

MUSLIM INFLUENCES
ON THE DEVELOPMENT OF EUROPEAN CIVILIZATION

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We hear too much in history about wars and conflicts and too little about the co-operation and mutual influences between various peoples and their civilizations. This is particularly unfortunate in the sphere of religion, where the spirit of rivalry too often prevails over the spirit of good-will and understanding. The history of the relations between the two great faiths of Christianity and Islam has been so much befogged by hostility that we are apt to forget how much they have in common, and how often in the past the one has had a useful effect on the other.

Christians boast that their civilization is based on the civilizations of ancient Greece and Rome, combined with the religious traditions of Western Asia, the monotheistic Semitic tradition. But the same is true of Islamic civilization, and perhaps even truer, since Western civilization has been moulded to suit the tastes and traditions of the Nordic races. Christianity, it is true, arose within the bounds of the Roman Empire, though in one of its easternmost provinces; and for that reason it tended to spread westward and never went far beyond the eastern bounds of the Empire. Islam, however, arose just outside those bounds and was therefore better able to spread eastward as well as westward. But the Prophet and his earliest followers were in close touch with what was by then left on the old Roman world; and, in spite of the Persian influences that it soon acquired, the spread of Islam actually caused less of a dislocation to the old ways of life than did the Nordic invasions further to the West. If in the Middle Ages an old Roman had returned to life, he would have felt far more at home in one of the Muslim cities than in any city in the Christian West. Istanbul, (Constantinople,) where the old Roman Empire lingered on - the Byzantine Empire, as we usually call it, - was closer in culture to the Muslim Caliphate than to kingdoms

of the West. It was in the Muslim world, as much as in Byzantium, that Classical learning was still studied and maintained. Indeed, in the early Middle Ages Islam and Byzantium were the joint heirs of Greco-Roman culture; and of the two Byzantium was to prove the more isolated and the less able to affect the stream of Western European cultural development.

If you want quickly to see the extent of Muslim influence on Western Europe you have only to think of the many words still current in Western European languages which are of Muslim, mostly Arabic, origin. English provides numerous examples. Many describe goods and materials which Western merchants first brought from the East. There are a number of foodstuffs, such as sugar and syrup, the orange and the lemon, vegetables such as spinach and artichokes, spices such as saffron, drinks such as coffee. All these are originally Arabic words and show the country from which they were obtained. We can add words for furnishing, such as the mat, the mattress and the sofa, or the ottoman, whose name shows its origin. Cotton is an Arabic word: and there are all the materials whose names are derived from cities in the East, - muslin from Mosul, damask from Damascus, and so on. The word *tabby*, which in English is used to describe the common brindled cat and used to describe a watered silk, comes from the Attabiyeh quarter of Baghdad. Such words, describing articles of commerce, perhaps indicate commercial rather than cultural exchanges. More significant are all the commercial terms which we have taken from the East and which show that Western merchants learnt the technique of business there. These terms include such common English words as *traffic*, *tariff*, *cheque*, *risk*, *magazine* (in the sense of ware-house,) or *calibre*. In shipping the words *sloop* and *barque* show that both ships were of eastern design; and the word *cable* is also eastern in origin. Even the Admiral's title is eastern, though it originally had nothing to do with the sea. When we come to the arts we find that the term *baroque* is Arabic in origin. Of musical instruments the *tambourine* and the *guitar* are both Arabic, while the *lute*, the favourite instrument of Renaissance Europe is the Arabic *al-ud*. In the game of chess we use Persian terms. Check-mate, a phrase that we often use metaphorically, is simply *shah mat*, - the king is dead. - In astro-

nomy the names that we use for three of the brightest stars, Aldebaran, Altair and Betelgeuse, are Arabic. In mathematics the term *cypher*, meaning nought, is Arabic, as is the whole science of algebra, name and all.

