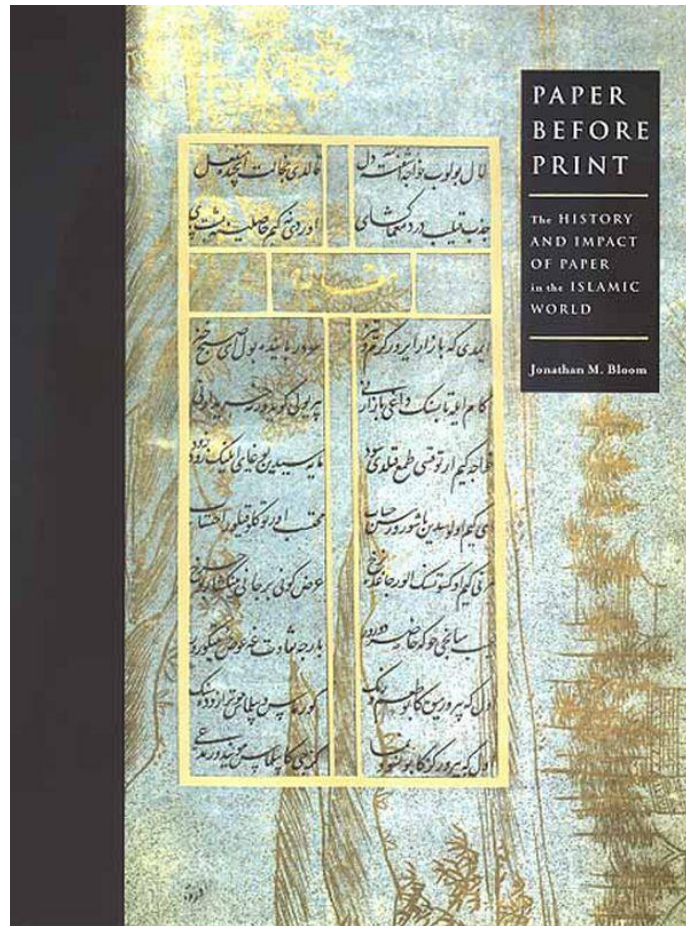
The same goes for the ancient and New Silk Road. The Silk Road was, in the past, and is now a vehicle for scientific, technological and cultural exchange, and a means to bring new tools to the peoples along the route between point A and B to improve their productivity, their standards of living, creativity. That in turn enables them to use their specific local or national culture and creativity to invent and create new tools to give back to the other societies along the same route. This is the Chinese President Xi Jinping's "win-win" concept in its most scientific and moral aspect.

And, this is exactly what happened in the Islamic Renaissance era. What the Muslim society did from the 7th to 14th centuries, with certain ups and downs, with the Chinese technology to produce paper from wood pulp and other cellulose fibers is one of the brightest examples of this cultural transformation process.

In real Economics, i.e. Physical Economics as Lyndon LaRouche has taught, one of the key metrics of economy is to figure out how the introduction of a new technology or scientific principle into one part of the economic process increases the productivity of the system as a whole. Papermaking is one such technology, whose dissemination (through Islamic societies) across three continents has created such massive effects on human society that it will be almost impossible to measure in specific terms its impact.

However, we can start looking at this process from a historical perspective first. The book *Paper before Print, The History and Impact of Paper in the Islamic World* by Jonathan M. Bloom (2001, Yale University Press) provides an elegant and amusing investigation into this history. In the introduction to the book (page 12), Bloom states: "The history of paper in the Islamic civilization is not, however, just about the transfer of papermaking technology from China to the West... The introduction of paper in the eighth century had a transformative effect on medieval Islamic civilization,

spurring an extraordinary burst of literary creativity in virtually all subjects from theology to natural sciences and literature. Religious scholars collected and codified the traditions of Muhammad, which had been preserved orally following his death in 632, and committed them to ink and paper. New types of literature such as cookbooks and the amusing tales we now know as *The Thousand and One Nights*, were copied on paper for sale to interested readers. Scholars and copyists translated Greek rolls and manuscripts written on parchment and papyrus into Arabic and transcribed them onto sheets of paper, which were then bound into books."



