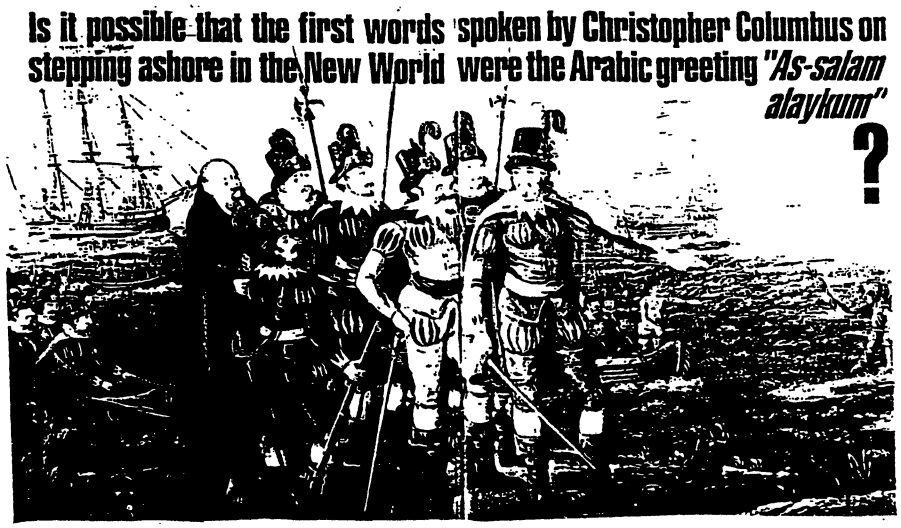
middle east resources

Information for Teaching about the Middle East at the Pre-college Level

March 1992 Vol. 13 No. 2



The Columbus / Arab Connection

Arabic had been the scientific language of most of humankind from the eighth to the 12th century. It is probably for this reason that Columbus, in his own words, considered Arabic to
1 be "the mother of all languages," and why, on his first voyage to the New World, he took with him Luis de Torres, an Arabic-speaking Spaniard, as his interpreter.

Columbus fully expected to land in India, where he knew that the Arabs had preceded him. He also knew that, for the past five centuries, Arabs had explored, and written of, the far reaches of the known world. They had been
2 around the perimeter of Africa and sailed as far as India. They had ventured overland beyond Constantinople, past Asia Minor, across Egypt and Syria – then the western marches of the unknown Orient – and into the heart of the Asian continent. They had mapped the terrain, traced the course of rivers, timed the monsoons, scaled mountains, charted shoals and reached China, and, as a result, had spread Islam and the Arabic language in all these regions (See *Aramco World*. November-December 1991).

It was on the 33rd day of his voyage, October 12, 1492, that Columbus made his landfall. At that point, he probably stood on the shores of a Bahamian island named Guanahani – which he immediately renamed San Salvador and claimed for "their sovereign majesties, the king and queen of Spain."

Probably the first of his surprises that day was his discovery that the "Indians," as he called the islanders he greeted, did not speak Arabic.

Still, he remained undaunted and wrote in his log for Friday, October 12, that he was certain he had only to sail on through these outer islands of India to reach the riches of Cipangu (Japan) and China, a journey of only a further 1000 miles. Here, he was convinced, he would greet the Great Khan, an emperor of vast wealth who spoke Arabic and ruled over lands of gold, silver and gems, silks, spices and valuable medicines.

One may wonder how Columbus, a 41-year-old professional mapmaker, avid reader, researcher and seasoned mariner, a man who had spent the greater part of his adult life planning his great venture to the west, could have been so far off in his calculations.

One explanation may be that, as well as a master mariner, he was also a clever politician. As a Christian whose expedition was funded by two Christian monarchs, King Ferdinand II of Aragon and Queen Isabella I of Castile, Columbus's miscalculations may well have been due not to a lack of navigational information – of which there was a great deal available – but to a calculated decision to use "acceptable" sources of scientific knowledge and to exclude or ignore other, more "foreign" sources.

During the seven centuries of Arab dominion over Spain and Portugal, from AD 711 to 1492, there had developed a culture of Muslim arts and sciences which had a deep and permanent effect on the life, arts and sciences of Europe. The roots of this culture went as far back as Europe's Dark Ages, which can be defined as lasting roughly from AD 476 to 1000, during which the Arab world was the incubator of Western civilization. The Arabs not only preserved, refined, updated and translated into Arabic the rich heritage of classical Greek knowledge, but they also added original and significant new contributions (See *Aramco World* May-June 1982)

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Center for Middle Eastern Studies, Harvard University

Once Europe began its explorations of the world of knowledge, it turned not to Greek or Roman sources, most of which were lost or inaccessible, but to Arabic scientific writings. Recognizing this, Europeans in the 12th century embarked on a massive program of translation of these sources, founding a college of translators in Toledo, Spain, from which most of the Arab works on mathematics and astronomy were first made available to Europe's scholars.

