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ISLAMIC STUDIES

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ISLAMIC CULTURE AND
CIVILIZATION

Islamic Culture & Civilization

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I. Introduction

To give an idea about the cultural contribution of the Islamic civilization to the West, the Islamic origins of modern science and civilization and the ascendancy of the Islamic science and learning for about 600 years in the world.

Therefore I'll talk about the beginning of the Islamicization of the West, of the Influence of Muslims on Western philosophy, rationalism, experimental method, sciences, commerce, material life and arts of gracious living.

II. Islamic achievements in science.

A. Introduction: Unwillingness to recognize Islamic achievements.

Many European scholars who approach the subject of Arab contributions to science and philosophy do it with prejudice against the Arabs. Even some of those who praise them do so grudgingly, Carra de Vaux in his chapter "Astronomy and mathematics", in *Legacy of Islam* felt compelled to begin by disparaging the Arabs. He said: "we must not expect to find among the Arabs the same powerful genius, the same gift of scientific imagination, the same "enthusiasm", the same originality of thought that we have among the Greeks. The Arabs are before all else the pupils of the Greeks, their science is a continuation of Greek science which it they made algebra an exact science and developed it considerably and laid the foundations of analytical geometry; they were indisputably the founders of plane and spherical trigonometry which, properly speaking, did not exist among the Greeks. In astronomy they made a number of valuable observations."

The Arabs, with a great open mind went through a gigantesque translation movement from Greek, Indian, and Syriac. Al Ma'mun, the Abbassid Khalif, had founded at the beginning of the ninth century "the house of Wisdom" (bayt el Hikmah) especially for translations. The Arabs assimilated these works of the ancient and developed them. Philosophy, Mathematics, Astronomy and Medicine were the first subjects to attract the interest of Muslims.

B. Scientific method and rationalism.

The scientific or inductive method of inquiry was the greatest boon the Islamic culture had bestowed upon the West. Muslim thinkers were using the inductive method in their scientific investigation in different fields. AlRazi and Ibn al Haitham expounded particularly this method. Ibn Hazm, in his studies of logic emphasized sense-perception as a source of knowledge. Later Ibn Taymiyah, refuting the Aristotelian logic showed that induction was the only form of reliable inference.

It was the method of observation and experiment which led Al-Biruni to the discovery of reaction time, al-Kindi to the formula that sensation is a response of the organism proportionate to the stimulus, and Ibn Al Haitham to his findings in optics.

C. Mathematics

The first important name in mathematics is that of AL-khwarismi, known to the Latin scholars as Algorismus; from his name is derived the technical term “algorism” and he is the founder of the science of “Algebra”. Alkhawarismi was followed by many famous mathematicians, like AlKindi, AlSarakhsi, the three sons of Shakir Ibn Musa, the “Banu Musa”, Alhazen, the Brethren of Purity, etc...

The achievements of Islamic mathematics can be summarized as follow: the Muslims developed number theory in both its mathematical and metaphysical aspects. They generalized the concept of number beyond what was known to the Greeks. They devised new methods of numerical computation reaching their height with Alkashani in the eighth/fifteenth centuries. They also dealt with numerical series, decimal fractions, and similar branches of mathematics connected with numbers.

They systematized and developed the science of algebra, preserving always its links with geometry. They continued the work of the Greeks in solid and plane geometry and developed trigonometry, both plane and solid, working up accurate tables for the functions and discovering many trigonometric relations. This science, cultivated previously in conjunction with astronomy, was perfected and made into an independent science for the first time by Nasir al Din al Tusi in his famous *Figure of the Sector*, which represents major achievements in medieval

mathematics. Muslims, above all, developed the "Arabic numbers" and thus made easier all the dealings done previously with the roman numbers encouraged to go beyond the mathematical operations and opened the mathematical horizons with the invention of the zero.

D. Astronomy

In Astronomy Muslims continued the Greek tradition while making extensive use of the knowledge of the Persians and Indians and integrated this new astronomical system into the Islamic world view. The several new features of Islamic astronomy include, besides all the refinements made in the Ptolemaic system, the star catalogue of Ulugh Beg, which was the first new catalogue since the time of Ptolemy, and the replacement of the calculus of chords by the calculus of sines and trigonometry. The Muslim astronomers also modified the general system of the Alexandrians in two important aspects. The first modification was to abolish the eight spheres which Ptolemy had hypothesized to communicate the diurnal movement to each of the heaven; the Muslims substituted a single starless heaven at the confines of the universe, above the heavens of fixed stars, which in undergoing diurnal motion carried all the heavens with it. The other modification, which had a greater significance for the philosophy of sciences, involved a change in the nature of the heavens. The abstract heavens of the Greeks were transformed into a solid body.

The Islamic astronomy continued to correct the mathematical shortcomings of the Ptolemaic model, but it did not break the bounds of the closed Ptolemaic system, which was so intimately tied to the medieval world view.

Later Muslim astronomers criticized various aspects of Ptolemaic astronomy, and Al Biruni knew of the possibility of the motion of the earth around the sun and an elliptic rather than circular motion of the planets. But none of them did, nor could they, take the step to break with the traditional worldview, as was to happen during the Renaissance in the West, because that would have meant not only a revolution in astronomy, but also an upheaval in the religious, philosophical and social domains.