Bloom's enthusiastic excitement about the subject as an Islamic art historian reaches such a level of admiration of paper itself that he can mislead the reader into almost believing that paper itself was the "cause" of the Islamic Renaissance, rather than the medium of the creativity and development that Islamic society made possible.

Pursuit of knowledge!

From the very outset of the message of Islam, Prophet Muhammad and the "Revelation" of the Quran emphasized the importance of reading or recitation. "Iqra'a", [read, recite or proclaim] was the first command Muhammad received through the "Revelation's" Archangel Jibril (Gabriel). In a truly Promethean spirit, Prophet Mohammed is instructed with these words: "1. Read in the name of thy Lord, who created- 2. Created man out of a leech-like clot. 3. Read/Proclaim! And thy Lord is Most Bountiful,- 4. He Who taught the use of the Pen. 5. Taught man that which he knew not. (Surat Al-'Alaq or verse No. 96, the *Holly Quran*).



There is also a saying/tradition attributed to Prophet Muhammad, although its authenticity is disputed, but is widely spread even in early Islamic tradition books, which says: "Seek/pursue knowledge even if it were in China! Pursuit of knowledge is a duty upon each Muslim." This is a significant sign of the early Islamic society's emphasis on the pursuit of knowledge and wisdom which is the root cause of the massive cultural, scientific and economic evolution that took place in the Islamic "empire" in those centuries.

It is a well known fact that Prophet Mohammad, before the Revelation at an age of 40, was a merchant for 25 years of his early life travelling to Yemen from Mecca in the winter to meet merchants from Asia and East Africa, and to Syria in the summer to meet with merchants from the Levant, Persia and Byzantium, and even from India and China who came through the Silk Road to the Levant. His knowledge of the traditions and cultures of these peoples are reflected in the Quran and Hadith (tradition). The emphasis on a knowledge-based society was the key "cause" of the Islamic Renaissance. Another was the recognition of the universality of knowledge, which enabled the Muslims to assimilate enormous bodies of knowledge from every possible culture they came in contact with without any prejudice. Therefore, they could bring together the sciences, philosophy, technology, etc from China, India, Persia, Greece and Africa in one melting pot and institution. [See my article *Baghdad 767, a Melting Pot of Universal Civilization*, EIR, October 18, 2013. http://www.larouchepub.com/other/2013/4041baghdad_melting_pot.html]

But Arabic was also the lingua franca from the 8th to the 15th centuries from Central Asia all the way through Southwest Asia and North Africa to Spain. The introduction of paper from China to this vast transcontinental culture made the further assimilation and spreading of knowledge easier, cheaper and faster by orders of magnitude.

The history of the invention and dissemination of paper is a wonderful story of how Chinese, Indian, Persian, Arab and European cultures collaborated directly or indirectly to elevate the human base of knowledge, culture and economy.

Origins of Paper

Bloom's book can be described as a "forensic" investigation, because he focuses on the technical analysis and material evidence in order to discover the difference between myths and reality when it comes to the origin of paper and also to its diffusion, including into the Islamic world. It is a generally accepted fact that the invention of paper production from cellulose fibers took place in China sometime in the second century B.C.



Before paper, societies used clay tablets as in Mesopotamia, papyrus sheets as in Egypt, skin, animal bones, cloth, bamboo strips, bark etc. In China, bamboo and wood and silk were used before paper for many centuries. Silk and woven cloth was a more refined medium of painting or writing, but it was expensive. Wood was heavy. So, according to Bloom, the Chinese came to use a light but less expensive material for writing called *zhi* (paper). The invention is commemorated in a legend called after Marquis Cai Lun, a eunuch who lived in the imperial court of emperor Hedi in the late first century (Han Dynasty). According to the story, Cai Lun made *zhi* from the bark of trees, remnants of hemp, rags of cloth and old fishing nets and used it for writing, gaining the praise of the emperor. However, Bloom argues that literary and technical evidence show that the story was composed centuries later "to add color to an old and obscure process".