During that period and even earlier – in fact, dating back to the days of the Roman Empire (27 BC to AD 284) – people had discussed the idea of sailing west to find the riches of the Golden East. Yet no one had ever tried it.

By the seventh century, however, the Arabs were thoroughly familiar with the *eastward* approaches to the Orient. For over 300 years they had explored much of the known world. From Delhi and Agra in the east, through Tehran, Baghdad and Damascus, to Cairo, Tripoli, Tunis and Cordoba in the west, Arab scientists and explorers had expanded the knowledge of the known world and pushed back the horizons of the unknown.

Ultimately, this knowledge – along with philosophy, logic, mathematics, natural history and much else – was to be found written down in the
3 great libraries that were the flowers of Spain's brilliant Muslim-Christian-Jewish culture, and in libraries elsewhere in Europe. Arab geographical encyclopedias, dictionaries, maps and charts, as well as books on mathematics, astronomy and navigation, and treatises on vastly improved navigational instruments, reposed there in Muslim Spain and in the Middle East.

So, too, did the theory of "the new world beyond the Sea of Darkness," the idea of an uncharted continent that lay to the west of the known world. There seems to be little doubt that it was the Arabs who first made the maps that led Columbus to the New World.

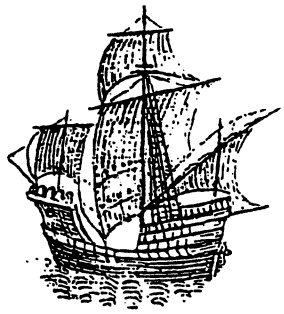
Growing up in a major seaport, Columbus could not have escaped hearing about Arab exploits and Arab seafaring skills at an early age. The son of Domenico Colombo, a prosperous weaver, Cristoforo Colombo was born in 1451 and grew up in Genoa. A great cosmopolitan merchant center in the mid-1400's, Genoa had colonies in Egypt, Syria, Cyprus, Constantinople, and on the shores of the Black Sea and the Sea of Azov.

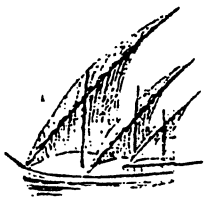
From these far-flung colonies, Genoese merchants, colonists, diplomats and missionaries ventured forth into Anatolia, Georgia, the Caspian Sea, Persia and India. In the mid-15th century, the Levantine coast was an open door to
4 the East, ideally situated for trading with the ports of the Black Sea and Asia Minor. Indeed, 200 years earlier, when recording his wondrous tales of his journeys to the Far East, the Venetian traveler Marco Polo wrote of meeting Genoese and Venetian merchants on the Great China Road. From some of Columbus's letters, we know that he was profoundly affected by Marco Polo's account of his travels.

The prosperous Colombo family lived in a house near the Porta Sant' Andrea, and by his own account, we know that by the time he was 10 years old, the young Columbus loved the bustle of the port. He would linger on the docks and watch the seamen going back and forth from the giant sailing ships crowding the harbor, ships that had arrived across shining seas from far-off and exotic places like Chios and Constantinople, Egypt and Tunis and Syria. He and his friends liked to play games among the bales and crates of silk and cotton, the kegs of oil and wine and spices.

Entranced, he would sit down with the sailors, a small blue-eyed, red-haired lad, and listen raptly to their tales of the magical lands to the east. It is hard to imagine that the boy Columbus would not have been stirred by the daring exploits of these sailors, many of them from the Levant – or by the tales he heard later when, as a seagoing lad of 14, sailing out of Genoa, he listened to the shipboard tales of the venturesome Arab traders who roamed the eastern Mediterranean.

He was unlettered and unread in those days. Not until years later did he teach himself to read, and then it was not in his native Italian, but in Castilian Spanish.





—Indeed, Columbus wrote in a letter in 1501 that during his many voyages to all parts of the world, he had met learned men of various races and sects and had "endeavored to see all books of cosmography, history, and philosophy and of other sciences." It is therefore unlikely he would have overlooked the more than four centuries of Muslim science and exploration available to him so close at hand.

According to one of his biographers, the American Samuel Eliot Morison, author of *Admiral of the Ocean Sea*, Columbus did some "heavy combing through ancient and medieval authorities on geography" before setting out on his voyage "in order to gather information and ammunition for his next bout with the experts." If this is so, he could hardly have missed such translated works as al-Biruni's *History of India* and Yaqut's *Mu'jam al-Buldan*. It would seem also that he would have delved eagerly into Ibn Battuta's 13th-century *Rihlah* (Journey), in which that greatest of early travelers writes about his 120,000-kilometer (75,000-mile) trip from North Africa to China and back. 2

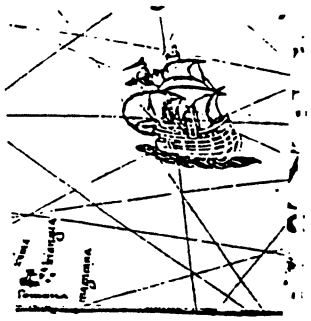
Al-Idrisi's 12th century map of Europe and the Islamic world.