I must add that some of the derivations are wrong. It is surprising to find among words of Muslim origin the word *alcohol*, in view of the religious ban on drinking it. But the derivation is due to the mistake of the Swiss Renaissance chemist, Paracelsus, who thought that liquid spirits had some connection with kohl-collyrium.-

How did this all come about? A summary of the story is to be found in the word *alchemy*. Alchemy, which we now regard as a half-magical practice, was in the Middle Ages a serious study of chemistry; and the word is a combination of the Arabic article 'al' with the Greek word *chimia* - chemistry, - which itself seems to be derived from the ancient Egyptian word *khem*, describing the black earth brought down by the Nile, which the Egyptians used as the basis for their experiments. There you have the story of the sequence of events. Classical Greek learning, derived from the ancient East and systematized by the Greeks themselves, was further developed by the medieval Muslims and handed on by them to Western Europe.

The Muslims realized early in their history that it was worth their while to study the Greek contributions to philosophy and to science in all its branches. Already under the Ommayad Caliphs a number of Greek works of practical value for the government were translated into Arabic. But the great era of translation began under the Abbasids, especially under al-Mamun, in the second quarter of the ninth century A. D.. The chief translators were Nestorian Christians; but the Caliph controlled their work. He sent them to collect manuscripts from all the libraries within his dominions; and when good editions were lacking he would ask for manuscripts from the Byzantine Emperor or would try to persuade Byzantine scholars to settle at Baghdad. As a result of the patronage of the Caliphs, by the end of the ninth century translations had been made of nearly all the major works of Greek science, mathematics, logic and medicine. About the same time

the Muslim scholar al-Kindi set about the translation of the philosophical works of Aristotle, while some of his contemporaries translated the Neo-Platonic philosophers. In the following century the learned al-Farabi completed the translation of Aristotle and added his own commentaries, and by his work raised him to be the chief philosopher of the Islamic tradition. The Muslim world had the great advantage of being a cultural unit, across which scholars and their books could travel freely. So the effect of these translations and commentaries was soon felt from India to Spain; and Muslim scholars began to add their own important contributions.

Some thirty years after al-Farabi's death there was born in Bokhara, in the Turkish lands that then were the eastern frontier of Islam, the most original and, I think, the greatest of all Muslim philosophers, Ibn Sina, whom the West called Avicenna. His philosophical system, though not always orthodox, shows an immense power of individual thought and entitles him to rank amongst the greatest philosophers in the world's history. It was not long before his works were read and studied in every Muslim country, and especially in Spain.

It was only at the end of the eleventh century that Western Europe came into close contact with Muslim culture. Till then the Westerners had been terrified of Islam, alarmed at its political power and suspicious of its civilization. Such few Western scholars as penetrated to Muslim schools in Spain, such as Gerbert of Aurillac, who later became Pope Sylvester II, came back suspect for their learning and were considered to have sold their soul to the Devil. But gradually relations grew closer. In Spain, which had been under the Muslims for nearly four centuries, the Christians reconquered territory, capturing Muslim cities such as Toledo which were centres of Muslim learning. Sicily, which had been Muslim for two and a half centuries, was conquered by Norman adventurers, coming from Scandinavia by way of France. About the same time, thanks chiefly to the Byzantine navy, piracy was curbed in the Mediterranean Sea; and merchants from Italy began to trade with Muslim ports. Finally, at the end of the eleventh century there occurred the movement known as the

Crusades, the Western invasions of Syria and Palestine, which were harmful because of the religious bitterness that they engendered but which did create further contacts.

By this time the Muslim world could offer a full store of ancient Greek learning, so enriched by Muslim additions that it was often hard to distinguish the original Greek from Muslim thought. And it was being continually enriched further. In Spain Muslim philosophy was not ended by the Christian advance. In the twelfth century there were not only flourishing there Jewish philosophers in the Muslim tradition, such as Maimonides, (Musa Ibn Maimun,) but, even more important, Ibn Rusht, whom the West called Averrhoes, a Muslim who actually had far more influence on West Christian thought than on his fellow-Muslims. The Christian conquerors in Spain thus found an active school of Muslim philosophy which had not yet reached its greatest heights. King Alfonso VI of Castile, who conquered Toledo in 1085, was so much impressed by the importance of his new Muslim subjects that he proclaimed himself the 'Emperor of the Two Religions', rather to the disapproval of his bishops. Yet it was a Christian bishop, Raymond of Toledo, who really founded the first School of Oriental Studies in Europe, in the middle of the twelfth century. He was so determined that the Christians should enjoy the fruits of Muslim learning, that he collected scholars from many countries and set them to learn Arabic and translate the Arabic works.

