**The Dark Ages of Europe were not the Dark Ages of the World**

**M.Basheer Ahmed M.D.**

The Dark Ages was the early medieval period of Western European history during 500–1000 C.E. when no Roman (or Holy Roman) emperor existed in the West. The term's more usual and pejorative sense is of a period of intellectual darkness and barbarity (Dark Ages -Encyclopedia Britannica 2010). The time dark ages are intended to be neutral, but it clearly shows a lack of recognition for the scientific and scholarly work during this period in the Middle East and Europe (Spain).

The West knows what the Ancient Greeks, Egyptians, and Babylonians contributed to civilization in terms of scholarly work and scientific discoveries. Most of us have heard of Socrates, Aristotle, Ptolemy, Galen, and Pythagoras and their contributions to philosophy, astronomy, physics, and mathematics. However, very few of us have heard of Muslim scientists, Al-Kindi, Ibn Sina, Al-Razi, Zahrawi, Ibn Al-Haytham, or Ibn Khaldoon, who made equally significant contributions to science between the 7th and 15th centuries – during the era known as the Dark Age. An in-depth study of the causes of the Dark Ages and European Renaissance will lead to the inevitable conclusion that Muslim scholars were the Light of the Dark Ages.

The two events within one hundred years of each other effectively doomed Europe to ignorance for half a millennium. The first was the closing of Edessa's school of Hippocratic Medicine in 489 AD, located in ancient Mesopotamia, by the Byzantine Emperor Zeno. Next was the destruction of the Academy of Athens, devoted to a mystical and philosophical search for truth that challenged church doctrine. Emperor Justinian closed the Academy in 529 AD. Hundreds of scholars fled from Eddesa and the Academy of Athens, seeking refuge in Jundishapur during the 5th and 6thcentury. Jundishapur was a city in Khuzistan founded by a Sassanid Emperor Shapur (241-272 AD). He established a University with a medical school and a hospital where Greeco-Syriac medicine blossomed. Muslims took the town during the second Caliph Umar's reign in 738 AD. At this time, it already had a well-established Hospital and Medical school.

During the reign of Caliph Harun-ul-Rashid, Baghdad became the center of the political power of the caliphate. He established numerous hospitals and medical centers, and intellectual activity increased significantly. This educational process led to the period of Enlightenment. During this period, many physicians and scholars migrated to Baghdad from Jundeshpure and other parts of the world.

Quranic teachings and the sayings of Muhammad (pbuh) emphasized acquiring knowledge resulting in an advanced civilization in the middle ages. At its peak, about one thousand years ago, the Muslim world made a remarkable contribution to science, notably mathematics, and medicine. Baghdad and Cordova in Spain built universities where thousands flocked to gain knowledge. Rulers surrounded themselves with scientists, scholars, and artists. The spirit of freedom allowed Jews, Christians, and Muslims to work side by side. (Francis Ghiles, 1983)

The Abbasid Khalfas built The legendary "Baitul Hikma" (House of Wisdom) in (763 AD) in Baghdad. It was equivalent to the latter Royal Colleges established to promote the advancement of higher learning in England in the 15th century. The oldest university in the world is not Oxford (1167), Cambridge (1209), or Harvard (1636).Al-Qarawiyyin University in Fez. Morocco, founded in (859) C.E., is the world's oldest continuously operating degree-granting university. The Al-Azhar University of Cairo, built-in (in 970) C.E., and Nizamiya College Baghdad (1067) are also the world's oldest universities. The Muslim Universities influenced the Monks who came with the Crusaders during the 10th and 11th centuries. They controlled the establishment of Salerno and Bologna University in Italy (1088), Oxford University in England (1167), and Sorbonne University in Paris (1150).

The capital of the Muslim world was Cordova, Spain. During the 9th-10th century, when London was a small town with no street lamps, Cordova-Spain had half a million population living in 113,000 houses, 700 mosques, 300 public baths, 40 hospitals, Book shops, and 70 libraries with ½ million books. "During the end of the first millennium, students from France and England traveled to Cordova to sit at the feet of Muslim, Christian, and Jewish scholars to learn science and medicine (Burke, 1978).

We mentioned below a few notable Muslim scholars who made their observations and original research and added a vast treasure of scientific knowledge in Philosophy, Astronomy, History, Mathematics, Chemistry, and Medical and Social Sciences

Al-Khwarizmi (770-840) developed the calculus of resolution and juxtaposition (Hisab al jabr wal-muqabala). He introduced algebraic ideas that allowed mathematics which applied in a way that had not happened before. European universities taught his book on algebra until the 16th century.

Jabir ibn Hayyan (Geber-715-800) introduced the experimental scientific method for chemistry and pure distillation, liquefaction, crystallization, purification, and oxidization.

Ibn Isha Al-Kindi (800-873) worked at the House of Wisdom on various subjects, including Philosophy, Optics, Medicine, Mathematics, Cryptography, and Metallurgy. He produced 107 recipes for perfumes.

