

11: Legacies and Transfers: the Story of the Transfer of Knowledge from Islamic Spain to Europe

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Overview:

This lesson builds upon references in *Cities of Light* that describe the translation effort and the legacy of Islamic Spain for the European Renaissance and modern science. It provides a narrative of the process of knowledge preservation and transfer in world history. It traces the origins of the ancient and classical traditions and follows their preservation in 8th to 10th century Muslim civilization, and the flowering of learning in Muslim societies, including Spain. The reading describes the process of translation and transfer of the heritage of Greek and Arabic learning to western Europe through Spain in the 11th and 12th centuries, and its impact on cultural life in Europe that led to the Renaissance and Scientific Revolution. A primary source activity and a map activity reinforce and deepen engagement with the content.

Objectives:

Students will

- Describe the process of collective learning and identify factors that facilitate and hinder its preservation and transfer across time and space.
- Explain the accumulation of the ancient and classical heritage of learning among the major civilizations up to the fall of Rome.
- Describe the preservation of the ancient and classical heritage in Persian and Islamic civilizations.
- Identify factors in Islamic civilization that fostered a tradition of learning and its spread in the lands under Muslim rule.
- Assess the role of Islamic Spain and some of the Christian kingdoms as places where knowledge was prized and explain the roles of Jewish, Christian and Muslim scholars in its development.
- Describe the process of transferring scientific and other knowledge from Spain into other parts of western Europe through translation, and assess its impact on European society after the 12th century.
- List the major subject areas of knowledge that were translated from Arabic into Latin and carried into Europe.
- Identify major historical centers of learning and its preservation from classical to medieval times, and locate them on a map. [optional: be able to associate these centers with historical eras in which they were important to the preservation of knowledge.]

Materials:

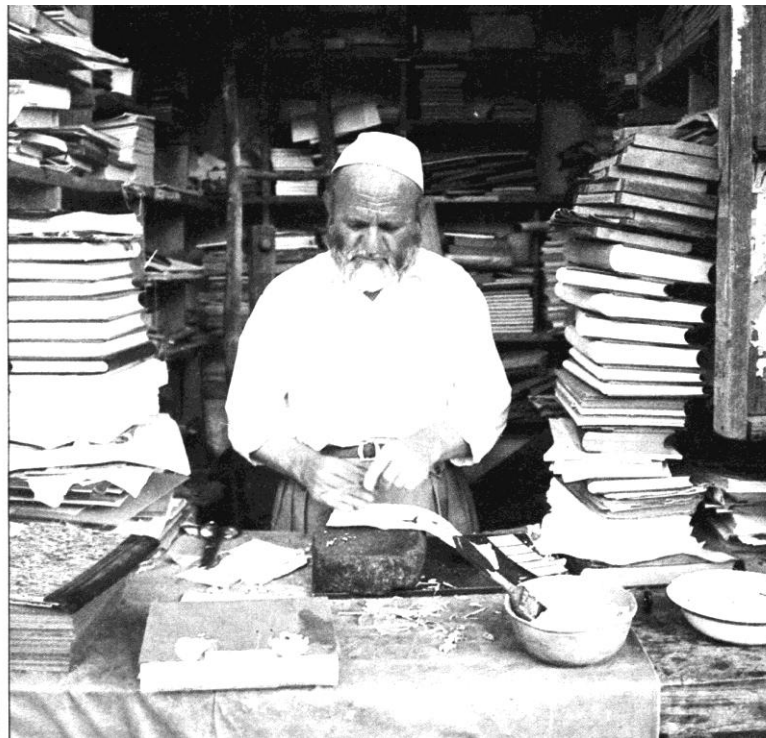
- Student Reading Handouts 11a-d: Parts 1-4
- Activity Sheet 11e: *Who Were the European Translators of Arabic Books in Spain?*
- Activity Sheet 11f: Map/diagram activity on the transfer of knowledge

Procedure:

1. Jigsaw Activity for a double class period: Distribute Student Reading Handouts 10a-d, Parts 1-4, dividing the class into four groups, each of which receives one of the four parts of the reading. Have the students read each part silently and make notes for their summary. The teacher should circulate and answer questions that may arise. Each group then shares its notes and comprehension of the main story line and important points within their group. When this process is complete, members of each group are able to tell their part of the story to the others. Create groups with one member each from groups 1-4. These groups meet to assemble the four parts of the story. In the last 20-30 minutes of the activity, discuss the story as a whole group.
2. Alternatively, have the groups 1-4 meet to discuss the reading of their sections, and as a way of “transferring the knowledge,” create a skit, a narration or other means to tell their part of the story to the whole class, and present it during the last 30-45 minutes of the activity. The teacher should circulate during the activity to answer questions that may arise and check on progress.
3. Distribute the handout Activity Sheet 11e: *Who Were the European Translators of Arabic Books in Spain?* Students will elaborate on the quotations by the translators by writing a letter home as one of them. In addition to describing what they translated and how they accomplished it, they can describe their life in Spain; what they see, what they eat for dinner, what sort of clothes they wear, what they do for entertainment, where they worship, and other things they have seen. This activity draws upon the film content and any other reading they have done on the period and the culture of Spain.
4. Distribute Activity Sheet 11f: *Mapping the Transfer of Knowledge across Time and Space*. This activity allows students to visualize the information from the reading in three different ways. They will view a diagram of the locations that played roles in the preservation and spread of knowledge, and correlate them to an outline map. They will then use the time labels to create a timeline showing when these locations were important to the spread of knowledge.

Student Reading Handouts 11a-d, Parts 1-4: How the World's Ancient and Classical Knowledge Came to the West through Muslim Spain

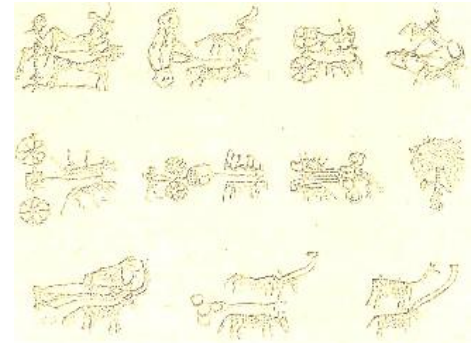
Our knowledge of science was built up over thousands of years. People of many cultures and civilizations have contributed to what we know today. Modern advancements in science and technology are spectacular, but without the slow, patient accumulation of learning, humanity could not have achieved them. This reading tells the story of an important period of history when the foundation for modern science was laid. You will read how the knowledge of the Ancient and Classical Civilizations of Greece, Rome, China, India and Persia passed to the Muslims in western Asia, in a time of tolerance and cooperation among religions. Centuries later, in western European Spain, during another time of toleration among religious groups, that heritage of learning was added to and passed along again, and brought this heritage of learning from ancient into modern times.



Part 1: Collective Learning and Preservation of Knowledge

Part of what makes us human is that each generation can build upon the work of those who came before. Humans can pass on knowledge through spoken and written language. This process, called “collective learning,” has gone on throughout human history, locally and globally. As human societies came in contact through trade networks and other forms of exchange, they shared knowledge and technologies across cultural barriers. As networks of exchange spread, the pace of learning increased. The more we learn, and the more we share what we know, the more the rate of new learning picks up.

This sounds easy: progress in human knowledge is like a hike straight up a mountainside. In fact, it has not been so easy. Setbacks in recording and preserving knowledge, wars that destroy people and institutions of learning, broken off connections in human exchange networks, and barriers to sharing have been as much a part of history as progress in sharing knowledge. What factors help in the preservation and sharing of human learning?



Person-to-person, oral transmission of knowledge was slow but effective. To help remember what was said, ideas were put into poetry and song. To prove that it worked, orally transmitted ideas have come down to us today in religious texts and epic poems from thousands of years ago. The next major advancement was writing systems. Scribes patiently wrote things down on clay, stone, wood, bone and skin. Alphabets improved. Instead of pictures, they used sound—phonetic—symbols. More people could learn to read and write. With the invention of papyrus, parchment, and then paper, ideas could be stored in smaller spaces. Written words became more portable, and could be carried over land and sea. Books hold more than scrolls, libraries collect books, and today, we collect and share masses of knowledge in 1’s and 0’s inside computers and on plastic. Powered by electricity and radio waves, digital ideas are so portable that they can shoot around the world and even into outer space and back in seconds or minutes.

What factors stop, slow, or prevent the sharing of knowledge among people and across generations? People who can’t understand each other’s language can’t communicate much beyond the basics. Language difference has been a key barrier to sharing knowledge. Translators must be found, and they are fairly rare. Merchants,

diplomats, and scholars need foreign language skills. Languages also get lost over time, and have to be de-coded to unlock their message again. Loss of recorded knowledge is probably the largest factor halting the spread of knowledge across time and place. Libraries have burned because of accidents, wars and intentional destruction of ideas. Books written on paper rot and decay. Even today, librarians worry about deterioration of books less than a century old. Modern technology might make recorded knowledge even more fragile. If no one has a record player, vinyl recordings of great music cannot be heard again. Floppy disks have become obsolete within only ten years. CD's and tapes are fragile, even though they are amazing ways of recording words, sounds and images. When a computer breaks down, data losses can be huge. Today we can record masses of information, but it can be lost forever in the blink of an eye!