The ingenious invention of papermaking, whether it was made by Cai Lun or not, in this way is really creative in the sense that the inventor thought outside the box! Instead of using the natural material as it is and stretch it or pile it in blocks, the inventor rebuilds the material by first breaking it down to its elementary building blocks, cellulose fibers, and then "re-creating" it in a new form which gives it better physical characteristics than the original raw form and much higher economic value. In a similar way, refining petroleum oil to produce plastics and other industrial chemicals, rather than burning it for fuel, transforms the characteristics of the raw material and raises its added value by orders of magnitude.

In brief, the papermaking technique is based on breaking down the cellulose fibers in any of these materials (bark of paper mulberry and bamboo, flax, cotton, hemp, rags etc) to the smallest possible unit by drying the plants, beating and crushing them, fermenting them in water, and then dipping a sieve-like square mold or frame in a vat where this pulp is suspended in water. When the mold is lifted to drain the water, the fibers are captured on the surface of the mold as a thin film that can be immediately removed and dried. The film when dried becomes a sheet of paper.

The advantages of paper are that it is flexible, absorbs ink more efficiently, light in weight and cost less. Government bureaucrats in the Islamic empire realized early on that texts and seals written or impressed on paper was very difficult to remove or forge. Merchants on the Silk Road preferred paper letters of credit and checks more than gold and silver coins that meant a security risk. Another important characteristic is that it can be produced any where in the world no matter the climate or geography. What is needed is cellulose, which is the most abundant of all naturally occurring organic

compounds, fresh water both for the production process and also for running the mills through water wheels. In Central Asia, Iraq, eastern Syria and Egypt, all these elements were available, and helped establish the largest paper mills in the world between the 8th and 14th centuries.

Islam and Tang Dynasty: A Collision produces a new alliance

The Tang Dynasty in China reached its pinnacle of prosperity, but also political and military expansion in the late 7th century CE up to the middle of the 8th century which was considered the golden age of the empire. Papermaking too reached the highest levels of refinement and specialization during the Tang Dynasty. Its Capital Chang'an (currently Xi'an) was the most populous city in the world with around 800,000 to 1 million inhabitants in the 750s. The total population of China was estimated to be 50 million. This factor enabled the dynasty to build a massive army, which managed to expand the influence of the empire westward into the Turkic steppe in Central Asia, dominating and benefitting from the trade on the Silk Road. Many minor kingdoms and cities were paying tribute to the Tang Emperor, and providing extra wealth from the fertile Ferghana Valley by the Syr Darya River valley, which is today shared by Kyrgyzstan, Uzbekistan and Tajikistan.



Tang Dynasty 700 AD



Umayyad / Abbasid Dynasty 750 AD

Simultaneously, the Islamic Umayyad Caliphate (660-750 AD) had likewise expanded both westward throughout North Africa into the Iberian Peninsula and eastward all the way to Transoxania (beyond the Oxus River) and the Indus River. By the time of the emergence of the Abbasid Dynasty which overthrew the Umayyads in 750, the Islamic and Chinese empires had come face to face in that region. A major battle, The Battle of Talas in the valley of the Talas River (today's north eastern Kyrgyzstan) took place in July 751 in which the Chinese army was defeated with great losses inflicted upon its huge army. Reportedly, although not confirmed, thousands of Chinese prisoners were taken into custody by the Muslims, including many craftsmen but most significantly "papermaking artisans". We will come back to this story or "legend" as Bloom claims shortly below.

Left outside Blooms book is the fact that the Battle of Talas not only put an end to the westward expansion of the Tang Dynasty, but, interestingly, both empires were interested to continue the commercial process along the Silk Road, and also security cooperation, as both sides viewed the local Turkic tribes as a threat in the border region between the two empires. According to the Chinese-Muslim historian Bai Shouyi, diplomatic missions and gifts exchange continued between the two sides reaching 13 missions between 752 and 798.

