

Chapter Two

**Evidences Emphasizing the Impact of
Arabic Legacy On European Intellect**

It is a well-known fact that each civilization had benefited from efforts of its predecessors, otherwise it was impossible for the world civilization to grow up or develop. Without making use of the ready heritage of past civilizations, every civilization would have found it inevitable to begin from zero point instead of building on a ready and available foundation.

Arabs grasped and assimilated the Indian, Persian, and Greek intellectual creations. They were not only responsible for preserving that ancient heritage, but they also added great contributions to it. Moreover, they corrected its course in different ways, rendering it of great help in assisting much in the emergence of the renaissance in Europe in the 15th century.

Muslims provided the human culture with a great heritage in different fields of science, culture, and literature. Their books were the principal references to translated into Latin for the benefit of the Europeans. They were considered for centuries the original light sources that guided scientists and researchers in European universities until the era of renaissance. We shall review the evidences, confirming the influence of Islamic intellect on the European one. We shall also point out, the contributions of Muslim scientists in establishing modern sciences, particularly in the fields of literature, philosophy, geography, history, arts, music, mathematics, astronomy, chemistry, physics, medicine , pharmacy, and other branches; a matter that had the greatest impact in assisting the emergence of modern European renaissance.

Literature

What Arabs offered to the European renaissance in the field of literature -particularly poetry- is different from any other field of sciences. Poetry of any previous civilization had not the least effect on Arabic poetry. Arabic poetry - created in the deserts of the Arabic peninsula - came only from those influenced by Arabic civilization. In the *Abbasid age*, literature was highly developed and poets adopted new styles regarding poetical meanings, subjects, and techniques, beside developing other different poetic arts suiting the Abbasid prosperity and civilization, specially in *Baghdad*.

The most famous poets in that period were:

Abu Nawwas, whose poems in love, wine and hunting were so popular.

Abu Tammam, was famous of his mental, and philosophical tendency in poetry. *al-Bohtory*, with his immortal poetic praises. *Ibn el-Roumy*, known of his profound poetic creations. *Abu el-Attahyia*, famous for his poetry in wisdom, fine love poetry. *al-Mutanabbi*, known of his pride, self esteem, and extreme talent. *Abu el-Alaa' al-Ma'ary*, the poet of wisdom and intellect.

There were also female poetesses, and writers, who played obvious roles in the literary arena such as *Raba'a el-Adawiyia* who committed herself to the love of God and sophism, princess *Alyia Bent el-Mahdy* of fine poetry and lyrics, *el-Abbassa bent el-Mahdy*, with the mysterious stories about her that relied heavily on imagination and *Aida al-Jahania*, who *El Siouty* described as a learned poetess and a significant writer.

European literatures were influenced by Arabic literature during the Middle Ages and the beginning of the Modern Ages, as we can see obvious Arabic influences in the poetry of love, popular verse, and proverbs. Islamic stories also became so famous and flourished in Europe in the 12th century. The Europeans became fond of Arabic literature for its creativity and originality. The orientalist Professor H. A. R. Gibb assured that in stating: "*The best thing that Islamic literatures granted to European ones was their influence on culture and intellect in medieval poetry and prose*". Oriental sorts of literature that had similar ones in Western literature were the real key of Europe to enter the world of Arabic literature, where Europeans found great interest in and appreciated so much. *Dante*, the Italian poet, stated that Italian poetry was born in Sicily where the Arabs were having a booming civilization and became common in *Provance* territory in south France from which it was spreading by ambulant poets named *The Troubadours*. Arabic poetry contributed to some extent, to the rise of the new types of poetry in Europe, especially these Provencal troubadours - whose poetry and music owed so much to the Arabs-. Arabic poetry was cultivated in the court of Alfonso the Wise of Castile and of the Norman kings and of Frederick II of Sicily. The troubadour poetry that appeared in Sicily in the royal court of King *Frederick The Second* was quoted from Arabic Andalusian literature that was distinguished with

extreme romanticism, fine love, weeping lamentations, chivalry traditions, suffering of needs, and praising feminine beauties.

The orientalist *Robert Briffault* emphasized by saying that "*Trobadour* verse was the offspring of Arabic poetry and was welcomed by Andalusian literary men as a new form that was deemed a literary revolution".

Europeans were extremely fond of Arabic literature, (*Alf Laila wa laila*) The one thousand and one nights (*The Arabian Night*) was published several times in both English and French. Europe was acquainted to the name of *Omar el-Khayyam*. Some European writers quoted Arabic literary subjects and passed them to Western literature. The Italian writer, *Buccaccio*, one of the well known figures in the Italian renaissance, built his book *Ten Days (Decameron)* on the tales of *The Arabian Nights* that were widely spread in Egypt and El Sham. The *Decameron* included one hundred tales mimicking the style of the Arabic one and were ascribed to seven females and three men settling in a remote retreat in some cities districts escaping from the plague epidemic. To break the boredom each of them had to relate a story to the group every morning by turn. Those tales spread in Europe and inspired the English Playwright *Shakespeare* with the subject of his play *All Is Well That Ends Well*. Another group of orientalis considered that *Gulliver's travels* written by Swift as well as *Robinson Crusoe* by Defoe derived their ideas from *The Arabian Nights* likewise.

Islamic poetry and prose heavily affected Italian poetry as vividly appeared in *La Commedia* of *Dante* (1265–1321) who lived in Sicily during the reign of King *Frederick the Second* - and who was a lover of Islamic culture-. *Dante's* comedy was considered the masterpiece of European literature and poetry in the 14th century. In that heroic epic, he described the hereafter in a form that exposed his ingenuity as a poet. At first, he imagined himself in hell and then was transferred to Purgatory and Paradise describing- their joys and miseries-. He also imagined that the great poet "*Virgil*" accompanied him in his journey as a guide. Throughout his work, *Dante* could embody what he imagined with great intelligence in an attempt to explore the secrets of the afterlife.

In comparing this comedy with *Risalat al Ghufuran* (*The Epistle of Forgiveness*) written by the great Arab philosopher and poet Abu al-Ala' al-

Ma'arri of Syria (973-1057). We can observe how much the latter inspired Dante with much of his concepts.