For the next century and a half a number of distinguished Europeans worked at Toledo, studying and translating Muslim authors. The most prominent and prolific was an Italian, Gerard of Cremona, who by the time of his death in 1287 had translated eighty works. There were scholars from Britain amongst them, such as Adelard of Bath, one of the earliest of them, who specialized in mathematical works and who frankly advised Western scholars to abandon their schools and go to study with the Muslims. There was Robert Anglicus, the first man to try to translate the Quran; he produced a painstaking Latin translation; and perhaps the most distinguished of all, the Scotsman, Michael Scot, who was interested in philosophy, science and music and

who translated the works of Averrhoes during the great philosopher's own lifetime. Amongst the Spaniards there was the monk Gundisalvus, whose philosophical system was frankly based on Avicenna's, and, in the thirteenth century, two remarkable scholars, Raymond Martin, whose knowledge of the Quran and the Traditions has never been equalled to this day, and Raymond Lull of Majorca, who wrote more books than any man before or since, an eager Christian missionary who however realised that he ought to have an exhaustive knowledge of Islam for his work.

The Spanish school was mainly interested in philosophy and the more abstract sciences. In the Norman kingdom of Sicily the emphasis was more on the practical sciences. The kings had many Muslim subjects and treated them well. The traveller Ibn Jubayr, who visited Sicily in the middle of the twelfth century was pleased to find that his co-religionists not only had complete religious freedom but also a share in the government. Some Arabic was spoken at the Norman Court and Arabic poetry encouraged there. Muslim architects were patronized. Norman Sicilian architecture is a curious but very successful blend of French, Byzantine and Muslim styles, its decorative work being almost entirely in the Muslim tradition. Medicine was chiefly studied in the Norman possessions on the Italian mainland. The town of Salerno had been a centre for medical studies since Byzantine times. At the end of the eleventh century a renegade Tunisian, known as Constantine the African, settled there and began with the help of some disciples to translate all the Arabic books on medicine that he could find. Constantine was an inaccurate translator, but he made accessible to Western doctors the works of the old Greek physicians, Galen and Hippocrates, together with the ample comments added by Muslim doctors. The medical University of Salerno became in consequence the main school of medicine in the West; and later scholars soon made better translations for use there.

In the thirteenth century the Norman kingdom passed by inheritance to the Western Emperor Frederick II, Frederick of Hohenstaufen, whose contemporaries surnamed him the Wonder

of the World. He studied Arabic and was deeply interested in Muslim learning. He was not at all a religious man and was reported to have said that both Jesus Christ and the Prophet were impostors; but in fact he seems to have had more sympathy with Islam than with Christianity. He had a Muslim bodyguard and many Muslim friends. When Crusading in the East he shocked the Christians by his long and friendly conversations with Muslim ambassadors and scholars. He himself wrote a book on Falconry, which is still the best book on the subject and for which he drew on Muslim sources. He brought the scholar Michael Scot from Toledo to complete his translating work in Naples. His own eyesight was bad, and he took a great interest in optics and ophthalmic medicine. A Muslim author writing at that time in Cairo tells us that the Emperor sent there to ask the Muslim scholars the answers to three problems: why do oars look bent when they are put into the water? why do stars look bigger when they are close to the horizon? and why do men suffering from incipient cataract and other eye-diseases see specks before them? He felt that he had to go to Muslim centres of learning to find the solution to such problems.

Even after the fall of Frederick's family the Italian rulers kept up the tradition of encouraging Muslim scholarship, especially as regards medicine. By now there were many translators working also in northern Italy. Much of their knowledge was obtained from merchants who had visited Muslim ports and had fallen ill there and had benefitted from the local doctors. They did much to popularize Muslim medicine when they returned home.

Otherwise, the merchants' chief contribution was to raise the general standard of living in the West. They introduced such useful and popular foodstuffs, like sugar, and they improved the comfort of houses; carpets began to appear on the floors, and chairs replaced benches. Clothing was revolutionized. Hitherto wool had been the only material obtainable in the West, except for the millionaires who could afford Byzantine silks. Now cottons and linens came on to the market, as well as a far larger supply of silk. This mercantile intercourse did not do much to add to Western science and learning, but it added greatly to the material

progress of the West. The merchants also seem to have helped in encouraging Arabic literary forms, with a marked effect on European literature.