An Lushan Rebellion, a turning point

However, the most dramatic political/military development between that solidified the relations between the two sides, was the assistance delivered by the Muslim Caliph Abu Jaafar Al-Mansour to the Tang Emperor to face the devastating An Lushan Rebellion. An Lushan was a Chinese General of Sogdian (Central Asian) origin. The rebellion that lasted from 755 ended in favor of the Tang Dynasty in 763. A decisive moment came when An Lushan's rebels captured the capital Chang'an in 756, forcing many of its inhabitants and Emperor Suzong to flee eastward. At that moment, the Emperor Suzong approached Al-Mansour for help, and the latter did send 5000 Arab troops (Muslim sources say 25000), to aid the Chinese Emperor, a matter which helped recapture the capital and push back the rebels. Many of these Muslim soldiers stayed in China and are said to be the origin of the current Hui Muslims of China. Muslim merchants also continued to travel to China and the spreading of Islamic teachings was tolerated in that time by the Confucius-influenced Tang Emperors.

What Blooms calls "the legend of papermaking Chinese prisoners" comes from Arab sources, such as in Al-Thaalibi's (961-1038) *Book of Curious and Entertaining Information*, and Ibn Al-Nadim's (died in Baghdad 1047) *Al-Fihrist*. Ibn Al-Nadim's father and he himself were called *Al-Warraq*, which means book and stationary seller. These two sources mention that at least two of the

Chinese prisoners captured at the Battle of Talas, were brought to Iraq to teach the secret of paper making. Bloom argues that both those historians wrote this story almost three centuries after the event itself, and could have been altered and reproduced as an amusing story and a metaphor for the process, as he says about the Cail Lun legend. On a more realistic basis, Bloom refutes this story on the basis that paper production existed in Transoxania when the Muslims arrived to Samarkand in 721 for example, which was a center for paper production, long before the Battle of Talas.

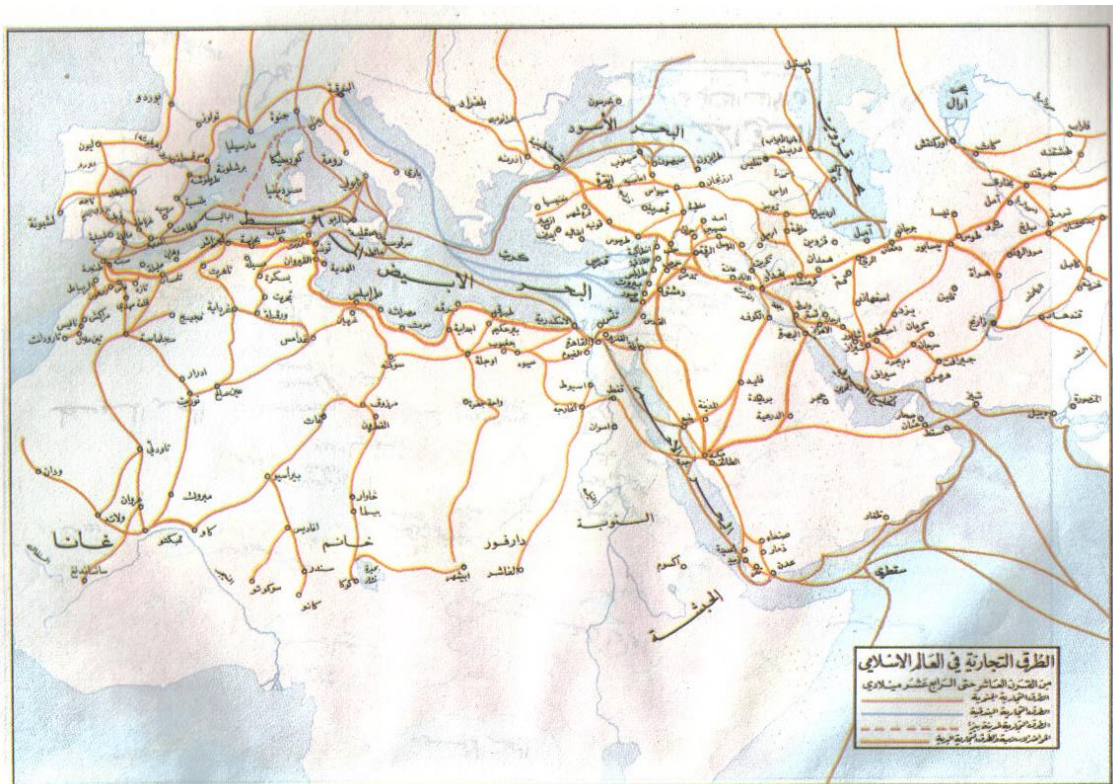
The legend of the prisoners notwithstanding, what the Muslims should be credited for is that they took this revolutionary technology, which in its land of origin, China, was limited to few privileged Imperial Court officials, artists and calligraphers and Buddhist priests, and made it available to a large section of society, from government officials and bureaucrats to theologians, scholars and their students, scientists, merchants, artisans and even laymen.