Divine Comedy also quoted from a book called Meccan Conquest, by *Mohei Eddin Ibn Arabi* - The Andalusian Muslim philosopher- which he wrote twenty-four years before Dante's birth- and also from the concepts of *Ibn Massara*, the professor of *Ibn Arabi* and the father of the well-known philosophical school. A common spirit pervades the two poems, with regard to the moral meaning emanating from sophism. Dante also took from *Ibn Arabi* and *Ibn Massara* their thoughts about paradise and hell- a fact emphasized by many orientalist; the most prominent one was the Spanish priest *Miguel Blathius* in his book *Islam and The Divine Comedy*. In the introduction, he states, "undoubtedly *Ibn Arabi* and his professor *Ibn Massara* were pioneers for Dante. Also, the *Comedia itself* is a story adopted from another one known in religious Islamic literature; namely *The Meraag Story*". Accordingly, Islamic principles formed the basis on which *The Divine Comedy* was built, and it was affected with Islamic thinking, when Dante tried to represent European Medieval concepts concerning the afterlife. Dante derived directly and indirectly from Islamic sources the thoughts of his poem. He also admitted his use of three translations of the story of *Israa and Meraag* in Spanish, Latin and French. The three translations were ordered by the King of Toledo *Alfonso the wise* and were published in Madrid under the title *Mohamed's Meraag*.

European literature was influenced by Arabic prose, particularly stories of animals with the vivid examples of translating the famous collection of *Kalila and Demna* into Spanish and also the stories of *The Seven Wise Men*, and the stories of *Sindbad*.

There are three groups of novels of oriental origin that influenced European literature in the Middle Ages: the first one is *Kalila and Demna* which has an Indian origin and reached Europe only via the Arabic translation by *Abdullah Ibn el-Moqaffaa*'. On its emergence, the Europeans considered it an ideal didactic book narrated by animals and birds. Since then it was translated into more than 40 languages, and was imitated by the Europeans in their stories such as *The Book of the beasts* written by the monk *Ramon Lull* and some stories of *Boccaccio* in his *Decameron* (*The Ten Nights*). Besides, the general form of a number of Italian stories

conformed with both *Kalila and Demna* and *The Arabian Nights*. In addition, *Sindbad* was also translated in the language of Castile in 1253 under the name of *A Book On Women's Conspiracies and Tricks*.

As for philosophical stories, Arabic stories deeply affected European intellect. The most prominent example was the beautiful Arab novel *Hayy Ibn Yaqzan* ("Living, Son of Awake") written by the great Arab Andalusian philosopher/physician Mohammad Ibn Tufayl (1109-85) (1110 – 1185) that concentrates on the reconciliation between religion and philosophy as pure mental contemplation and true faith are two ways leading to one result, which is, communication and unity with God . The Spanish *Pilayo* – in his book *Origins Of The Narrative* – described it as a masterpiece of Arabic Literature; It was translated into several European languages, the first of which was Latin in 1671 and then into English, Dutch, German, Spanish, French and others. The story was also imitated by a Spanish writer called *Gracian* in his book *The Critic* . The amazing resemblance between the two works, was also asserted by the Spanish researcher *Pilayo*.

Another point that can clarify the effect of Arabic literature on European literatures is the fact that these languages, particularly the Spanish one , have quoted many Arabic proverbs as mentioned by the orientalist *Gustave Lebon* in his book *Arabic Civilization* .

Briefly, it can be said that Spanish narrative literature since the 14th century until the 17th century was affected by collections of Arabic stories in a clear, evident way. The Spanish stories of cunning also shared similarities between their characters and those of *The Arabian Nights*. The story of *Antara*, and what it includes of courage and chivalry was of great interest and was subject to imitations.

European languages include a good deal of Arabic words; some of these words are still available while other words were slightly modified.

Here are only a few examples of those words that were common in the English language and some other languages: *cotton, musk, suffron, syrup, jar, lemon, and sugar*.

Medieval European absorption of Arabic literature subjects, was among the aspects of the intellectual movement in that period, particularly under the restricted church systems, and the lack of creativity in Latin, a situation that urged people to resort to the Islamic world as being superior in literatures and sciences at that time.

A number of researchers and European orientalists appreciated the influence of Arabic/Islamic civilization on the European one. Among them, we remember the Jesuit Spanish father *Juan Andres*. He published between 1782 and 1799 a book in Italian in seven volumes entitled *Origins Of All Literatures, Their Development and Current State*. Then he published it again in Rome between 1808 and 1817 after expanding it into eight volumes where he confirmed that European renaissance was based upon the heritage of Arabic/Islamic civilization in all fields of science, literature and arts. In this book also, father *Andres* indicated the effect of Arabic poetry on the beginning of European lyrical verse – a fact stated by the orientalist *Nykl* in his study on lyrical poetry where he included evidences about the impact of Arabic poetry on *The Trobadour* poetry.

From the above, we can see the huge extent of influence that Arabic literature exerted on European literatures in The Middle Ages. In fact, Europeans were always interested so much in Arabic literature to the degree that its relation with modern European literatures continued until now. There still is a strong bond between both to join the East and the West across different periods and generations.

Philosophy

The effect of Muslims in European philosophical intellect in the middle Ages was great. Andalusia was among the major centers affecting Western intellect as it introduced oriental philosophers to Europe. It is known that the spirit of religious and philosophical research was common in the Islamic Caliphates' era due to the flourishing philosophical doctrines of Muslim scientists. It is also known that Islamic East was aware of the activity of Greek philosophers, mainly Aristotle and transmitted that heritage to Europe.

In other words, the European translation of Arabic philosophical concepts led to their study of Greek philosophy.

Roger Bacon confirmed the idea that much of *Aristotle's* philosophy rarely affected the West due to the loss or the scarcity of its records till the appearance of Muslim philosophers, who transmitted, explained, reviewed, and displayed it in a clear way. The Abbasid era was the peak of interest in the Greek philosophy, mainly in the reign of *ar-Rashid* and *al -Ma'moun*.

ar-Rashid established "Bayt el Hekma" Wisdom House in Baghdad where he collected the books written in and translated into Arabic, and made it a center for translating a number of Greek and Indian books. Then *al - Ma'moun* expanded that school and recruited there a large number of the famous scientists of his era, which made it an important center for translation, copying, reading and composing. From that school emerged the names of *Honein Ibn Ishaq* (809 – 873) who translated from Aristotle works *The Sayings*, *Physics*, and *Morals* into Arabic. *Honein* also translated works of *Plato* ; namely *The Republic* , and *Laws* into Arabic . His son *Ishaq* translated *Metaphysics* into Arabic as well.