By the time Columbus arrived in Portugal, he was somewhere in his mid-20's. The Christians had reconquered much of Spain and Portugal from the Muslims. Nonetheless, because of the Muslim heritage, the Iberian Peninsula was still Europe's center of intellectual and artistic endeavor. Lisbon, where Columbus lived while planning his voyage into the Atlantic, was the capital of Portugal and a learned city in which it would have been easy for him to get the books and materials he needed to pursue his research. Since his youth, he had learned Spanish, Portuguese, Latin and other languages. It therefore seems likely that Columbus – sailor, navigator, professional cartographer and later son-in-law of one of Henry the Navigator's sea captains – would have drawn on this wealth of Muslim geographical knowledge.

From several of his other biographers, most notably the Spanish priest Fray Bartolomé de las Casas, it is also known that Columbus was an avid reader of books on geography and cosmography. Four of the books he owned have been preserved: a 1485 Latin translation of the *Book of Ser Marco Polo*, an Italian translation of Pliny's *Natural History* printed in 1489, Pierre d'Ailly's *Imago Mundi* and minor treatises, and a 1477 edition of the *Historia Rerum Ubique Gestarum* by Pope Pius II.

Columbus also admitted relying heavily on information he gleaned from the school of navigation founded by Prince Henry of Portugal, often known as Henry the Navigator. Around 30 years before Columbus's first voyage, some of the prince's caravels had sailed west, to the outer edge of the Azores and perhaps as far as present-day Newfoundland. Concluding that there were other lands to explore beyond what Ptolemy had described in his second-century *Guide to Geography*, and eager to retain and organize the geographical information in the possession of sailors and navigators – many of them from the Levant – the prince established the school at Sagres, in southern Portugal, to act as a sort of clearing house for present and future knowledge of the sea. It may have been from this source that Columbus discovered that when, years earlier, Vasco da Gama had sailed along Africa's east coast, he was guided by an Arab pilot, Ahmad ibn Majid, who used an Arab map then unknown to European sailors.

And yet, despite all this available information, Columbus made a major miscalculation of the distance he had to sail to reach the other side of the globe.



Polo's estimate of the length of Asia was correct and that it was only 3000 miles from Lisbon westward to Japan and 5000 to Hangzhou, China, Columbus accepted the figures he wished most to hear. It was Toscanelli's chart he took with him on his first voyage of discovery.

Columbus also believed that his voyage west from Spain to India, though difficult, would be short. Using maps and information based on the calculations of Ptolemy and Martin Behaim, the German cartographer, he believed he could reach China after no more than a 4000-mile voyage. This notion was confirmed by Pierre d'Ailly's *Imago Mundi*, a book that, according to Columbus's son and biographer Ferdinand, was his father's bedside companion for years. (Columbus's copy, its margins covered with hundreds of hand-written notes, is in the Seville museum.) D'Ailly believed that the western ocean, between Morocco and the eastern coast of Asia, was "of no great width." He followed the system of Marinus of Tyre, a second-century Greek who made Eurasia very wide east to west, and the Atlantic Ocean narrow, and predicted that the latter could be crossed in a few days with a fair wind.