Diffusion of paper

The Silk Road and a special "dialog of religions" was key to the diffusion of papermaking from China throughout East Asia and the Middle East. Ironically, it was an Indian religion, Buddhism, that spread Chinese papermaking throughout Asia. According to Bloom (pages 36-38), as early as the first century AD, all the monks travelling between India and China and their students would have learned the Chinese crafts of making brushes, ink, and paper to spread Buddhist teachings more efficiently. From China, then this was spread to Korea and Japan, and throughout most of Southeast Asia. Bloom states that "the oldest printed paper book in the world is a printed paper copy of a Chinese translation of the Diamond Sutra dated 868 and found at Dunhuang, a major Buddhist site on the Silk Road."

A large number of paper documents were discovered in a cave in Dunhuang by archaeologists in the early 20th century. The reason that earlier manuscripts were not discovered could be due to the fact that the humid climate in most parts of China and Southeast Asia destroys the paper. Dunhuang, however, is located in the dry climate of north-western China. "The greater part of the manuscripts were written in Chinese, but some were written in Sanskrit, Soghdian, Middle Persian, Uighur and Tibetan, showing the strong interregional connections in this now-remote corner of the globe," says Bloom. [Emphasis added]

Paper reaches the Islamic World



Bloom gives a dramatic picture of the rapidity with which paper spread all over the Islamic World. “For paper making to travel from its place of origin - China – to Samarkand in Central Asia, had taken about five centuries, but a mere two centuries after Muslims encountered paper in Central Asia they were using it in Spain, on the Atlantic fringe of Eurasia... [T]he introduction of paper and papermaking across the Islamic lands in the ninth and tenth centuries was a remarkable historical and technological achievement that transformed society in its wake,” says Bloom (page 47). If we consider the fact that the Islamic state that stretched from Central Asia and the Indus River all the way to Africa and Spain, was one political and economic unit, then this would be easier to understand. Furthermore, Arabic was the lingua franca of the time, and more importantly, the language of the Holy Quran and all theology. The flourishing of the Silk Road, and the introduction of government-run and organized postal services (Diwan al-Barid), massively contributed to the diffusion of paper and the volume of paper produced.

Already in the Umayyad era, government officials realized the importance of the copying of government documents, treasury regulations, army expenditures and communications between the vast regions of the Empire. Egyptian papyrus was adopted as the material of choice that was abundantly available from Egypt. However, in the Abbasid era, during which the capital of the state was moved from Syria to Iraq, (Baghdad was built in 767 by Al-Mansour), paper gradually replaced papyrus. The first paper mill was built in Baghdad in 794 during the reign of Caliph Haroun Al-Rashid, son of Al-Mansour and later an ally of Charlemagne. Paper production was also started in Basrah, in south Iraq and in Al-Riqqa (on the Euphrates River) and Hama (on the Orontes River) in Syria. Baghdad and Basrah boasted the largest book and stationary markets in the world in the 9th and tenth centuries. Many of the great Arab philosophers and scientists were book sellers, copyists or translators themselves. [Picture: water and paper mill]