Ibn Sina (Avicenna) (980 – 1037) , the pioneer of philosophical research in the Islamic world - who was called the *Boss* - , offered some important explanations of Aristotle which highly affected the European concepts. The Latin West transmitted his views, studied his books and commented on them.

There was a special school of *Ibn Sina (Avicenna)* that taught successive generations of students. Through it, he could penetrate into verbal and mystic studies in a time when philosophical research was prohibited.

Ibn Sina's (Avicenna) special philosophy included three main issues: emanation, human self, and the theory of illuminating knowledge, along with what it contains of views concerning prophecy, miracles and mysticism.

As for his compositions, he wrote "*The Recovery*" that includes four sections: *Logic*, *Physics*, *Math*, and *Theology*. Some parts of the book were translated into Latin and some modern European languages. He also wrote the book *Salvation*, as a summary of the *Recovery* book.

The book called *Indications and Instructions*, is considered the most important book by *Ibn Sina (Avicenna)*. One of his students said that he restricted the use of this book only to his close scholars, eventually the book had been translated into French.

His book *Wisdom Eyes* included studies in logic, physics and theology, Dr. *Abd El Rahman Badawy* published the book in 1952. His famous work "*The Law in Medicine*" contained messages about, limits, mental sciences, and answers to questions formerly posed by *Abu Ar-Rayhan al Bayruni*.

Al-Farabi – who lived in the period of reunion between new Arabic/Islamic civilization and the Greek one – explained Aristotle's philosophy and commented on it to complete the missing points. In fact, his explanations were often more comprehensible than the original text and more rational as he managed to change mere opinions to purely rational theories. In that way, there appeared the quality of both civilizations in his research subjects and its linguistic, literary, or religious examples, versus Greek language, emerged the Arabic language, also Arabic literature and Islamic sciences appeared versus Greek literature and sciences. This means that *al-Farabi* did not only explain Aristotle's meanings, but also was displaying meanings, and if the wording did differ, still the meaning is the same. He not only explained the text, but also reviewed its subjects and meanings in a rational way. *al-Farabi* did not follow Aristotle, but was displaying his subjects and meanings, and dealing with them in a holistic attitude quite independent of expressions, words, or terms. He, dealt with Aristotle, either explaining a book as the case was with "Sayings" and "Expressions", clarifying Aristotle's intentions as was the case with "Metaphysics", or clarifying a certain science, or a branch of a science as in the "Interpretation". Besides explaining Aristotle's doctrine in general, he also compared him with others within the Greek philosophy, using not only Aristotle's texts, but also using different interpretations of them.

Thus, *al-Farabi* was one of the Arab intellectuals who played a great role in the field of philosophy; He could emphasize the unity of the human mind and the possibility of communication among different peoples.

Muslim philosophers in Andalusia enjoyed an unprecedented intellectual freedom and affected the European intellect. Among them were *Ibn Maga*, *Ibn Tofayl*, and *Ibn Rushd (Avirroes)* who is considered the most influential one in West Europe as the senior exponent of Aristotle's philosophy and the most famous Arabic scientist whose books were translated into Latin. His concepts were studied in European universities till the 16th century, this makes it necessary to talk about him in some more detail.

Abu El Walid Ibn Rushd (Avirroes) (1126 – 1198 A.D.) is one of the great pioneers of enlightenment in the world history. He was highly estimated in Europe before being known in Arab and Muslim countries.

He offered superior works for human intellect and tried to use his concepts and compositions as a link in the inter-dialogue between civilizations, cultures and religions. He firstly worked as a judge, was interested in Islamic Jurisprudence (Feqh) and benefited from studying Greek philosophy in general and Aristotle's philosophy in particular. In his books, he called for studying other sciences of the other peoples - as an inevitable necessity -, warned against any argument that is not based on rationalism. In Islamic Jurisprudence, moral, philosophical, or logical issues, he resorted to making use of measurement, interpretive judgment, interpretation, and argument. *Ibn Rushd (Avirroes)* is also considered the top of the those who explained the books of Aristotle in physics and metaphysics, logic and psychology. His logical explanations are distinguished with deep comprehensive reviews, and fine presentation.

For more than a thousand years in the middle Ages, Europe knew nothing about Aristotle until *Ibn Rushd (Avirroes)*'s researches and explanations that were translated from Arabic into Latin reached there. There are still some of them - in different forms - preserved in Latin without finding the original Arabic texts. We can state that *Ibn Rushd (Avirroes)* was known in Latin more than he was in Arabic.

His influence on European intellect was also extended to modern history. The French philosopher *E. Renan* could display honestly this fact in his book about Ibn Rushd, "Ibn Rushd, Rushdans, and Latins". In this book he had two different opinions about Ibn Rushd, sometimes saying that Ibn Rushd did not imitate any of his predecessors and in other times he states that his philosophy is a mere copy of that of *Ibn Sina (Avicenna)*. However, during the period of three centuries from the 14th century to the 16th century, *Ibn Rushd (Avirroes)*'s disciples continued to study, make researches and spread their mentor's instructions.

All that contributed to the appearance of the renaissance period and the modern history of Europe, so that *Ibn Rushd (Avirroes)* became distinguished not only for his being the greatest interpreter of Aristotle but also for what the theory that characterized his philosophical doctrine, a theory of reconciliation between faith and reason

The Spanish orientalist *Palacios* was more fair in his evaluation of *Ibn Rushd (Avirroes)*. He affirmed that father *Thomas Equines* (1225 – 1274) – the main foe of *Ibn Rushd (Avirroes)* in the christism world – had much benefited from *Ibn Rushd's* books in drafting his philosophical religious doctrine. *Thomas Equines's* book "Summation" includes some Islamic concepts that stressed *Ibn Rushd's* impact on the European mind. *Palacios* also maintained that *Thomas Equines* adopted *Ibn Rushd's* theory of reconciliation between faith and reason, and that human mind is unable to approach the secrets of God.