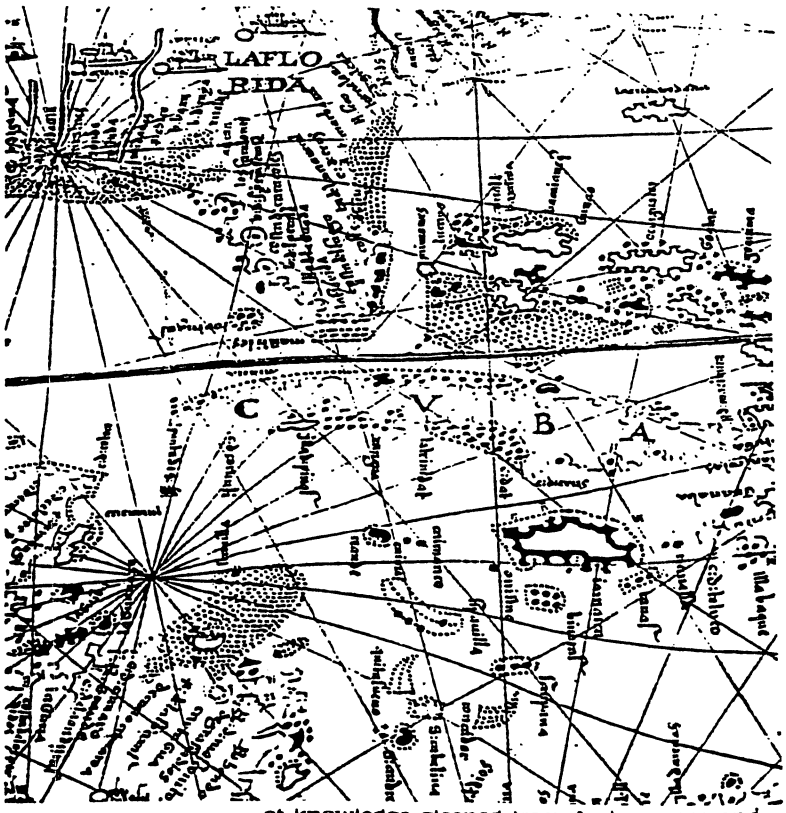
According to Columbus's log – the original of which has been lost, or, as some historians suggest, destroyed – he sailed his tiny fleet of three small ships to the New World by dead reckoning. This means he crossed the vast expanse of Atlantic Ocean between the Canary Islands and the Bahamas using only a mariner's compass and dividers, a quadrant and lead line, an *ampolleta*, or half-hour glass, a ruler, and charts. His charts were sheepskins that showed the coasts of Spain, Portugal and North Africa, the Azores, Madeira and the Canaries. He took his course from his mariner's compass, developed from the magnetic needle used four centuries before by Arab navigators. His quadrant was an early invention of the great Arab astronomer Ibn Yunus of Cairo.

There is no doubt that Columbus deserves to be celebrated, in this anniversary year, for his courage, perseverance, sailing skills and superb navigational ability. On the other hand, one can only wonder what might have happened that October day in 1492 had he heeded eight centuries of Arab invention and navigational knowledge. Certainly it would have made his navigation easier, his fears fewer, and his landfall more accurate.

Aileen Vincent-Barwood, former Middle East correspondent, newspaper editor and author, free-lances from upstate New York.

Courtesy of Aramco World January-February 1991

the New World in the Juan Martinez atlas.



That the earth was a sphere was not a new idea, and it was widely accepted by well-educated people in Columbus's time. So was the Greeks' division of the spherical earth into 360 degrees, but where sources differed was on the question of the length of a degree. The correct measurement, we know today, is about 111 kilometers (60 nautical miles) per degree at the equator. In the third century BC, the Libyan-born Greek astronomer Eratosthenes, director of the library at Alexandria, had come up with a remarkably accurate calculation of 110 kilometers (59.5 nautical miles) per degree; in the second century, the great Alexandrian geographer Ptolemy had calculated the degree at 93 kilometers (50 nautical miles). In the ninth century, Muslim astronomer Abu al-'Abbas Ahmad al-Farghani, whose works were translated into Latin during the Middle Ages and who – under the name Alfraganus – was studied widely in Europe, had calculated that a degree measured 122 kilometers (about 66 nautical miles) – not as accurate a result as that of Eratosthenes, but better than Ptolemy's.

Either Columbus erroneously used Roman miles in converting al-Farghani's calculations into modern units of distance – thus coming up with a figure of 45 miles per degree at the equator – or, after first deciding that al-Farghani's figure was right, chose in the end, perhaps for reasons of policy, to follow the revered and irrefutable Ptolemy, whose *Geography*, in its first printed Latin edition, had gained great popularity in 15th-century Europe. In the first case, Columbus would have underestimated the distance he had to sail to reach Asia by a third; in the second, by some 25 percent.

Had Columbus but accepted the ninth-century findings of a consortium of 70 Muslim scholars, working under the aegis of Caliph 'Abd Allah al-Ma'mun, who had gathered them to determine the length of a degree of latitude, he might have avoided many mistakes.

Using wooden rods as measures, the caliph's scholars traveled a north-south road until they saw a change of one degree in the elevation of the pole star. Their measurements resulted in an amazingly accurate figure for the earth's circumference: 41,526 kilometers, or 22,422 nautical miles – the equivalent of 115.35 kilometers per degree. By Columbus's time, a wealth of knowledge gleaned from Arab science and exploration rested in the libraries of Spain and Portugal. Al-Biruni had accurately determined latitude and longitude and – six hundred years before Galileo – had suggested that the earth rotated on its own axis. One hundred years later, in the ninth century, the mathematician al-Khwarizmi had measured the length of a terrestrial degree and Arab navigators were using magnetic needles to plot accurate courses. It was around this time, too, that the Arab astronomers Ibn Yunus and al-Battani – or Albategnius, as he was known in Europe – improved the ancient astrolabe, the quadrant, the sextant and the compass to the point that, for hundreds of years afterward, no long-distance traveler could venture forth without them. By the 12th century, the Hispano-Arab geographer al-Idrisi had completed his voluminous world atlas containing dozens of maps and charts (See *Aramco World*, July-August 1977). 5