When we look at the transmission of ideas this way, it is remarkable how much has survived. We have clues about how much has been lost. We also know of times and places in history when conditions favored the preservation of knowledge and its transmission across cultural barriers.

Expansion of empires has sometimes resulted in great bursts of learning. Empires bring together people of many languages and cultures under one government—often a very wealthy one. Great leaders have paid for books to be collected from all over the known world, housed in libraries, and translated. Just as a nutritious meal gives the body energy, collection of knowledge and translation stimulates learning and sciences in these empires. This process is part of the development of civilizations. The spread of religions has also led to scholarship, travel, and exchange of ideas. The search for religious wisdom has often led to study of nature and the collection of books and their translation. Trade and even warfare can spread ideas and result in the desire to gain access to the best ideas that others have.



The spread of religions has also provided scholars with the motivation to learn, and brought them into contact with others with knowledge and technology to share. Buddhist monks and pilgrims traveling along the Silk Roads carried knowledge and promoted literacy among their followers. The spread of Christianity into Africa and Europe

stimulated reading, writing and study, as many early Christians wrote down their ideas. The Jewish tradition of learning has been carried into the many lands where Jews have settled and traveled for trade. Jews often became fluent in language, and served in the courts of rulers and communities of merchants as scribes and as scholars. The spread of Islam across Africa, Asia and southern Europe greatly encouraged the spread of learning, through the growth of cities, trade networks, and new technologies. Muslim civilization inherited, developed and passed on the learning of all the cultures with which it came in contact. Collection, preservation, and translation of the treasured learning from many sources were the key to these achievements.

Cooperation among people of different languages, cultures, and religions has taken place at numerous times in the past. Scholars of different faiths have from time to time sat down to listen to one another, to work out ways of translating their languages, and patiently transcribed the results. Places where knowledge is collected and society is tolerant—even for a time—have acted as magnets for those in search of learning. What are some of those times and places in world history?

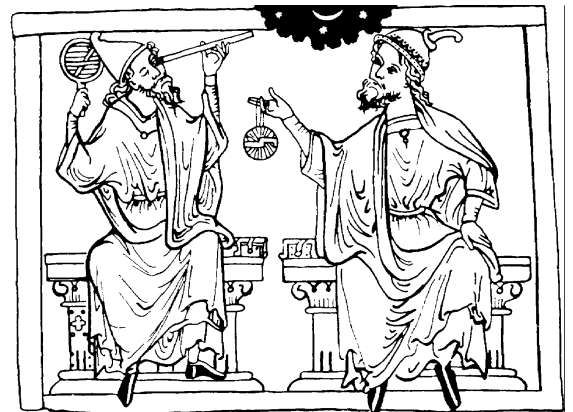
Part 2: The Wisdom of the Ancients and the Classical Tradition

Science developed in ancient cultures as people observed the world around them, studied the night skies, and developed accurate calendars. They studied the human body and discovered medicines to cure illnesses. Counting and measuring developed into the science of mathematics. Chinese, Indian, Babylonian and Egyptian cultures are a few of the many societies that made important discoveries and wrote them down. In the Mediterranean region, many cultures contributed to what historians call “classical” learning. The Greeks, with their wide trade and colonial connections, gained wealth from land and sea. Greek thinkers wrote about mathematics, astronomy and philosophy—the study of wisdom. A Greek academy called the School of Athens became a famous center of learning. In Egypt, Ptolemy wrote an important work about geography and the solar system. The Romans absorbed Greek sciences, and excelled in literature, politics and history, and engineering. Books from Greek and Roman sources, along with the heritage of ancient wisdom from farther east, formed the foundation for later cultures.

Greek, Roman, Chinese, African, and Indian traditions of learning grew during the classical period—from around 1000 BCE to around 500 CE. During this time, understanding of the natural world of plants, animals and earth grew, as did theoretical knowledge such as mathematics, astronomy and philosophy.

Alexander the Great built an empire that helped to spread Greek ideas and develop contacts among civilizations. Scientific knowledge led to advances in engineering and architecture, producing remarkable monuments and buildings. Religious and philosophical ideas, literature such as poetry, drama and prose explored problems and expressed ideas of beauty. As the classical civilizations declined, the institutions that preserved their knowledge did, too. A famous library at Alexandria, Egypt, and another at Pergamum survived for many centuries.