Hence, the Cordoban philosopher *Ibn Rushd (Avirroes)* participated in adopting and enriching the civilizations' dialogue. He proved that it is a relation of a peaceful, continued dialogue, not of conflicts and disputes. He skillfully managed to support, and document it to restore the link between both Arabic/Islamic civilization and the Greek one in a precise, scientific comprehension of their dialogue and its materials – an attitude he ensued in his explanations, comments and summation of *Aristotle*.

Ibn Rushd (Avirroes's) dialogues are more comprehensible than that of *Ibn Sina (Avicenna)*, *El Farabi* and *El Safa* brothers. He also found no opposition between human thinking and the Islamic code (*Shareia'a*), and so called for the use of rationality in proving religious matters. He proved that Islamic civilization is based on reason, and there must be open chances for every scholar to reach the real facts. He, also, criticized some of *Aristotle's* ideas through his explanations of his philosophy – an attitude that the church sound threatening to its constants, provoking varying responses. These varying responses from the side of the church, did not stop many of the European thinkers - who formed the nucleus of enlightenment – from adopting *Ibn Rushd's* philosophy, sticking to it, and defending it.

Although *Ibn Rushd* criticized *Aristotle*, he revealed some of the significant aspects of his views he admired and presented them in a simple, clear way. Those explanations granted him greater success and fame than his fame in the other fields like medicine, especially, for his estimating highly the role of mind, and using ration as the real measurement for true knowledge.

Regarding his special books, the most famous ones are *Tahafot El Tahafot*(collapse of the collapse), *Revealing Evidences Methodology*, a

Message about Ancient Science, The Essay about "The decisive opinion about the relations connecting Wisdom, and Islamic Code", "Introductions in Islamic Jurisprudence", "The collection", and other books and articles in Medicine and Logic. These books have been translated into Latin after the head of the church in Toledo assigned a Dominican group to learn Arabic in order to translate Islamic books, primarily those of *Ibn Rushd (Avirroes)* into Latin.

Beginning from the second half of the 20th century, European intellectuals' view of *Ibn Rushd (Avirroes)* began to be fairer. They accepted his views as a sort of understanding the others' points of view. In this respect they did not pay attention to the former dispute between the differing reactions to his philosophy in the European world among clergymen and liberal intellectuals (calling themselves the Latin Rushdins) - who relied on his analysis of Aristotle to oppose the church -.

So, *Ibn Rushd (Avirroes)*'s philosophy was one of the philosophical currents that helped to form the human intellectual philosophy and incite arguments between enlightenment's supporters and foes, to a degree that allows us to consider his philosophy as one of the roots of European Enlightenment. He added a critical principle to his rationalism doctrine that forced Western philosophers to acknowledge it.

He also was the first in the history of Islamic/Arabic intellect to approach politics in a candid discourse that included a bitter criticism of political and social systems; he exposed the frank violations of human rights, and principles of freedom, equality, and social justice. In addition, he defended women, putting them in a better position and stating their latent ability to perform great deeds.

The world today is in urgent need to benefit from his call to open exchange of ideas among nations.

To sum up, *Ibn Rushd (Avirroes)* is the most eminent philosopher known in Arabic/Islamic culture and the pioneer of the Enlightenment philosophy in Latin Western intellect. This may be the best answer to the idea of civilizations' conflict that some westerners are spreading now, as civilized and enlightened human thinking must always depend on dialogue, not conflict. Humanity is past the ages when strong barriers separated great cultures, preventing any communication or exchange. We now believe that

old civilizations gave and took from each other. Modern civilizations must follow the same give and take pattern

Geography

There is no doubt that, the extension of the Islamic state over extensive areas in both Asian, and African continents, made it necessary for Muslims to know everything about the opened countries, and the routes linking them, and the distances separating their different regions. They were also in need to have detailed and accurate knowledge about places, peoples, and products.

Arabs' profound desire for knowledge, led them to be acquainted to the cultural heritage of both Greek, and Roman civilizations. Their desire to build a world civilization was not restricted within their local boundaries, as they continued to transmit the treasures of ancient knowledge from West and East, they added to these sciences what contributed to the human progress. Their writings were among the basis that provided European renaissance with its main fundamentals. Hence, scientists agreed that Arabic/Islamic civilization deserved a place of excellence among great civilizations in the human history.

Of the famous scientists who added to the new geography through their observations in astronomy and trips were *al- Ya'coubi* , *al- Makdesi* , *Yakut* , *al- Mas'udi* , *al- Idrisi*, and many others.

al-Ya'cobi, was one of the first Muslims interested in geography. He dealt with geography in a very clarifying manner. He mentioned the names of cities and kingdoms, their locations, distances between them, describing natural characteristics of those regions and their climates.

Shams el-Din al-Makdesi, was among the first geographic scientists who considered geography a science that has to be known by every trader, traveler, king, judge, religious man and others. His book *The Best Divisions in knowing Regions* is on the top of a series of Arabic geographic works known as *Islamic Atlas*, which contained maps and descriptions of Arab countries. He mentioned most Islamic countries he visited; each region with its natural geography followed by the human geography, and ended with describing the system of administration, then people themselves, their conditions, clothes, foods and drinks. The introduction of His book *The Best*

Division is considered a piece of fine geographic literature. It was translated into English by *Kramer* in 1877, into Italian by *Natallino* in 1895 and into French by *Jean Soufage* in 1964.

In fact, that book is a report on the world as was seen by *al-Makdesy* who suffered much troubles and was threatened by many dangers on writing it. The orientalist *Shpringer* described him as, the greatest geographic scientist humanity had ever known. As for the orientalist *kramers*, he said that he was the most original Arabic geographic professor who taught Europe the art of geography.

Yaqut's geographic encyclopedia (Lexicon of the countries) included all medieval information about the terrestrial globe, from the aspects of astronomy, physics, history, and others.