In calculating the distances he had to travel to reach India and the Orient, Columbus chose not to rely on the Arab and Muslim sources. He was, instead, greatly persuaded by the theory of Paolo Toscanelli, a Florentine physician who dabbled in astronomy and mathematics. When he saw Toscanelli's charts stating that Marco

1. Arabic: "The Mother of All Languages"

In the thousand years between the fall of Rome and the discovery of the New World, no single event in history was more significant than the rise of Islam. United by the monotheistic religion revealed to the Prophet Muhammad in the early seventh century, the Arabs conquered the territories of the Byzantine (Roman) and Sasanid (Persian) empires. A *jihad* (religious struggle) to expand the empire led to the capture of Rome's Middle Eastern possessions (Palestine, Syria, Egypt, and Cyrenaica) in little more than a decade. Within a century Muslim soldiers would be serving from Spain (715) in the west, across North Africa and the Middle East, to the borders of China in the east. Western historians once viewed the Arab victories as the main events separating the ancient world from the Middle Ages.

Much like America today, the Arab world of the seventh to the thirteenth centuries was a great cosmopolitan civilization. it was an enormous unifying enterprise, one which joined the peoples of Spain and Africa in the west with the peoples of the ancient lands of Egypt, Syria, and Mesopotamia in the east.

It was the rapid expansion of Islam that initially brought this empire together. Alliances were made, trade routes were opened, lands and peoples welded into a new force. Islam provided the dynamism, but it was the Arabic language which provided the bond that held it together. Islam spread to lands more distant than North Africa and the fertile crescent, but it was in this area that a common Arab culture emerged. For at least six hundred years it maintained a vigorous, if somewhat checkered, existence, gradually spreading over a geographical area that extended from Andalusia to Central Asia.

This immense and long-lasting enterprise has been called "Arabic," firstly, because it owed its inception to Arab initiative and Arab patronage and secondly, and more importantly, because the Arabic language was the medium in which it developed. The individuals who took part in its growth represented many ethnic groups: among the first translators, physicians, and astronomer-astrologers were Syrian Christians, Persians, and Jews. The Arabic language was the unifying thread. Until the translation movement began, Arabic had been the language of poetry, of the Qur'an, and of the recently developed disciplines concerned with Islamic religion and with the Arabic language itself. But it rapidly became an international language of science. Scientific texts available for translation into Arabic included works in Sanskrit, Syriac, and Pahlavi, as well as in Greek. This wide-ranging process of translation into Arabic led to an accumulation of scientific learning that surpassed anything previously known.
sources:
Arab Contributions to Civilization
A Concise History of the Middle East
The Genius of Arab Civilization: Source of Renaissance
Muslim Spain

2. Ibn Battuta: Arab Explorer

Born into a well-to-do Berber family of Tangier in A.D. 1303, Ibn Battuta was educated for a legal career and, before setting out on his pilgrimage to Mecca, planned to follow law in Tangier. En route to Mecca, however, he visited one of the seven wonders of the ancient world -- the ruined lighthouse of Alexandria, built by the Ptolemies 16 centuries before -- and heard an arresting comment from a pious ascetic of Alexandria which apparently whetted his appetite for more wonders. "I see that you like to travel and roam strange lands," the ascetic said, adding calmly, "You must certainly, if God wills, visit my brother Farid al-Din in India, and my brother Rukn al-Din Ibn Zakariya in Sind, and my brother Burhan al-Din in China. When you see them, greet them for me."

"I was astonished at this speech," Ibn Battuta wrote later, "and the desire to go to those countries was planted in my mind. I never ceased to travel until I had met the three men that he named and given them his greeting."

Ibn Battuta must have been the the hardiest traveler of his time. He was not a professional geographer, but in his travels by horse, camel, and sailboat, he covered over seventy-five thousand miles. His wanderings, over a period of decades at a time, took him to Turkey, Bulgaria, Russia, Persia, and central Asia. He spent several years in India, and from there was appointed ambassador to the Emperor of China. After China, he toured all of North Africa and many places in western Africa. Ibn Battuta's book, *Rihla* (Journey), is filled with information on the politics, social conditions, and economics of the places he visited. However, he was far from being the first Muslim traveler. Even in pre-Islamic times, Arab merchants were constantly on the move, by ship or caravan, to other parts of Africa, to Persia, India and China, and who, after the Muslim conquest, could, and sometimes did, journey from the Pyrenees to the Indus River without leaving the Muslim Empire. There were also pilgrims, who traveled long distances to Mecca and Medina, as well as geographers and historians who traveled to collect information. But Ibn Battuta was indisputably the greatest.

sources:

The Adventures of Ibn Battuta: A Muslim Traveller of the 14th Century
Arab Contributions to Civilization
"ToTravel the Earth," *Aramco World*

3. The Flowering of Islamic Spain

Muslim rule in Spain lasted from 711, when the Arabs and Berbers invaded and expelled the Visigoths, until 1492, when the Castillian Christians in turn expelled the Muslims from their last strongholds there. Throughout this lengthy period, Islamic culture and the Arabic language gradually spread across Andalusia, developing slowly because of internal conflicts and the distance from the eastern cultural center but ultimately gaining strength and significance. The uniquely Hispano-Arabic forms of poetry that developed are of peculiar importance to the West, because it was in Andalusia that Arabic and European literatures merged, with a resulting influence on Western styles and modes of feeling.