As long as the hierarchy of knowledge remained intact in Islam, and sciences (scientia) continued to be cultivated in the bosom of wisdom (Sapientia), a certain "limitation" in the physical domain was accepted in order to preserve the

freedom of expansion and realization in the spiritual domain. The wall of cosmos was preserved in order to guard the symbolic meaning which such a walled-in-vision of the cosmos presented to most of mankind. For The great majority of men, it was difficult to conceive of the sky as some incandescent matter whirling in space and at the same time as the throne of God. And so, despite all the technical possibility, the step toward breaking the traditional world view was not taken, and the Muslims remained content with developing and perfecting the astronomical system that had been inherited from the Greeks, Indians and Persians, and which became fully integrated into the Islamic world view.

E. Medicine

Islamic medicine is one of the most famous and best known facets of Islamic civilization, being one of the branches of science in which the Muslims most excelled. The Muslim physicians were studied in the West until the 19th century. In the East, despite the rapid spread of Western medical education, Islamic medicine continues to be studied and practiced on a minor scale.

Islamic school of medicine which came into being early in the history of Islam is of great significance first for its intrinsic value, secondly because it has always been closely allied with the other sciences, and especially philosophy.

The wise man or Hakim, who has been throughout Islamic history the central figure in the propagation and transmission of sciences, has usually been a physician. The fact that both the sage and the physician are called Hakim shows the relationship between the two. Many of the best known philosophers and scientists in Islam, such as Avicenna and Averroes, were also physicians. The same thing holds true for the Jewish philosophers in the world of Islam. Maimonides besides being a great thinker was also the physician to Saladin.

The first generations of Muslims were having a simple medicine based on what became to be known as the Medicine of the Prophet (Tibb an-Nabi). Islam, as a guide for all aspects of human life, was concerned with the general principles of medicine and hygiene. Several verses of the ***Quran*** deal with medical questions of a very general order. There are also many sayings of the Prophet dealing with health, sickness, hygiene, and many questions related to the field of medicine. Their guidance has determined many of the Muslims dietary and hygienic habits.

To this typically Islamic medicine were integrated the Hippocratic and Galenic traditions of Greek medicine with the theories and practices of the Persians and Indians, within the general world view of Islam. It is therefore synthetic in nature, combining the observational and concrete approach of the Hippocratic school with the theoretical and philosophical method of Galen and adding to the already rich Greek tradition the theories and experiences of the Persian and Indian physicians. The Islamic medicine was seeking the concrete causes for individual phenomena rather than the general causes sought by the Peripatetic “natural philosophy.”

1. *Agriculture and Minerals*

Arabs were having a prosperous agriculture in the lands where agriculture was possible. They certainly raised the level of agriculture in a country like Spain where they introduced ways of conserving and distributing water. Evidence for this is the large number of Spanish words pertaining to irrigation techniques which have been derived from Arabic, ex: acequia, irrigation ditch; alberca, artificial pool; aljibe, cistern; noria, irrigating wheel or draw well; arcaduz, water conduit or bucket; azuda, Persian wheel; almatriche, canal; alcantarilla, bridge, sewer; atarjea, small drain; atanor, water pipe; alcorque, hollow round the base of a tree to hold water, etc... besides this evidence from language, the actual forms of wheels still used in Spain were invented in the Middle East where they are found today.

2. *The Arts of “Gracious Living”*

- **Industry**

This wide variety of materials from agriculture and mining was used by the Arabs of Spain to enhance the pleasure of life. There were various industries producing luxury goods. Among the products were gorgeous textiles in wool, linen and silk. The ceramic industry, the manufacturing of Crystal, the handicraft of fine metal, of jewellery, of carving ivory and wood, of leather work, book-binding, etc... were highly developed.

- **Architecture**

The glorious buildings called “Moorish” constituted the framework of this life of luxury. The evidence of the Spanish language shows that the Arabs were responsible for many improvements and refinements in building techniques. The words for “architect” and “mason” are from Arabic, “alarife” and “albanil”. So also are the following; alcazar, castle; alcoba, bedroom; azulejo, tile; azotea , roof terrace; baldosa, fine paving tile; aldaba, door-knocker, etc...

- **Music**

The Arabs invented or improved many types of instrument. The Arabic names of the lute, guitar, rebec and naker show their Arabic origin. The actual Arabic singing and playing was spread by the troubadours. The Morris dancers of England (or Moorish dancers) perform with a hobby-horse and bells and are reminiscent of the Arab minstrels:

- **Books**

Familiarity with books was one part of “gracious living”. The use of paper made easier the possession of books. The Arabs developed the manufacturing of paper invented by the Chinese. Its use spread into Western Europe through Spain and Sicily.

- **Urban organization**

The “gracious living” of the Arabs of Spain was essentially urban living and presupposes the existence of cities where law and order is preserved and people living together in peace. It is not surprising therefore to find in Spanish number of words of Arabic origin dealing with municipal administration and the control of commercial activity like, alcalde (mayor), alcaid (governor of a fortress), the zalmedina (magistrate), zoco or azoguejo (market) etc...

References

- [1] The Legacy of Islam, Oxford, Clarendon Press, 1931.
- [2] The Making of Humanity,