The fall of the Roman Empire was an important event in Europe, but it signaled a time of decline and loss in culture that lasted for centuries. As Christianity spread in Roman territory, the Empire split into eastern and western parts. The Latin, or western



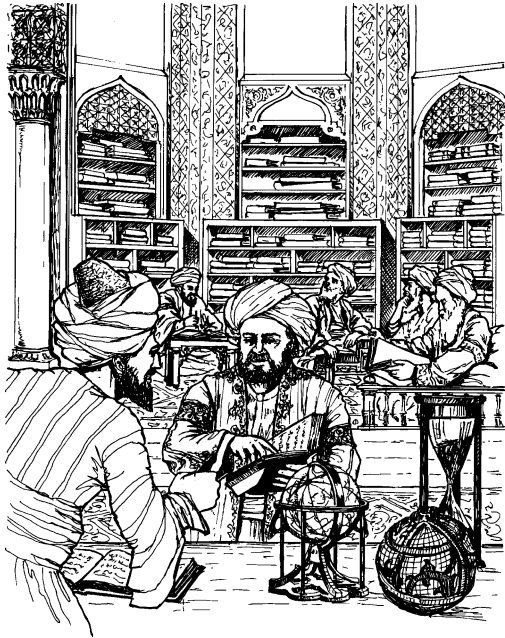
part, suffered invasions and unrest. It was a time when groups of people built castles to protect themselves, defended by knights. What little learning and books there were left from Roman times were kept mostly by monks in monasteries or other Church centers. In the East, the Byzantines remained stronger, and continued trade with other eastern lands and seas. They continued to preserve Greek learning, especially, but the growing power of the Church over learning and ideas caused many scholars to flee toward Persia, in the east. These Christian scholars were especially welcomed at the royal Academy of Jundishapur, where learning from India, Babylonia, the Hebrews, Greece and even distant China came together. With the help of Persian kings, many books were translated, copied and discussed by the people who gathered and taught at Jundishapur. The Byzantines also fell into wars with Persia during the 600s, and eventually both empires lost much or all of their territory to a new ruling group.

The rise of Islam in the sixth century resulted in the formation of a new empire and a world civilization. Rapidly expanding their territory from humble beginnings in Arabia, by the 700s, the Muslims governed lands stretching from Spain to the borders of China. Islamic teachings place a high value on learning, and historians agree that the early Muslims were very open to accepting both the religions and cultural heritage in the lands newly under their rule. They left the Academy of Jundishapur intact, and later added to its treasures. There is an old story that Muslims destroyed the famous library of Alexandria out of ignorance of its value, but the tale has been proven false. In fact, the library had been destroyed centuries earlier. The Abbasid Muslim rulers ordered translations to be made of the works at Jundishapur and other places.

This translation and preservation effort is an important example of religious and cultural cooperation. With the help of Christian, Jewish and Muslim scholars working together, these books were translated into Arabic. Indian mathematics, including Hindi numerals—called Arabic numerals today—was also introduced to Muslims during this time. Literature, music and decorative arts were part of this exciting period of cultural exchange. Fantastic fables, fairy tales, and stories also came to Jundi-Shapur from India, and even some knowledge from as far away as China.

Part 3: The Heritage of Learning Passes to Muslim Civilization

With the spread of Islam came the spread of the Arabic language across Afroeurasian lands from Central Asia to the Atlantic. Just as the Greeks, the Romans, and the Persians had done under their rule, Muslim governments established centers of learning to collect and translate scientific, literary, and philosophical works. Among the most famous effort was the House of Wisdom (*Bayt al-Hikma* in Arabic) the Caliph al-Ma'mun established in 870 CE in Baghdad. Under the leadership of al-Hunayn, a Christian scholar, a great effort to collect and translate available knowledge took place. Works in the library at Jundishapur played a role, and emissaries were sent out to purchase books from



wherever they could be found. All of the great traditions were included.

Just around the time the House of Wisdom was founded in Baghdad, a new technology gave a boost to the spread of knowledge. In the early 700s, the Chinese invention of paper arrived in the Muslim countries of Southwest Asia. Paper can be made from cotton, linen, other plant fibers, or even from old rags. Suddenly, making books became cheaper and easier. Parchment was a good writing material, but it was made from expensive animal skins. Papyrus was cheap, but not very durable. Now, in the growing cities of Muslim

lands, more and more people bought books, wrote books, and collected books than ever before. Instead of having just a few copies of a work in existence, more could be produced, increasing the chances that the work would not be lost to history. Books and paper-making spread westward across Africa to al-Andalus, or Muslim Spain. Use of water-power to pound the fiber was another technology that moved with the spread of paper-making. The result: libraries in Muslim lands grew to thousands of volumes, even though books were still copied by hand.