The Muslim courts of Spain also included centers for the translation of Arabic into Latin. As early as the twelfth century, scholars from France, England, Italy, and Germany came to Spain in pursuit of knowledge and became conversant with Arabic culture through these translation centers. Hispano-Arabic civilization had already involved the synthesis of many diverse cultural elements, and through this synthesis Spain was able to serve as a bridge between the Orient and the West. Though the Arab impact on the European Renaissance has long been recognized, the role that Arabic literature played in the medieval East-West synthesis has yet to be fully acknowledged and explored.

The Arab world enhanced and developed the arts and sciences and preserved the libraries of the early centuries of the Greek, Roman, and Byzantine cultures. New discoveries were made in the sciences and arts which improved the life and condition of Man, and thousands of Arab contributions have become an integral part of human civilization.

Classic works of Jewish philosophy were also composed during this period. Hebrew philology, lexicography, and grammar were all firmly established, a veritable renaissance of the Hebrew language as an artistic medium. The finest Hebrew poets since the Prophets and Psalmists wrote sublime verses whose beauty still stirs the heart today. Probably at no other time in the thirteen hundred years of Jewish history under Islam were the Jews as thoroughly assimilated into the general cultural milieu of the Arabic-speaking world.

sources:

Arab Contributions to Civilization
The Genius of Arab Civilization
The Jews of Arab Lands: A History and Source Book

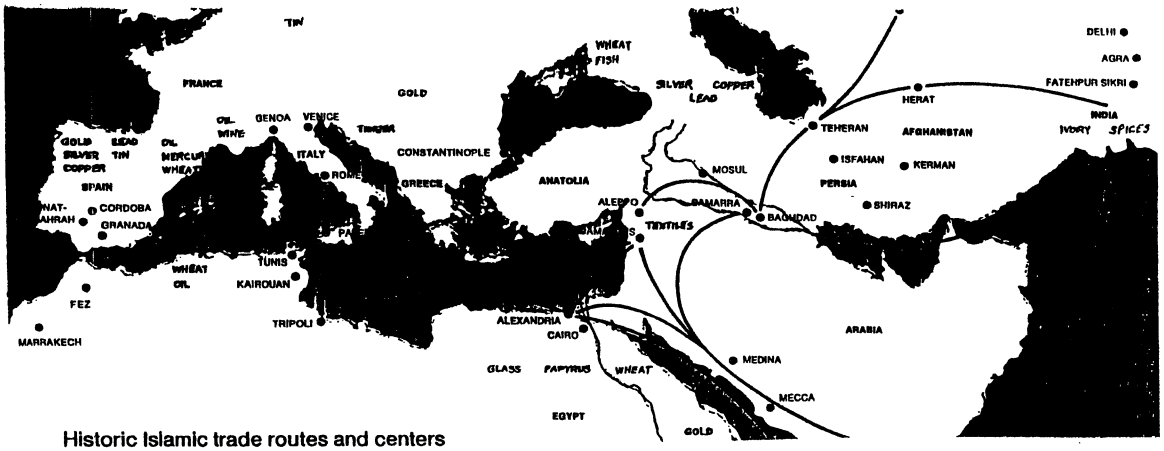
4. Trade and The Levantine Coast's "Open Door"

The place of trade and commerce in the Arab empire and their subsequent impact on Europe during the Middle Ages and the Renaissance were determined by three interlocking elements: geography,historical development, and the special input of Islam. A map of Europe and Asia indicates precisely why the territory encompassed by the Arab empire from the eighth to the early twelfth century forms a natural trading and commercial entrepot. During this time, the trade between Europe and the Islamic countries consisted chiefly of the exchange of raw materials from Europe (wood, iron, furs, slaves) for manufactured products and luxury agricultural items, such as spices, from the Arab empire. The lasting Islamic impact on Europe did not result from the military confrontations of the Crusades but rather from the long years of Arab rule in Spain and Sicily. Through the innovations brought to these areas, new goods, processes, technology, and concepts were introduced into a Europe that was far less developed at that time than the world of Islam. That the debt of Europe and Western culture to Islam has been largely forgotten is evidence of how fully assimilated the Arab influence has been in the Western world. The Islamic contribution has become part and parcel of its heritage.

sources:

The Genius of Arab Civilization

The Islamic Heritage



Historic Islamic trade routes and centers

5. Navigation and Geography: Al-Idrisi

The world's earliest navigational and geographical charts were developed by Canaanites who, probably simultaneously with the Egyptians, discovered the Atlantic Ocean. The medieval Arabs improved upon ancient navigational practices with the development of the magnetic needle in the ninth century.