Abbas ibn Firnas (810-887) attempted to fly using a massive wing like a cloak in Cordoba, Spain.

Al-Battani (858-929) contributed knowledge of Astronomy and trigonometry.

Al-Razi (Rhazes 864-930) significantly contributed to the knowledge of Medicine, Ophthalmology, Smallpox, and Chemistry. His books were used as textbooks of Medicine in European universities until 1500 C.E.

Al-Zahrawi (Albucasis 936-1013) was the first physician to introduce surgery as a separate specialty. He is called the Father of Surgery. He Wrote 30 volumes of the medical encyclopedia Kitab al- Tasrif which remained a standard textbook in Muslim and European universities for 500 yrs.

Abul Hasan Al-Masudi (896-956) was a traveler historian who significantly contributed to geography knowledge. He described the Baku oilfield, Azerbaijan, generating commercial activities and industry.

Ibn Al-Haitham (Alhazen 965-1040), Father of Optics, was the first scientist to conclude by observation and experiments. He proved that humans see objects by light reflecting off them and entering the eye, dismissing Euclid and Ptolemy's theories that the eye emitted light.

Al-Mawardi (972-1058) wrote extensively on political science, sociology, and jurisprudence.

Abu-Raihan Al Biruni (973-1048), Astronomer and Mathematician, determined the accurate earth's circumference (600 years before Galileo). He discovered the Milky Way galaxy as a collection of numerous nebulous stars.

Ali Hussain Ibn- Sina (Avicenna 981-1037), the most famous physician who wrote an Encyclopedia of Medicine in the 10th century, consists of 30 volumes-Al-Qanoon fil Tibb (Canon of Medicine). His work was taught in European universities until the 16th century. He spelled out the procedures for testing the effectiveness of a new drug. He also authored 200 books on philosophy, Mathematics, and Astronomy.

Omar Khayyam (1044-1123) Mathematician, Astronomer, and Poet: He laid the foundation for developing analytic and non-Euclidean geometry.

Ibn-Zuhr (1100-1161) surgeon invented the surgical procedure of tracheotomy. He contradicted the erroneous theory of humorism supported by Hippocrates, Galen, and Avicenna.

Ibn Al Nafis (1213-1288): He published 43 volumes of the medical encyclopedia. He discovered pulmonary and coronary circulation about 400 years before William Harvey, who explained the circulatory system without reference to Ibn al-Nafis.

Muhammad Al-Idrisi (1100-1166): He was one of the first geographers who drew the world map and the first known globe. He worked for King Roger II of Sicily, who commemorated his world map on a circle of silver weighing about 400 pounds. He wrote one of the most outstanding descriptive geography books, the Book of Rogers.

Jalal ud Din Rumi (1207-1273): One of the best-known Persian poets lived in Turkey. He is famous for poignant poetry on spiritual Enlightenment and passion.

Ibn Khaldoon (1332-1406): a described study of the nature of society and social changes in a new science called "Ilm al- Umran" (the science of culture and civilization). He gave a sophisticated analysis of how human societies evolved from nomadism to urban centers and why these urban centers decades and finally succumbed to less-developed invaders. His work was undoubtedly the most outstanding work that any mind has ever created in any time or place.

According to Robert Briffault in his book, The Making of Humanity, "What we call science arose due to new methods of experiment, observation, and measurement, which were introduced into Europe by the Arabs. Science is the most meaningful contribution of Arab civilization to the modern world".

"If there is much understanding in the West about the nature of Islam, there is also much ignorance about the debt our culture and civilization owe to the Islamic world. The medieval Islamic world was where scholars and men of learning flourished. But because we have tended to see Islam as the enemy of the West, as an Alien culture, society, and system of belief, we have tended to ignore or erase its great relevance to our history. Islam is part of our past and present in all human endeavor fields. It has helped to create modern Europe" (H.R.H Prince Charles at Oxford University, 1993)

I want to conclude with a quote from Carly Fiorina, Former Chair and C.E.O. of Hewlett Packard, who described the Muslim contribution to world civilization on September 26, 2001.

"It was driven more than anything by the invention. Its architects designed buildings that defied gravity. Its mathematicians created the algebra and algorithms that would enable the building of computers and the creation of encryption. Its doctors examined the human body and found new cures for diseases. Its astronomers looked into the heavens, named the stars, and paved the way for space travel and exploration. Perhaps we can learn that the Muslim leadership harnessed the full capabilities of a diverse population that included Jewish, Christian, and Islamic traditions".

**From the 7th to the 15th century, Muslim scientists and scholars enlightened the world of DARK AGES with their scientific and philosophical ideas, which became the foundations for the European Renaissance in the 16th century.**

Dr. Basheer Ahmed is the former Professor of Psychiatry at Southwestern Medical School in Dallas, Texas, Chairman Emeritus Muslim Community Center For Human Services North Texas. and President Institute of Medieval and post-Medieval Studies.