Transformation of mental tools

During the reign of Al-Rashid’s son, Caliph Al-Maamun (r. 813-833), Baghdad was transformed into the global scientific and philosophical “research center”. Any important scientific or philosophical manuscript from any part of the world and in any language, would have found its way to the House of Wisdom established in Baghdad by Al-Maamun. There, it would be translated, studied, copied, replicated (if it was a discovery or experiment) and disseminated without restrictions. This process is a major subject by itself, which I dealt with in my report “BAGHDAD 767-1258 A.D.: Melting Pot for a Universal Renaissance”, as mentioned above.

Bloom focuses on an interesting aspect of the impact of paper on the methods of thinking and investigation. In the early Arab society, and to a limited degree even today, the transmission from generation to generation and to students of poetry, religious texts such the Quran and Prophet’s Tradition (Hadith), is done orally. The introduction of written text transformed, not the content of the text per se, but how it is approached intellectually. “The graphic representation of speech is a tool that encourages reflection on information and the organization of information.. [I]nformation is often far easier to access from writing than from memory, particularly when the sequence or accuracy of items, rather than their general content is essential,” states Bloom (page 123). This applies more to the massive amount of “information made available in the House of Wisdom for example of works in astronomy, geometry, medicine, mathematics etc, where comparing and juxta positioning different texts or graphic images, such as maps, calendars and calculations, become necessary.

The trans-cultural dialog and enrichment achieved in sciences, music and philosophy, in addition to economic activities such as architecture, hydraulics, and navigation through new modes of cartography reached completely breathtaking levels in this era, facilitated by the introduction of papermaking from China and the expansion of the Silk Road. Greek geometry and mathematics was fused with the Indian numerological system (so-called Arab numbers) in the House of Wisdom by Muhammad ibn Musa Al-Khawarizmi (Latinized as Algoritmi), the father of Algebra, whose name is immortalized today in the term *Algorithms*. Greek and Persian books of medicine were translated and developed into a whole new system of medical education by such scientists as Abu Ali Ibn Sina (Avicenna) whose book *Al-Qanun fil Tib* (The Canon of Medicine completed in 1025) [picture of pages] was the main medical textbook throughout the Islamic world and even in Medieval Europe for

centuries. The art of composing terrestrial and celestial spherical cartography, incorporating Greek, and Chinese methods, was refined and spread from Baghdad into many parts of the world.

The most important aspect of this massive development is that it was done as a joint projects of many cultures, religions, and nations without any prejudice. Ibn Sina was Persian, and Al-Khwarizmi was Turkish, and Qusta ibn Luqa, the most important translator of Greek and Latin manuscripts in the House of Wisdom, was a Melkite Christian of Greek extraction. But they all worked in Baghdad and spoke Arabic.

Libraries

The largest Abbasid library was built in Baghdad in 991 by the Persian minister under Caliph Baha-ul-Dawla, Sabur ibn Ardashir. It contained over 10,000 volumes on a range of scientific subjects. However, it was in Spain, that the greatest library was built, in Cordoba, during the reign of Caliph Al-Hakam II (r. 961-76), an Umayyad descendant. According to Bloom, Al-Hakam's main interest was books, and he started collecting books in his teens and was tutored by the best scholars of the time. Al-Hakam's library contained 400,000 books. The catalogue of titles alone is said to have filled 44 volumes. Bloom says, that even if these numbers are exaggerated, "still, at even one-tenth the size, would have been larger, by a factor of fifty or more, than any library in Christendom". Furthermore, this library in Cordoba, was available for outsiders too. Muslim, Jewish, and Christian scholars, astronomers, physicians, and theologians, would meet in special reading and meeting rooms in the library to discuss and debate. In Fatimid Egypt (10th-11th centuries), a similar library, modelled on the one in Baghdad, and almost as large as the one in Cordoba, was also built.