One of the most brilliant geographers of the medieval world was al-Idrisi, a twelfth century scientist living in Sicily. Al-Idrisi was born in Ceuta, Morocco, across the strait from Spain. After studying in Cordoba, in Muslim Spain, he spent some years in travel, covering the length of the Mediterranean, from Lisbon to Damascus. In the course of his journeys he discovered his real passion: geography. He was commissioned by King Roger II, son of a Norman-French soldier of fortune who had conquered Sicily at the beginning of the 12th century, to compile a world atlas.

Sicily was a meeting ground for the two civilizations, European and Arabic. Captured by the Arabs in 831, the island had remained in Muslim control until the end of the 11th century. Like Muslim Spain, it was a beacon of prosperity to a Europe caught in the economic slow-down we call the Dark Ages. The occupying Arabs had built dams, irrigation systems, reservoirs and water towers, introduced new crops -- oranges and lemons, cotton, date palms, rice -- and exploited the island's mines and fishing grounds.

Roger's interest in geography was the expression of a scientific curiosity just awakening in Europe, but inevitably he turned to a Muslim for help. The reason behind the Muslim domination

of the field of geography was simple: economics. While medieval Europe had become fragmented and parochial, both politically and commercially, the Muslim world was unified by religion and culture. Muslim merchants, pilgrims and officials used so-called "road books," itineraries that described routes, traveling conditions and cities along the way. Christian Europe's approach to map-making was still symbolic and fanciful, based on tradition and myth rather than scientific investigation, and used to illustrate books of pilgrimage, Biblical exegesis and other works.

A few practical maps did exist -- mariners' charts showing coastlines, capes, bays, shallows, ports of call and watering and provisional places -- but these remained in the hands of navigators. Information from travelers, too, filtered only very slowly onto Christian maps. What King Roger had in mind, therefore, was something as factual as the mariners' charts, but encompassing the whole known world. The mission he entrusted to al-Idrisi was intellectually Herculean: to collect and evaluate all available geographical knowledge -- from books and from on-the-spot observers -- and to organize it into an accurate and meaningful representation of the world. His purpose was partly practical, but mostly scientific: to produce a work which would sum up all the contemporary knowledge of the physical world.

After examining at length the geographical works they had collected, the king and the geographer observed that they were full of discrepancies and omissions, and decided to embark on original research. Sicily's busy and cosmopolitan ports provided an ideal place for such an inquiry, and for years hardly a ship docked at Palermo, Messina, Catrania, or Syracuse without its crew and passengers interrogated about the places they had visited. The commission's agents haunted the ports, and if they discovered a traveler who had visited any particularly exotic region, he was conducted to the palace at Palermo to be questioned by al-Idrisi or even by Roger. What was the climate of the country, its rivers and lakes, mountains, coastal configurations and soil? What of its roads, buildings, monuments, crops, crafts, imports, exports, and marvels? What, finally, were its culture, religion, customs, and language? In addition, scientific expeditions were dispatched to areas on which information was lacking. These expeditions were accompanied by draftsmen and cartographers so that a visual record of the country could be made. During this research, al-Idrisi and Roger compared data, keeping the facts on which travelers agreed and throwing out all conflicting information. This process of collecting and assessing material took 15 years.

Finally, however, the long preliminary study was finished and the task of map making began. First, under al-Idrisi's direction, a working copy was produced on a drawing board, with places sited on the map with compasses, following the tables that had already been prepared. Then a great disk almost 80 inches in diameter and weighing over 300 pounds was fabricated out of silver, chosen for its malleability and permanence.

Al-Idrisi explained that the disk merely symbolized the shape of the world: "The earth is round like a sphere, and the waters adhere to it and are maintained on it through natural equilibrium which suffers no variation."

As his comment suggests, al-Idrisi thought that the world was round. Nor was he alone. Contrary to a still popular misconception that up to the time of Columbus everyone believed the world was flat, many scholars and astronomers since at least the fifth century B.C. had believed that the earth was a globe. Al-Idrisi's silver disk, or "planisphere," was a form of projection considerably in advance of others of its time.