Al-Mas'udy Is the author of the encyclopedia called *Meadows of Gold and Mines of Gems*, which is considered a reference book, about world medieval civilization. It demonstrates the writer's accuracy for being a geographic traveler, a historian, a physical scientist, a scientist in botany and zoology. He introduced this book by speaking about the form of earth, its cities, wonders, seas, rivers, mountains, marvelous metals, islands, lakes, and stories of the great buildings. He drafted a map defining each of the Mediterranean Sea, the Black Sea, The Rivers Nile, Send and Kang. Then he turned to the news of the world peoples, prophets, pagans, religions, doctrines, news of Egyptians, Babylonians, Assyrians, Greeks and Romans. Finally, he entered Islamic history until the age of the 23rd Abbasid Caliph.

Al- Sharif Abdullah el -Idrisi (1099 – 1166) was the most prominent Muslim geography scientist, and the most influential among them, it was he, who had the greatest role in innovating that science, so that he was known as the professor of geography who taught it to Europe rather than *Ptolemy*. He made several journeys to many countries of the world like Morocco, Portugal, Spain, Greece, France, Italy, Egypt and Asia Minor. Then he settled in Sicily under the auspices of its Norman king *Roger the Second*, who admired very much the Islamic literatures, and sciences. The king asked him to draft a map of the terrestrial globe. There he composed his book *The Pleasure Excursion of One Who is Eager to Traverse the Regions of the World*. He described in great precision, the cities of the world known at that time, and insisted on the idea of the globosity of the earth,

which made his book the most complete and comprehensive geographic research that Europe inherited from the Arabs. The maps he drew exceeded forty in number, and are at the top position of the art of cartography in the middle Ages. They are currently preserved in some European museums: one is in the French museum *St. Martin* representing the Nile River as coming from the lakes southern to the equator, a matter that put an end to the controversy about Nile current and flood sources.

From the maps drawn by el-Idrisi, and the opinions adopted after Arabs, *Columbus* based his imaginary picture of the sphere that represented the earth as an elongated pear tree; the map that inspired this idea was that of cardinal *Boutros* called *The World Map* that relied on Arabic sources. This map was published about 80 years before *Columbus* which proved the contribution of Arabic geographers in the discovery of America. Unless the Arabs believed that the earth is a sphere, Columbus might have never thought that the direction towards the west would lead him to India. He also might not have been able to reveal anything about the new world. Arabs thus played a great part in discovering the western hemisphere. Moreover, *al-Idrisi* drafted a map of the earth on a large board and managed to copy it - through complicated calculations - on a sphere of pure silver prepared by *Roger the Second*. On that sphere, he put the locations and drafted the continents, seas, and rivers with great precision. He revealed facts about upper Nile sources, then he turned the spherical map into a flat one, and divided it into seven sections reviewed on the equator and two sections south of it; those are the famous seven regions in the northern half of the earth that originated in the views of *Ptolemy*. He then divided this map into longitudinal sections, by parallel vertical lines, which were the longitude lines. He, thus, obtained seventy square sections and drafted each in detail, describing its human and physical geography. He recorded that description in his book *The Pleasure Excursion of One Who is Eager to Traverse the Regions of the World*. As a result, Europe appreciated the efforts of *al-Idrisi* as an outstanding personality in human history, and published his books because of their scientific precision.

Shehab el-Din Ahmed Ibn Maged was the Arabic sailor who is considered the first to write about the subject of sea sciences. Among his thirty books, *The Benefits* is the most important one that was published by

the French orientalist *Gabriel Ferrin* (1921 – 1923). It included most theoretical and scientific information of interest to seamen in The Red Sea, Indian Ocean, and China Sea as he gathered his great first hand experiences that he acquired in navigating through those seas, depths, islands, ports and the winds blowing there.

It is known that the Arabs used the magnetic needle, and the compass, in their scientific and commercial travels. In addition, they knew about the stars, their rising and setting, and using their clusters to identify the directions on the high seas.

Such efforts of the Arabs proved their contribution to develop the science of geography. They also stated the spherical shape of the earth, contrary to the church, that considered the earth flat. Some Arab scientists also tried to explore the Atlantic Ocean, the so-called *Sea of Darkness*.

Through Andalusia, the Europeans happened to know the compass after the Jews – who knew about it from Andalusian Arabs - revealed its secrets to them and taught them how to use it. The compass still has its Arabic name in some European languages: it is *Boussole* in French and *Bossola* in Italian.

So we can see that, Arab scientists enriched the human heritage with the writings they left, the systems they invented, and the maps they drafted, which helped later discoverers to travel all over the world exploring the unknown.

The Arabs' first favor on Western civilization was, preserving its basis, without the Arabs, interest in transmitting Greek sciences to Europe, there would have been no link between European present and past.

When Islam emerged, it found the spirit of scientific research in Europe halted by the refusal of the first decades of Christianity to approve the efforts of Greek scientists. Arabs came out to link the old science with the new one, and add to this new science in its different aspects, and then conveyed it to Europe to contribute in the building of its renaissance.

European travelers relied much on Islamic sources in their exploring parts of the earth unknown to them. That was evident in the case of *Marco Polo* whose information was collected from the sketches of Muslims in Ceylon. Without the instructions of the Arab seaman *Ahmed Ibn Maged* to *Vasco Da Gama* ,the latter would have lost his way during his journey to

India. Furthermore, Arabs' superiority and cleverness in cartography helped European travelers to define their ways. Arab's insistence on the globosity of the earth also helped *Columbus* to know that moving west might lead him to India.

History

History is one of the most important and most useful human sciences. As a social, political and economic activity, it began with the first existence of human communities, as it was important to suffice the needs of these communities to know about themselves and their surroundings.

Besides dealing with the human race with all its complexities and variations, history provides humans with a treasure of endless experiences. History experiences enable humans to make deductions and reach results without spending time and effort to go through similar experiences once again.

It was therefore natural, that history had such a prestigious position in the flourishing Islamic cultural movement.

Muslim generations, and nations, during the 9th and 10th centuries A.D. were linked to the role they have to play in the human history, by the key role that their historians played. Muslim historians also wrote the world history since Adam and Eve, and then the prophets - a task facilitated by the Islamic world unity and the available freedom to travel all over the world seeking knowledge.

al -Ya'cobi, in his works, like his book *Countries*, reveals the concept of world history which dominated all historians of that age.