The Crusading movement did not do much to help this progress, except in so far as Western soldiers and pilgrims remarked, like the merchants, the fashions and amenities of the Muslim East and tried to introduce them to Europe. It is probable that the pointed arch came into use in Western architecture as a result of such journeys. The earliest examples are found in the lands of a returned Crusader, the Count of Boulogne. Moreover the Westerners settled in the East soon adopted the local way of life. But there were very few scholars to be found in the Crusader states. The only one of note was William, Archbishop of Tyre, who was born in Palestine and learnt Arabic there, though he went to France for his schooling. He became one of the greatest historians of the Middle Ages; and amongst his works was a history of the Arab Caliphate, based on Arabic sources but now unfortunately lost. Various of the Crusader lords born in the East knew Arabic well, such as Humphrey of Toron, who acted as interpreter for King Richard Coeur de Lion of England, or Rainald of Sidon, who, when he was captured by Saladin, so impressed the Muslims by his knowledge of the Quran that they spared his life, thinking that he would become a convert to their Faith. But on the whole, the Crusades by the bitter religious rivalry that they created did more harm than good. When, however, the movement had been a military failure and the politicians in the West sought to revive it, the Westerners began to realize that they should cultivate a better understanding of the East and of its ways of thought.

There was thus by the time of the Later Middle Ages a real desire on the part of Western merchants and wealthy men to enjoy the material benefits of Muslim civilization and on the part of scholars and scientists to enjoy its cultural benefits. What was the total effect of it all on European civilization? It is impossible to assess civilization by a hard and fast standard. One can certainly say that the material way of life was greatly improved; and the words that passed from Arabic into European languages

give illustrations of this. It is harder to be precise about the cultural outcome; but several examples will serve to show how wide-spread it was.

The Oriental art which at the time interested the West most was music; but in the long run the effect there was slight. Except in Spain and Sicily, countries where there had been a long Muslim domination, Western music moved in practice in a different direction, though musical theory was permanently enriched by the study of the Arabic writers and their comments on Greek theory. In architecture the result is more clearly visible. As I have said, the pointed arch seems to have been copied from the East, though it was used in an entirely different manner in the West. The large Muslim contribution to Sicilian architecture was noted in the West, especially in Italy, while the Muslim buildings of Spain and those seen by Italian traders in the East had their effect on later Gothic and Renaissance building. For example many of the elaborate arches erected in Tudor England are very close to earlier arches erected in Cairo, and are probably based on designs brought from Egypt by the Venetians. Similar likenesses can be seen in a great number of decorative motifs, including ornamental battlements. Italian architects, particularly in the seventeenth century, copied the domes that they saw in Muslim buildings in Spain, and were copied in their turn by other European architects. Even more striking likenesses appear if we compare some of the towers built in Italy in the later Middle Ages and the Renaissance with towers in Cairo and further to the East. Here again the Italians spread the fashion to the rest of Europe. The great English architect, Sir Christopher Wren, working at the end of the seventeenth century, built towers for some of his churches in London whose designs can be traced back to those of the minarets of Muslim mosques. Similarly, rather later, when his works became known to Westerners, the great Turkish architect Sinan had his influence on Western styles.

In the lesser arts, the Venetian glass-factories, through which the art of glass-ware spread through the West, were directly inspired from the factories of the East. Many branches of metal-work, as the word *Damascene* for metal-inlay shows, came to

Europe from the East. Much European faience was guided by Persian and Turkish models; and from Persia and Turkey too came the main inspiration for European carpet-making.