Economic impact

The introduction of paper had also a great impact on the economic conditions of the lands of the Islamic world. Many of the scientific discoveries that were made in the scientific institutions were also incorporated in the economic development of society. Providing water to the cities and agricultural lands required massive infrastructure projects, such as canals, water wheels, hydraulic systems for lifting and transporting water to the cities etc. Scientists, like the Banu Musa brothers, who lived and worked in the House of Wisdom in Baghdad, designed many machines that dealt with water pumping and transportation. Their works were transcribed and published in books. Furthermore, as mentioned by Bloom, "the availability of paper in the Islamic lands also spurred changes in the other arts –

metalwork, ceramics, and particularly textiles – for artists could create designs on paper that artisans could apply to their work.” This was most efficiently used in architecture, as the repetition of patterns, which is characteristic of Islamic architecture, could be transmitted through pattern books.

Commerce, which had developed massively due to the agricultural and industrial development during the early centuries of Islam, benefitted greatly from paper. The Islamic world from the Indus and Central Asia to the Pyrenees in Europe was one “common market”. Merchants travelling long distances with their commodities, preferred not to carry gold or silver coins as they travelled. Paper credit, such as letters of credit (*Suftaja*) and checks (Originating from the Persian *Sakka* or Arabic *Sakk*), were widely used along the trade centers of the Silk Road and in Africa and the Mediterranean.

Bloom reports that one of the most popular types of books, besides fictional tales, in Abbasid Baghdad was kook books! This clearly reflects the abundance of food in Iraq at the time. Iraq’s population around the 11th century was estimated to be close to what it was in the early 20th century, i.e. about 3 million inhabitants.

Transmission of papermaking to Europe

"The transfer of paper and papermaking technology from the Islamic lands to Christian Europe in the eleventh and twelfth centuries prepared the way for the European print revolution of the fifteenth century. Yet Gutenberg's invention might never have taken off if he and his followers were had been limited to printing books on parchment," writes Bloom in Chapter 6, page 203.

In addition to bringing back Greek philosophy and science to Europe translated back from Arabic books, it was mostly from Islamic Spain that Europeans learned about paper making. Another source was the contact between the Muslims, who conquered Sicily from 827 to 902, and Malta (870-1090). Italian merchants from Genoa and Venice realized early on and during the Crusader wars the importance of paper, starting their own paper industries. Byzantium, which was degenerating during the Islamic expansion era, and also because of its leaders lack of interest in spreading knowledge to their populations, was not affected at all by the papermaking revolution.

Unlike Byzantine Christians, Spanish and French Christians had a different view of paper and Islam and Arabic altogether. Spanish Christian rulers in northern Spain who finally re-conquered Spain from the Muslims in 1492, adapted quickly as early as the year 1000 to the importance of paper. More importantly, a translation effort was started by Christian theologians of Arabic books. Bloom mentions Peter the Venerable, abbot of the Benedictine monastery at Cluny, France, who travelled to Spain for several years and returned in 1141. Peter commissioned the translation of at least 5 major books, including the Quran from Arabic to Latin.

Another very important character in the Islamic-Christian dialog, not mentioned in Bloom's book, was Ramon Llull (Latin: Raymundus Lullus). He was born in 1231 in Palma, Majorca which was under the control of the Christian Kingdom of Aragon. He travelled in Muslim Spain and North Africa and learned Arabic to study and translate the works of Arab theologians and philosophers. Although Peter's mission was intended to refute Islam's "heresies", and Llull to convert Muslims to Christianity, they both shifted European critique of Islam from looking at it from outside into studying it from inside through translating and reading the original books. Inspired by Francis of Assisi, Llull came to the conclusion that Muslims, Jews, and Christians believe in the same "tributes" of God the Creator, and that Muslims should be approached by reasoning and dialog, and not by the force of weapons. Cardinal Nicholas of Cusa later made the same arguments in his 1453 groundbreaking book *De pace Fidei*, On the Peace of Faith, shortly after the Ottomans invaded Constantinople. Llull made a great achievement in this process, when he argued for the importance of linguistic education at major universities in Europe in 1311 when the Council of Vienne ordered the creation of chairs of Hebrew, Arabic and Chaldean (Aramaic) at the universities of Bologna, Oxford, Paris, and Salamanca as well as at the Papal Court.