To accompany the silver map, al-Idrisi prepared for Roger a book containing the information gathered by the geographers: *Nuzhat al-Mushtaq fi Ikhtiraq al-Afaq* (The Delight of One Who Wishes to Traverse the Regions of the World), or more simply, *al-Kitab al-Rujari* (Roger's book). This work became the best description of the world in medieval times.

sources:

Arab Contributions to Civilization

"Al-Idrisi and Roger's Book," *Aramco World*

STUDY MATERIAL FOR THE COLUMBUS/ARAB CONNECTION

Objectives: Students are familiar with the traditional story of Columbus and his voyage to the "new world." The *Aramco* article shows the connections between the Arab empire from the 8th to the 15th centuries, and the southwestern European lands of Spain, Portugal, and Sicily.

TRUE OR FALSE?

1. During the period from the 8th to the early 12th centuries trade between European and Islamic lands consisted chiefly of the exchange of manufactured products from Europe for raw materials such as wood, iron and slaves from the Arab empire.

2. The lasting Islamic impact on Europe resulted from the military confrontations of the Crusades.

3. Muslim courts of Spain included centers for the translation of Arabic writings into Latin.

4. In drawing new maps, Al-Idrisi assumed the world was flat.

5. The "Golden Age" of Spain included contributions from Muslim, Jewish, and Christian cultures.

6. The Arab world preserved the libraries of early Greek and Roman cultures.

7. The finest Hebrew poems since the psalms of the Bible were written during this Hispano-Arab period.

8. If Columbus had been successful in his voyage, he would have been the first person from the Mediterranean lands to have sailed to India.

9. Arabic was spoken only on the Arabian peninsula.

10. In 1492 Jews and Arabs were expelled from Spain by King Ferdinand and Queen Isabella.

QUESTIONS FOR DISCUSSION

1. Columbus considered Arabic to be "the mother of languages." What did he mean by this?

2. Almost 200 years before Columbus, Ibn Battuta, an Arab explorer, had ventured as far as India and China. Compare the goals and results of his travels with those of Columbus.

3. The Arab dominion over parts of Spain and Portugal lasted from 711 to 1492. How and why did the Arabs gain control of these areas?

4. Why are these years called "The Golden Age" or "The Flowering of Spain"?

5. What are some of the important contributions from this period of Muslim, Jewish, and Christian cultures?

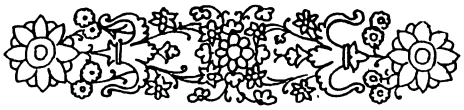
CAN YOU IDENTIFY THESE NAMES?

1. Al-Idrisi
2. Luis de Torres
3. Astrolobe
4. The Crusades
5. Queen Isabella I
6. Islam
7. Roger II
8. San Salvador
9. "The GoldenAge"
10. The Great Khan

MATCH THE COUNTRY WITH ITS EXPORTS

Trade accounted for much of the travel in Columbus' time. Read the map on page 6 showing the most popular trade routes between countries and the goods that were traded. Draw a line from the country to the goods that they exported.

1. Tunis, North Africa	1. Textiles
2. Grenada, Spain	2. Oil, wine
3. Genoa, Italy	3. Papyrus, glass
4. Alexandria, Egypt	4. Wheat, oil
5. Damascus, Greater Syria	5. Ivory, spices
6. India	6. Gold, silver



SCHEHERAZADES ALL WORKSHOP

Scheherazade was one of the world's greatest story tellers, keeping the Sultan entertained for 1001 nights, preserving both her marriage and her head. We won't strive to match her feat, but we will practice together the art of storytelling, using stories drawn from a rich body of folklore, fables, and fairytales from Iran, Turkey, Israel, and the Arab world. This is a most enjoyable way to share the culture of the Middle East and North Africa with children of all ages.

CROSS-CULTURAL SIMULATION GAME WORKSHOP

Bfa-Bfa is a simulation game that illustrates the complexities involved in encountering a foreign culture. It is an ideal way to begin a unit that deals with the Middle East (or any culture) as it prepares the ground for examining systems, cultures and values that are different from one's own and for understanding how intercultural interaction can result in misunderstanding and conflict. The Teaching Resource Center will hold a workshop to introduce teachers to this exercise. It will be conducted by Debbie Gilman, graduate student at the Center for Middle Eastern Studies, and Sarah Feldman, graduate student at the School of Education at Harvard. Both women have taught at the American International School in Israel and have led numerous classes using this simulation game. The exercise will take about 40 minutes and will be followed by a light supper and a debriefing discussion.

REGISTRATION * * * REGISTRATION * * * REGISTRATION

_____I would like to attend the SHEHERAZADES ALL WORKSHOP on Thursday, May 7, 1992, 4:30-7:00 p.m.

_____I would like to attend the SIMULATION GAME WORKSHOP on Tuesday, May 19, 1992, 4:30-7:00 p.m.

Name_____ Tel._____

Address_____

_____Enclosed is $4.00 for a parking permit. Please make check payable to the Center for Middle Eastern Studies.

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The TRC is open Monday to Thursday, 1:00-5:00 p.m.
Carol Johnson Shedd is the Outreach Coordinator
The TRC telephone number is (617) 495-4078

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