Mohamed Ibn Garir el- Tabary's book *History of Prophets and Kings* depicts the general trend created by the unity of the Islamic world.

al-Balazory In the book *Countries Conquests*, reveals the glory of Islamic conquests and the positive response of several peoples to Islam.

Ibn el -Atheir, In another book called *Al Kamel in History*, viewed the essential concept of history of Muslims. It maintains that the world history is divided into three ages, beginning with the early ancient history, then the era of the prophet, and finally the world history since the prophet's death until the end of time.

Abi el-Fedaa, wrote a *Summary of Human History*, a book on world history with special focus on the events of El Sham countries, Memelukes and Monguls age.

Al- Massoudy's book, *Golden Meadows* is a review of the history of West , North Africa and East Europe.

Abd el-Rahman Ibn Khaldoun (1322 – 1406) - the author of *The Introduction* -is one of the world's top historians. He gave history a philosophical spirit based on the motives and incentives affecting humanity. He described the cycle of human development from nomadic life to civilization. The former - for him - is a very simple, primitive life represented in Bedouins and peasants who reproduce and flock together to be able to dominate lands, and establish states, aiming at eventually reaching a stage of settlement, civilization, and prosperity. They depended on mercenaries to achieve their final settled state. Due to their new style of life, their cycle deteriorates because they became so refined, and missing crude strength and stamina that they previously had, in their primary struggle to shift from nomadic life, to established states. On reading his book *El Eber* (warning examples), one feels like reading a scientific history of early ancient ages, as he knew the Greeks well, and differentiated between them and the Macedonians. He was also aware of the rudiments of Roman history, and the development of their states from the kingdom to the republic and finally to the empire. The reader of this book feels like reading a book combining history, geography and sociology. He, does not set theories, but writes history, studies, analyses, and comments on the reasons of the events, the fall of nations, origins of sociology, besides giving a clear picture of ancient, and modern kingdoms. All that led European researchers to state that *Ibn Khaldoun's Introduction* is the basis of history, and its cornerstone for including a detailed analysis of political, social, and economic factors influencing the structure of political units, and the states development.

His *Introduction* initiated the novel original science of **sociology**. His theory in the history of philosophy is considered the oldest one in this sphere, wherein he attempted to spot the reasons that lead historians to make mistakes in recording history. From *Ibn Khaldoun's* point of view, the most important of these reasons were their ignorance of the nature of the social

systems, and the rules governing them – a situation that led to the necessity to allocate a science for studying Sociology, before recording history. In that particular respect, *Ibn Khaldoun* resembled *August Kant* -the father of Sociology according to the Europeans -.

While *Ibn Khaldoun* considered Sociology a means for correcting history, the French philosopher *Montesqueau*, considers history, the basis for building the science of Sociology.

It must be mentioned that Medieval European historians began to study Islamic history in a later stage; their interest to study it began after the restitution movement in Spain, when Sicily was restored and dominated by the Normans. The Europeans' knowledge of Arab/Muslim history increased with the beginning of the Crusade expedition that started the armed friction between the East and the West. The movement of historical recording in Islamic east was also influenced by those wars.

The challenge imposed by the Crusade wars as an imperial attack lead to concentrating on military heroic characteristics. In wars, it is customary that nations need heroes, and heroes' tales, this was also the case in crusades when the need of heroes emerged to satisfy the nations' needs – an attitude that was expressed in historical writings -.

Historians were interested in the deeds of those heroes, particularly *Saladin* who succeeded in restoring Jerusalem from crusaders. Among those writings was the book *Josephic Merits and Sultanic Anekdores* that deals with *Saladin's* personality and his role in the struggle against the crusaders with a review of the events of the crusade wars in reviewing his life. There also appeared among crusades Western historians *William of Tyre* who is considered one of the first historians much influenced by Arab/Muslim historical studies, and among the first people to introduce Islam to the European countries, with its states, peoples, governors and history.

After that, the orientalist movement in Europe began to gain interest in studying history as a general basis for a deep study of Arabic/Islamic history. Orientalists started to read Arabic writings, translate the original historical texts, and publish them, until they finally could write about Arabic/Islamic history depending upon the original Arabic references. In that way, the orientalist movement entered a new stage in studying the origins of Arabic/Islamic civilization.

In short, Muslims, not only left a huge historical wealth, for the new historians, but they also, managed to expand the limits of historical research, verified, and increased works in that field, to a great unprecedented extent.

Arab/Muslim historians strived much to prove that the duties of the historian are, to tell the truth, to judge unbiased, stick to objectivity, and review facts precisely.

Arts and Architecture

It is evident that the Arabs benefited from the arts and civilizations of the countries they opened, mainly Persian and Roman. Then they transmitted them to Europe after adding their creations and innovations that had a deep impact on European taste.

Islamic art began its first steps influenced by the forms found in the countries they opened, and then it developed in order to express the Muslims' human views of life and the world. It was characterized and distinguished with the Islamic personality and spirit.

Muslims were firstly interested in building and ornamenting mosques. Because pictures, paintings, and statues were prohibited inside mosques, another outlet to perform arts was sought, this led to the emergence of the core of the Islamic art, which was limited inside mosques to decorating the ceilings and pillars with Quranic verses, geometrical sketches, and chandeliers.

Other than mosques, Islamic art in palaces -as well as social and other Islamic establishments known in the Islamic world- offered to Muslim artists a vast arena to express and practice their talents; they succeeded in mixing Eastern, and Western arts in one unit, endowed with their own flavor. Accordingly, the emergence of this art was indebted to the Arabic taste, even though it was influenced by the civilization of the opened countries, particularly Persia and Byzantium.

Islamic talent included all sorts of arts such as painting, drawing, ornamenting, architecture, and music. In the sphere of paintings of man and animal, Muslims did not prohibit it -though was not approved by earlier Muslim orthodox thinkers-, this led to the appearance of drawings in the countries where Islam had settled states. That art expanded in both Umayyad and Abbasid ages. Human portraits were discovered on the walls of some palaces in East Jordan, and Samarra'.