In Italy, especially in Genoa, Milan, Venice, and Padua, paper production spread in the middle 13th century. By the end of that century, Italians improved and standardized the production so much that they actually started exporting it to North Africa and Eastern Mediterranean. Italians around Fabriano invented watermarks to identify their paper and signify its quality, Bloom stresses.

Conclusion

It is no exaggeration to state that without paper the Islamic Renaissance would not have become what it was, and without the Islamic Renaissance and the introduction of paper before and after print as invented by Gutenberg, the European Renaissance would not have been possible.

Although published in 2001, this book by Bloom and its theme is now more significant than any time before for two reasons:

1. Thwarting the threat of global religious wars in Eurasia. Since at least the launching of the British-American-Saudi operation in support of the "Mujahideen" of Afghanistan who were directed to fighting the Soviet Army in the 1980s, the phenomenon of armed Islamic militants, or "jihadists" has spread across three continents. The tool of geopolitics have now turned into a plague that is threatening all civilization with its nihilistic and satanic view of man as a blood-thirsty beast. The "pragmatic" use of these bestial tools, unfortunately continues today in such places as Syria and Libya earlier to overthrow what the west considers as dictatorial foes. The same goes for the destabilization of Russia through Chechen rebels, and China through the Uighur militants, both of whom are now actively involved in the war in Syria against the government in Damascus and in support of the Islamic State in Syria and Iraq (ISIS) and Al-Nusra Front (Al-Qaeda) and other terrorist groups who have hijacked the name of Islam and turned it to something completely opposite to what it really was in the Islamic Renaissance era.

The ideology of the "Clash of Civilizations", of such Anglo-American ideologues as Samuel Huntington and Bernard Lewis fall in the same bestial category. Their claim that China, the Islamic world, and the West will inevitably clash and cannot co-exist as equals and work together for economic, scientific and cultural development is debunked by the Renaissance efforts mentioned above. The reality of the Muslim society between the 7th and 14th centuries was not always rosy and fine. Civil wars, bloody power struggles and intrigues were a normal state of affairs. However, most of those in power and their scholars, advisers, scientists and citizens realized and agreed that knowledge was power. Today, the Islamic world is pulled down in a bloody political and religious struggle, but knowledge and the love of wisdom have taken a back seat. Many Muslim nations today are experiencing a state of cultural and economic stagnation, if not outright degeneration. The Islamic world is importing most of its need from the East or West. In return it has to export the natural wealth into both directions. This is a recipe for slavery and short life. To inspire new generations of Muslims, we need to study and understand the true message of Islam, pursuit of wisdom, and "pursuit of happiness" as the great Philosopher Al-Farabi coded in his book with the same title.

2. Fortunately, the emergence of the New Silk Road strategy, which is spearheaded by China and also its allies in the BRICS constellation, Russia and India, is giving hope of reversing this spiral of violence and destruction. Once again, the Islamic nations can assume a key position in this road of development and knowledge, as it is suitably situated on its main routes. The richness of their history, traditions and the Promethean image of man as a creator under the Merciful shadow and guidance of the Supreme Creator, can once again inspire new generations into taking action for joining this renaissance. Rather than Clash of Civilizations, we can pursue the "Dialog of Civilizations" as former Iranian President Mohammad Khatami coined it, or the harmony of interests among nations, and what President Xi Jinping has called "Win-Win" strategy.

The history of the migration of the paper industry, and its impact on the Islamic civilization and Europe later, is one of the most fascinating and exciting stories this author has dealt with recently. The book "Paper before Print" is a good and entertaining instrument in light of the political, economic and cultural challenges we face today across the whole world.