The cities in western Muslim lands, including Cordoba, Toledo, Seville and Granada, shared in this exchange of books and scholarship. Muslims, Jews and Christians

took part in the growth of learning and culture in eastern and western Muslim lands. Scholars in different places using the same book could correspond with each other, contributing to the growth of knowledge. Trade, travel and migration speeded this process, fueled by growing wealth and eased by the use of Arabic language and Islamic law across a wide territory. It was a very dynamic period for learning.

The House of Wisdom was a translation center and library, a museum, and an institute for scholars. Scholars copied, studied and discussed its books and manuscripts from every angle. In the courts and palaces, in the streets, homes and book shops, Baghdad's scholars also worked with the scientific



ideas, and tested them by measuring, experimenting and traveling. In time, they developed a large body of new knowledge, in addition to the wisdom of ancient times. One important concern, which would be shared across religious boundaries, was the question of how these ancient ideas fit in with Islamic teachings. If scriptures, based as they believed on revelation from God, contained all wisdom, was it permitted to look to other sources of knowledge? Numerous scholars wrestled with this issue, and they generally reached agreement that faith, or belief, and reason, or independent investigation, are not just permitted, but encouraged. God created the human being with the capacity to think and to reason, and like other human abilities, it could be used for good and evil. The search for knowledge, understanding, and wisdom are another way to discover God and glorify Him. This important balance between faith and reason would be explored for centuries, and passed on through the work of Muslim, Jewish, and later Christian, philosophers and scientists. This shared understanding among the Abrahamic faiths put in place one of the cornerstones of modern science, and the scholars of al-Andalus played an important role in its formation and transmission.

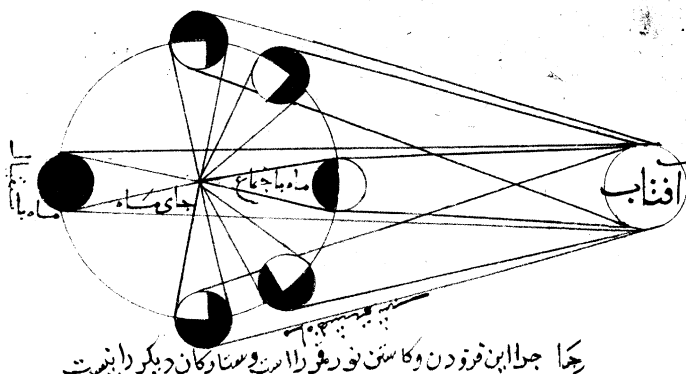
Educational institutions such as schools, universities and libraries spread across the network of Muslim cities. Mosques offered classes in reading Arabic, and the wealthy employed tutors in their homes or palaces. In the centuries from the 800s to the 1100s, formal schools and colleges were established in major Muslim cities, and several important universities for teaching and research existed. In al-Andalus, there was a college in Cordoba attached to the Umayyad caliphate, the Seljuk Turks had established the Mustansiriyyah in Baghdad, and Cairo's famous al-Azhar university had been founded by

the Fatimid rulers. Traveling students came to these colleges. Among the students who were young European scholars. They came, learned Arabic, and transmitted important ideas, and even styles of song, poetry, and new foods when they returned home.

During the time when Muslims ruled territory in Spain and Sicily, people in those lands became centers of Muslim learning and culture. Spain and Sicily are Mediterranean lands within Europe, and linked to the East. Both warfare and peaceful contacts brought to Christian Europe information about the advanced way of life, luxury goods, music, fashions and learning available in al-Andalus. Some curious scholars, including Church officials, traveled to al-Andalus to learn first-hand and see the libraries of wondrous books available there in Arabic, on many important and useful subjects. Like a mirror of the translation effort in the House of Wisdom at Jundishapur centuries earlier, groups of scholars—Jews, Christians, and Muslims—sat down together to translate these precious books. With the support of some wise Christian rulers, they began to translate into Latin the Arabic books they found there.