More unexpectedly, the Muslim influence was very great in the sphere of literature. We are apt to think of the European romantic literature of the later Middle Ages as a native product. But the further we look into it, the more traces we find of an oriental origin. The love-story is, in fact, not so much a European as an Eastern invention. Many of the stories of the King Arthur cycle have now been proved to have an oriental origin. The medieval French romance, *Floire et Blanchefleur*, is an eastern story; while one of the most famous and lovely of all European romances, *Aucassin et Nicolette*, betrays its Muslim origin. The hero's name is really al-Qasim, while the heroine is stated to be a Muslim princess of Tunis. It seems, also, that the use of rhyme in medieval European verse was inspired by Arabic models; and many Arabic metres were copied. Arabic poems, presumably in translation, were so popular in thirteenth and fourteenth century Italy that the Italian poets complained; it was not fair to them, they said. Long before Europe knew of the collection of stories which we call the *Arabian Nights*, Muslim romance and poetry were making a mark on European literature.

Even such serious writers as Dante underwent Muslim influences. But this was due to the main contribution of the Muslims to Western culture, their contribution to philosophy and the sciences. One of the most learned of medieval English scholars, Roger Bacon of Oxford, says in one of his works that philosophy must be learnt from the Arabic writers and that no one should study the subject without taking the trouble to learn Oriental languages. He was not alone in his view. For example, his contemporary and compatriot, John of Salisbury, continually reminds his readers of the debt owing to Muslim philosophers. One must not overstate the claim. A few of Aristotle's works and almost all of Plato's did in fact come to the West directly from the Greeks of Byzantium. But the philosophical works that affected Western thought most deeply were those that came in translations from the Arabic, enriched by the comments made by Muslim

thinkers. So much was this so that many Western scholars attributed to Aristotle theories which in fact were created and promulgated by such Muslim philosophers as Avicenna and Averrhoes. It was only later on, when the West began to be able to read the old Greek philosophers in the original language that they realized how vastly they had been influenced by Muslim thought, much of which was by then fully integrated into Western Christian thought. The greatest Christian theologian-philosopher of the Middle Ages was Thomas Aquinas, whose work is still the basis of the philosophical doctrine of the Catholic Church. He tried to disentangle Aristotelian philosophy from that of the Muslim philosophers, and he added to his system elements derived from a direct study of Plato. But in both his methods and his theories he continually shows Muslim influences. In particular his whole theory of the interplay between Faith and Reason seems to have been copied from that of Averrhoes; and his attitude to the Christian Bible is parallel to that of Averrhoes to the Quran. Both believed that God's revealed Word was the supreme authority, but both believed that it could and should be explained in Aristotelian philosophical terms. Most Christian thinkers still today accept the relationship between theology and philosophy which was worked out by the Muslim philosophers. It is true that modern philosophical ideas have passed on into a sphere which neither the Muslims nor the Christians of the Middle Ages would have understood. But it is interesting to note that the atomic theory put forward by many of the Muslim thinkers has some bearing on the scientific philosophy of today.

It would take too long to try to estimate in detail the contribution made by the Muslims to the world's store of scientific and mathematical learning. Their most important and fundamental contribution was to show that science was not incompatible with religion. In mathematics we owe to them the whole science of algebra. The so-called Arabic numerals, the adoption of which entirely revolutionized European mathematics, were taken from the Muslims, though the actual figures were never those used by the Arabs. In geometry and trigonometry the Muslims added enormously to old Greek learning. In astronomy the Muslims made a large contribution, and a lasting one, in spite of all the

knowledge that has been accumulated since the Middle Ages. The same is true of geography and such practical sciences as zoology and botany, metallurgy and chemistry. Their medical doctors revolutionized Western medicine by introducing old Greek methods and theories, with their own additions and improvements. They taught men how to systematize diseases and to attempt a proper diagnosis. It is true that most of their medical theories are now outmoded; but they marked an enormous advance at the time, and represent a definite and valuable stage in the development of medical studies. In this connection we may add that it was in a Muslim country, Turkey, that Western Europeans learnt the practice of inoculation.

This is a very brief summary of the debt that Western European civilization owes to the Muslims. I have tried to give some idea of how wide and important the Muslim influence has been. It did in fact affect the main stream of European erudition and thought. The moral to be learnt from it is that none of the great Faiths or the great civilizations of the world stand apart in isolation. It is not by religious or ideological wars that culture advances nor by erecting barriers of nationalism. The followers of no Faith and the citizens of no country are so perfect that they can afford to ignore or reject the rest of the world. It is by making friendly contacts and by attempting an effort at understanding that the various civilizations of the world can help each other. This was true in the Middle Ages. It is still true today.