In the field of ornamentation, there are the walls of Umayyad mosque in Damascus, the Rock Dome in Jerusalem, and al-Nabawi mosque (mosque of the Prophet) in Madina that were adorned with beautiful mosaic decorations; most of them are of plants, these decorations are spreading an air of joy and calmness. Moreover, some Sultans' palaces were ornamented with drawings and sketches described as Islamic art language.

In the Abbasid era, the arts of drawing, painting, portraying, ornamenting, and sculpting, spread and reached its climax in the palaces of Abbasid Caliphs, and continued to grow marvelously.

In the Fatimid era as well, the art of drawing was developed largely.

In Andalusia, the colored paintings spread widely, ornamenting the ceilings of palaces, the king's palace in El Hamra (hambra) was decorated with color paintings depicting Arab knights riding their thoroughbreds, while others were directing their spears against their enemies, there were also drawings of feminine Arabic beauties, different animals, various trees and plants. Those paintings were examples of creativity, and uniqueness, and definitely done by Arabic hands, -though some Europeans denied this fact- , the evidence for that was the fact that their colors and techniques of drawing were purely Arabic, only Arabs could draw their knights attacking their enemies.

In the *Louvre Museum*, there is an artistic wooden cylinder on which was engraved the pictures of women playing music, beside pictures of gazelles, tigers and panthers. This masterpiece indicates the fine standard of the Arabic art of engraving. It was found by the Spanish in Cordoba and its history indicates that it was made in 968 A.D. European painters quoted the idea of ornamenting the ceilings of churches and palaces with colored paintings and they made it a start point as they developed that art more later on.

It was clear that Islamic art was based on ornaments and geometric shapes as a new expression of its actual spirit and inclination to mix material and matter, Muslims could transform plants into geometrical elements, and writings into plant ornamentation elements. They used complex calculations to reach that type of ornamentation called *Arabesque* in French and *Ataurique* in Spanish. Furthermore, Muslims knew what is now known as the abstract art, as it depends on plant ornamentation units like a flower, in

its abstract form, which gives a sensation of eternity. Muslim artists made use of mathematical operations in all their artistic works, examples of this can be observed in the mihrabs, and the minarets of mosques, which took utmost artistic care.

Moroccan art provided the best forms demonstrating the glorious Islamic outer and inner ornamentations as appeared in their colorful mosaics and the harmony of their magnificent models.

It is noted that the Muslim artist, to avoid imitating nature - which was considered indecent by some religious thinkers- resorted to draw legendary creatures and created many shapes through his fertile imagination like the horse with a human face, or the hawk with a human face. Muslim artisan produced metal pots in animal shapes, either for ritual ablution before praying, or fumigators for incense, on their surfaces were much ornamental paintings of Quaran and prayers.

In addition, Arabic calligraphy was also used as a decorative element. Muslim artists found in Arabic letters the basis of beautiful decorations for ornamenting buildings. They became interested in possessing its wonderful shapes to harmonize it with Arabic decorations. It was of many styles : the Kofi one used in holy texts and on currencies , beside mosques and tombstones. There was also the ordinary Naskh script which was used in copying books and in formal records. Researchers mentioned examples of Arabic writings admired by the Europeans for their ornamental arts, in spite of the apparent Islamic spirit, they transmitted them for decorating ceilings of palaces and churches without knowing their content.

As for architecture , *Abou Gaafar el-Mansour* built his capital Baghdad on river Tigris in a circular shape that was considered a new phenomenon in the art of Islamic architecture. In addition, there were also many cities constructed by the Abbasid people such as Samara with its mosques and great palaces. Europe adopted its architectural arts from Arabs and their influence was very clear in Spain and France. An example is in North France as a gate there was ornamented like *al-Fottouh* gate in Cairo. North Spain was the first region witnessing the Arabic impact on architectural traditions, mainly in the provinces of Lyon, Castile, and Galicia. In Catalonia, Islamic architecture imposed its effects on the

elements of Christian art producing a number of phenomena like double windows, balconies, towers, domes, ornaments and other multi-colored shapes.

In military architectural art, it is noted that the crusaders adopted from Arabs a number of the methods of fortification, and the making of intensification by imitating Islamic castles, which they saw during the wars with Muslims.

Arab artists were distinguished in many industries like pottery and porcelain making. There are still different kinds of porcelain left by Muslims in Spain and Portugal. Christians did not find any constraints in using the porcelain made by Arabic hands in ornamenting their churches and palaces.

Arabs were accustomed to decorate earthenware pots with some ornaments in Kofî writings or other kinds of plant ornaments. European museums still contain a number of pots made in some European countries after Andalusian Arabic pots. Arabs achieved important advances in glass industry – a fact proved by their glass pots either painted with gold, or covered with enamel, that made Arabic glass very famous in Medieval Europe. Soon, Venetians became efficient in that art and transmitted it to other European centers.

Islamic metal works of art were the prime creations adopted by Europe. Among them were shapes of bronze or copper jugs used for pouring water and wine in churches. Those works of art were very popular in the royal courts of European kings and princes.

Carpet weaving art gained a vast fame in medieval Europe. As for fabrics, textile mills produced several kinds of embroidered textiles ornamented with gold and silver threads; both carpets and embroidered textiles were sought by European kings and princes, and were extensively marketed in European markets. Afterwards textile mills in Sicily imitated the silken Islamic fabrics which were produced by the Islamic textile mills in, then this craft spread to several European cities.

Among the most prominent examples of Arabic influence in textile was the phrase woven for the king of Sicily *Roger The Second* in 1134 A.D to wear it in the party of his coronation, on which was written in Arabic some Prayers for the king's glorification according to Islamic traditions.

Such a renaissance was coupled with strengthening paper industry as well as copying, correcting, and binding books which helped much in spreading Arabic thinking to different countries.

Oriental historians were convinced of Muslim architectural cleverness and appreciated their creations. They also acknowledged the influence of their inventions on the European renaissance and respected the Arab Muslim artists' genius in their artistic and decorative industries. Such industries produced - since the first Hegira century- a huge collection of ornamental pottery, glass, wood, ivory and artistic metal works of different kinds, colors and shapes. All of those products were decorated with Islamic ornaments that depicted the Islamic spirit, and represented the creative Arabic imagination.