During the 1100s and 1200s, Latin translations of Arabic books helped to bring about changes in Europe's schools and growing cities. Books about mathematics, including algebra, geometry and advanced arithmetic, introduced Arabic numerals. It took another 200 years before they replaced Roman numerals in Europeans' everyday life. Use of



Arabic numerals by North African and Italian merchants helped to spread them first among accountants (people who do bookkeeping for merchants). Other books brought knowledge about astronomy—contributions from Greek, Persian, and Arabic sources. Geography and

maps, as well as careful measurements of latitude and longitude, helped Europeans to see the world in a new way, and instruments for navigation eventually helped them to cross the Atlantic and discover the Americas. Among navigational instruments were the astrolabe, the quadrant, the compass, and the use of longitude and latitude to create accurate maps

and charts (calculating longitude at sea came in later centuries). Medical books, especially works by Ibn Sina, al-Razi and al-Zahrawi, and some classical Greek works, lifted the cloud of superstition over illness. Descriptions of diseases and cures, surgery, and pharmacy—the art of preparing medicines--helped develop a medical profession in Europe.

To summarize the importance of the translation work that took place in Spain after the Christian conquest of Toledo in 1085, modern writers Francis and Joseph Gies wrote:

It was the Muslim-Assisted translation of Aristotle followed by Galen, Euclid, Ptolemy and other Greek authorities and their integration into the university curriculum that created what historians have called “the scientific Renaissance of the 12th century.” Certainly the completion of the double, sometimes triple translation (Greek into Arabic, Arabic into Latin, often with an intermediate Castilian Spanish...) is one of the most fruitful scholarly enterprises ever undertaken. Two chief sources of translation were Spain and Sicily, regions where Arab, European, and Jewish scholars freely mingled. In Spain the main center was Toledo, where Archbishop Raymond established a college specifically for making Arab knowledge available to Europe. Scholars flocked thither...By 1200 “virtually the entire scientific corpus of Aristotle” was available in Latin, along with works by other Greek and Arab authors on medicine, optics, catoptrics (mirror theory), geometry, astronomy, astrology, zoology, psychology, and mechanics.” 25

Part 4: Classical and Islamic Learning Enters Europe

The knowledge that entered Europe in the 1100s would not have had an effect if the European education system was not ready to receive it. As it happened, a new desire for learning was developing, especially in the towns. Farming was improving, and trade began to grow, so towns along trade routes expanded. Growing towns needed



skilled artisans and merchants, and stronger governments. They needed systems of law and people to keep records. Church learning was not enough. Schools began to educate the sons of wealthy merchants in more worldly subjects. With the entry of newly translated books from Spain and Italy, the quality of learning was gradually updated.

Philosophy means “love of wisdom” in Greek. Aristotle, Plato and other famous Greek philosophers wrote and taught about reason, moral teachings and human behavior. The heritage of Greek thinking is an important set of ideas shared among Jews, Christians and Muslims. Philosophers in all three religions have discussed how Greek ideas could be melded with the teachings their scriptures. They wrote about the links between God-given reason and God-given revelation and faith. How can humans balance the urge to question with the necessity to believe? People have spent whole lifetimes thinking, writing and teaching about such questions.

The classical works of Greek and other ancient philosophers and scientists might have been lost to Europeans if they had not been preserved in the Arabic language through the House of Wisdom. Muslims translated them, and also wrote comments and explanations, and added their own ideas. The Spanish Muslim Ibn Rushd commented on Aristotle, as did the Jewish thinker Maimonides—both were born and worked in Muslim Spain. Other Muslim philosophers like al-Kindi, Ibn Sina (Avicenna, the medical writer) and al-Ghazzali, had also written about faith and reason. Their works were translated into Latin, and stimulated Christian scholars to discuss reason and faith.

If Islam and Judaism had not contained similar ideas with Christianity, these translations and commentaries would not have held so much meaning for thinkers like

Thomas Aquinas, a scholar of the 12th century who wrote a famous work on this subject, called the *Summa Theologica*. It contains ideas from the Greek and Arab/Muslim thinkers. Europeans and Muslims alike were attracted to Aristotle and Plato's ideas, but they knew that the Greeks believed in many gods. To those who believe in One God, it raised the question of how Aristotle's ideas could be true. Classical knowledge and wisdom from other cultures had been transformed by Muslim intellectuals into something compatible with belief in One God. Most important, the work of the philosophers, whether Greek, Muslim, Jewish, or Christian, offered solutions that opened the way to scientific thought. They made it acceptable to investigate the natural world, to draw conclusions about it, and to try and discover the laws of nature.

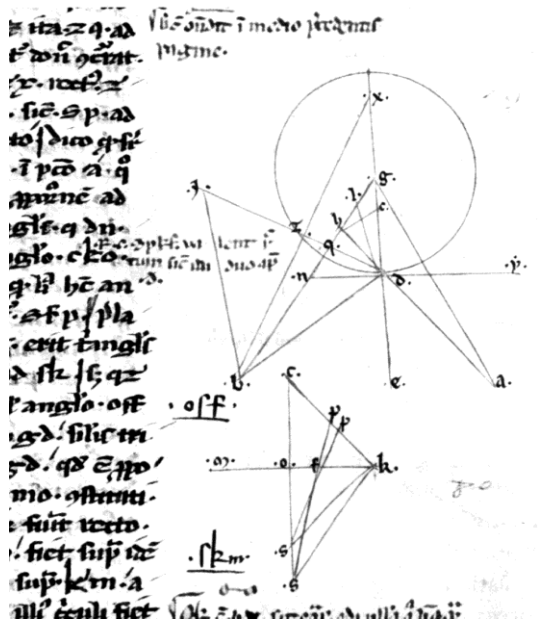
The entry of new learning into Europe had a huge effect on higher education. Students and scholars wanted to study these important new works, and they eagerly sought out teachers who had read them. Colleges developed in Europe as centers for teaching and research in medicine, law, mathematics, astronomy, and physics. Universities in Paris,

France, Oxford and Cambridge, England, were founded. A college at Bologna specialized in law, and another at Salerno taught the new Arabic medical knowledge.

Changes in knowledge opened up new ways of thinking among educated Europeans. Libraries filled with volumes of ancient wisdom, new learning and literature. We now call this period in history the Renaissance, or rebirth. The discovery of classical and Arabic learning had set off the search for other works that had been "lost" after the fall of Rome.

Roman writings in law, history and poetry had

lain forgotten in monastery libraries. During the Renaissance, European scholars took a new look at these works and brought a fresh perspective on the past. They put aside the rigid, narrow thinking of the Middle Ages and found ways to build a better life for the future using these ideas. The humanists' discovery of Greek and Latin writings led them to travel, discuss, and debate. The humanists also improved the teaching of Latin, Greek, Hebrew and even Arabic.



Even with changes taking place in the universities, the new knowledge reached only the tiny group of Europeans who attended college. Gutenberg's invention of the printing press in 1450 set off an explosion of literature and learning. Joined with the technology of paper-making that entered Europe through Muslim Spain, it became much easier and cheaper to produce books. Books became trade goods sold on the expanding trade routes all over Europe.

Wealthy customers—often merchants and aristocrats—bought scientific books to add to their libraries. The scientific books translated from Arabic two centuries earlier in Spain now became available in print. Authors with Latinized Arabic names like Avicenna for Ibn Sina, Geber for Jaber, Averroes for Ibn Rushd, and many others appeared in the new printed books on subjects like medicine, astronomy, agriculture, metallurgy and meteorology. Most of the works that had such an impact on teaching in the early European universities back in the 1200s now had an even greater impact. Some were printed and re-printed during the next three hundred years. The work of these Muslim, Jewish and Christian scholars centuries earlier jump-started a new age of discovery in Europe. The Scientific Revolution of the 16th and 17th centuries has roots in the transfer of knowledge five centuries before, and the developments in scholarship and education that led to the Renaissance.



The changes that led to the Renaissance and Scientific Revolution – which in turn brought about the Industrial Revolution—were not the accomplishment of just a few people in one part of the world. Knowledge of history proves that modern inventions and scientific understanding were the product of exchanges among many cultures, over a very long period of time. They are the result of humanity's desire and cooperation to preserve and pass on knowledge from one generation to the next.

Activity Sheet 11e: Who Were the European Translators of Arabic Books in Spain?¹

What made European scholars of the 11th and 12th century leave the comfort of their homelands to endure the hardships of travel and learning a foreign language and customs? What drew them to Muslim Spain? Fortunately, we know many of their names, and can even hear their own voices telling us why they undertook the task.

Stephen, who worked at Antioch in 1127 on a translation of Ali Ibn Abbas's famous medical book *Liber Regalis*, preached the importance of transferring Arabic knowledge into Latin. He had learned Arabic in order to advance from "the naked beginnings of philosophy," and to study, "*God willing...things far higher, extending to the excellence of the soul.*" He was looking for "*more famous things which the Arabic language contains, the hidden secrets of philosophy.*"²

Raymond of Toledo (1125-1155) actively promoted translations of Muslim scientific books into Latin. In Toledo, he said there was "*a wealth of Arabic books, and a number of masters of the two tongues, and with the help of the Mozarabes—Arabized Christians and resident Jews—there arose a regular school for the translation of Arabic-Latin books of science, which drew from all lands those who thirsted for knowledge.*"³