Islamic art products were spreading, flourishing and circulating in the markets of Medieval Europe. They were often bought by kings, princes and wealthy people - a condition that aroused the jealousy of European artisans and urged them to imitate these industries. The most prominent example of that was the case of *Leonardo Davinci*, the renaissance eminent artist, who was eager to study Islamic decoration and included several samples of arabesque ornaments in his paintings. While Islamic art - that originally started in the mosque - motivated Muslims, made them feel the need for civilization, and formed their public and private life, it also embraced all people's daily needs. Examples of that include Cairo *hospital* that belongs to the 13th century A.D. It was built by *Sultan el-Nasser Qalawoun* in 1285 A.D and contained currents of flowing water like that found in the palaces of princes while music was played all day. In this hospital, all medical sciences were applied and all medical practices performed. Thus with fine arts and advanced medical sciences both present in this hospital, sick people were accommodated in the most easy and comfortable way.

There were also the palaces of princes built by artists with great talent, not only in the East but also in Morocco and Spain. The only one remained of them was the wrecks of *Zahraa' of the Omayad Abd el-Rahman El Nasser* in Cordoba, and the palace of *Minister el-Mansour* as well as the reception hall of lions in *al-Hamraa*. All these examples form another evidence of the great degree of development and, progress of Islamic art.

Moreover, Islamic arts added to the scientific artistic heritage unprecedented systems like the mosques, graves and schools. New disciplines were also introduced into houses, palaces, bathhouses, castles, and fences. New elements were invented by Islamic architects such as the new shapes of different constructions and forms - like that of crowns of the pillars - different from the ones existing in ancient buildings.

Architectural decorations flourished with distinguished technical, artistic production. The joint artistic relations between Arab Muslims and the Europeans had a great history since the 18th century A.D full of ivory and metal articles, gems, porcelain and glass, pots, illustrated scripts, and several kinds of fabrics, and carpets.

Music

Music is among the fine arts in which the Arabs played a great role. They translated all that was available of Greeks, Babylonians, Persians, Assyrians, and Egyptians in that respect. They also, composed, and added several new melodies. They not only improved the available musical instruments, but they also added novel ones. For example, the lute was having four strings and they added a fifth one and so on.

Muslims influenced western music as well. In fact, the West was not acquainted with any sort of harmony in music in the middle ages, until Europeans exchanged relations with Islamic nations.

Arabic music flourished and its instruments developed, particularly in Baghdad that occupied the first place and the highest fame in this art. Among the most famous male and female singers in Abbasid age were the Bagdadi *Ibrahim el-Mousili* and his son *Ishhaq* and his scholar *Zaryab* who immigrated to Morocco and Andalusia spreading Eastern music whose influence still exist in the Andalusian music. Senior Muslim scientists cleverly studied music theoretically and practically such as *el-Kindy*, *el-Farabi* and the Abbasid Caliph *al-Wathiq*.

Arabic music gradually moved from Baghdad, to other Muslim countries, including Andalusia. It flourished tremendously; European scholars who came to Cordoba for learning, were attracted to learn Arabic music as well. Christian governors of Castile and Aragon employed Arab musicians. Islamic compositions were translated into Latin language,

which led to transmit a large number of Arabic terms and musical names. as well as instruments, to European languages, they were used in their Arabic or a slightly altered forms. Among these names , we find the word (*lute*) (al-oud) which has entered all European languages as it is or with a simple change: it is *laud* in Spanish , *alaude* in portuguese , *luth* in French , *laute* in German,...etc. Moreover, the term *guitar* was quoted from the Arabic quithara , *trombate* from tabla , *adufe* is the duffe , *sonajas* are sonoj, *rubella* is rababa, *troubadour* comes from tarab dor (a round of chanting) ...etc.

The French orientalist *Gustave Lebon* stressed that dancing and music in Spain are still preserving the Arabic influence. He mentioned that: "*though the Arab influence in Spain had completely disappeared, however, some Spanish cities particularly Seville is still full of Arabic memories and its houses are still built according to the Islamic system. Dancing and music are still practiced in the Arabic way*". In addition, it is due to Arabic/Islamic civilization that Europe became civilized throughout six centuries. *El Trobadour* poets emphasized that, indicating that Arabs never ceased innovating musical instruments. They developed the *rubella* from the one cord Arabic instrument, and introduced basic improvements on the *lute* and the *canon*.

In brief, European musicians like *Mozart* and *Bach* were heavily indebted to Arabic music in their creations and the high standards they managed to reach.

Simultaneously, Arabs developed the art of versification and versified lyrics suitable to musical melodies. The art of singing on musical melodies in parties also progressed, especially in Baghdad and Andalusian palaces. The Arabic musical renaissance was also based on the use of precise measures that created musical timing. In addition, Europe knew the roaming musicians for the first time in Spain during the 10th century A.D, presenting their songs and dancing to show their heroism. Their songs and tales were derived from Andalusian Arabs, and *The Arabian Nights*. The popular songs of *El Trobadours* with their new verse meters were also quoted from Adalosian Muashahat and popular poems. Their main goal was to commend the beauty of nature, and show enthusiasm, as well as heroism. Some orientlists like *Dozy* and *Provencal* tried to draw a parallel between

European musical forms and their peers in Arabic heritage to prove the apparent Arabic influence. They proved that the word *trobadour* itself is an equivalent for the word *tarbdor* - as mentioned before-.

Arabs also preceded the West in composing voices and their harmony. In his book *Salvation*, *Ibn Sina (Avicenna)* - under the title "*The Best Melodies*" - described the principle of multi-voicing as one of the advantages, not bases, of melodies - a fact endorsed by the Europeans later on.

From the above, it is apparent that medieval Europe was influenced by Arabic/Islamic civilization in all aspects of life - a fact that confirms the importance of the interaction between civilizations. Islamic principles applied by some Caliphs and princes made Islamic civilization a universal, worldly one as based upon the efforts of scientists from all nations, religious men, scholars of geography and history spreading all over the world seeking knowledge and wisdom. Arabs also absorbed the cultures of the nations they opened while they were spreading their own civilization and religion at the same time until their culture became a permanent heritage and an immortal legacy.