One of the most famous translators, the Englishman **Adelard of Bath**, contrasted the knowledge he was receiving with what was available in Europe: "*from the Arabic masters I have learned one thing, led by reason, while you are caught by the image of authority, and led by another halter.*"⁴

Translators **Hermann of Carinthia** and **Robert of Ketton** wrote letters to each other about their work. Ketton mentions the lack of knowledge of astronomy among the Latins, as did **Plato of Tivoli** in 1145, saying, "*The Latins...have not a single author in astronomy...only foolish dreams and old wives fables.*"⁵

Robert and Hermann stated that they worked to bring out "*the innermost treasures of the Arabs.*"⁶

After **Gerard of Cremona**, who made more than eighty translations from Arabic, died at the age of 73 in 1187, his students wrote about his life and work. He went to Toledo because of his passion for medicine, and to get the *Almagest* (*al-Majisti*, a work of geography and astronomy). While he was there, he and his assistant, Ghalib the Mozarab translated texts from Arabic to Latin by working together: "*There, seeing an abundance of books in Arabic on every subject, and regretting the poverty of the Latins in these things,*

¹ The translators' quotations in this activity are taken from the teacher resource guide *Emergence of Renaissance: Cultural Interactions between Europeans and Muslims* (Douglass and Alavi, Council on Islamic Education, 1999), pages 136-137.

² Norman Daniels, *The Arabs and Medieval Europe*, (London: Longman, Librarie du Liban, 1979), p. 268.

³ Mehdi Nakosteen, *History of Islamic Origins of Western Education, AD 800-1350*, (Boulder: University of Colorado Press, 1964), p. 185.

⁴ Daniels, p. 270.

⁵ Nakosteen, p. 185.

⁶ Daniels, p. 275.

he [Gerard] learned the Arabic language in order to be able to translate. In this way he passed on the Arabic literature...To the end of his life he continued to transmit to the Latin world (as if to his own beloved heir) whatever books he thought finest, in many subjects, as accurately and plainly as he could.”⁷

Daniel of Morley, another Englishman, told the Bishop of Norwich why he went in search of Arabic knowledge: “My passion for knowledge had chased me from England. I stayed for a while in Paris. There I saw only savages settled with grave authority on their scholarly seats, with two or three work stands in front of them loaded with enormous tomes [volumes of books]...writing plumes in their hands, with which they gravely painted asterisks and obeli [mistake markers] in their books. Their ignorance forced them to remain as still as statues, but they pretended to show their wisdom with such silence. As soon as they opened their mouths I heard only the babbling of babes. Having understood the situation, I sought the means of escaping...Therefore, since at present the instruction of the Arabs...is made available to all in Toledo, I hastened there to attend the lectures of the most learned philosophers in the world. As my friends summoned me back and invited me to return from Spain, I went to England with a precious collection of books.”⁸

Peter the Venerable was an abbot who went to Spain to inspect monasteries and stayed to translate the *Qur'an*, in 1142. He was moved by the spirit of the Crusades: “Whether one gives the Muslim misconception the shameful name of heresy or the vile name of paganism, we must act against it, that is, we must write....I thus went in search of specialists in the Arabic language which has enabled this lethal poison to infest more than half the globe. Using pleas and money I persuaded them to translate the history and the doctrine of that unfortunate man [Muhammad] and his law which is called the Koran from Arabic into Latin. And to ensure that the translation would be entirely accurate and no errors would hinder our complete understanding I included a Saracen among the Christian translators.”⁹

DISCUSSION QUESTIONS ABOUT THE TRANSLATORS' WORDS

1. What complaint does Daniel of Morley bring against the University of Paris? Did he find satisfaction in Toledo, Spain?
2. What do these translators seem to mean by “philosophy”?
3. In what way is Gerard of Cremona typical of the translation effort?
4. Contrast the attitude toward Arab learning of Peter the Venerable and Daniel of Morley and Adelard of Bath.

⁷ Richard Fletcher, *Moorish Spain* (New York: Henry Holt and Co., 1992), p. 151.

⁸ Jacques LeGoff, *Intellectuals in the Middle Ages*, (Cambridge, MA: Blackwell, 1993), pp. 18-19.

⁹ LeGoff., p. 16.

Activity Sheet 11f: Mapping the Transfer of Knowledge across Time and Space

DIRECTIONS

1. Label the places on the map that correspond to the labels on the diagram.
2. Using the dates noted in the callout boxes, make a timeline on the back of this paper that shows the order in which preserved and new knowledge was transferred among different civilizations over time.

