

## PalArch's Journal of Archaeology of Egypt / Egyptology

### ENLIGHTENED ECHOES: A REVIEW OF THE CONTRIBUTIONS OF MUSLIM PIONEERS TO ANCIENT SCIENCES

*Dr. Shamsul Arifeen<sup>1</sup>, Dr. HM Azhar Usama<sup>2</sup>*

<sup>1</sup>Associate Professor, Department of Islamic Studies, the University of Lahore, Lahore  
Pakistan

<sup>2</sup>Assistant Professor, Department of Islamic Studies, the University of Lahore, Lahore,  
Pakistan

Corresponding Author: [muhammad.azhar@ais.uol.edu.pk](mailto:muhammad.azhar@ais.uol.edu.pk), [shams.arifeen@ais.uol.edu.pk](mailto:shams.arifeen@ais.uol.edu.pk)

**Dr. Shamsul Arifeen, Dr. HM Azhar Usama. Enlightened Echoes: A Review Of The Contributions Of Muslim Pioneers To Ancient Sciences-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 20(1), 1499-1515. ISSN 1567-214x**

**Keywords: Historiography, Knowledge Transmission, Analytical Revisitation, Cultural.**

#### ABSTRACT

This study embarks on a scholarly reevaluation of the often understated yet pivotal role played by Muslim scholars as forerunners of the Renaissance, particularly in the realms of historiography, geography, cartography, and philosophy. While the Renaissance is commonly associated with Europe, this research seeks to shed light on the profound and enduring contributions made by Muslim thinkers during the medieval period. The focus of this study encompasses a comprehensive analysis of Muslim historiography, exploring the methodologies employed by scholars such as Ibn Khaldun and Ibn Miskawayh in shaping the narrative of historical events. The examination extends to the intricate intersections between geography and cartography, unraveling the advancements made by Muslim polymaths like Al-Idrisi and Ibn Battuta in mapping the known world. Moreover, the study delves into the intellectual landscape of Muslim philosophers, with an emphasis on figures like Ibn Sina (Avicenna) and Ibn Rushd (Averroes), whose works not only preserved the legacy of classical Greek philosophy but also laid the groundwork for the revival of philosophical inquiry in the European Renaissance. Through a meticulous examination of primary sources and scholarly insights, this research aims to provide a nuanced understanding of the profound impact of Muslim contributions on the intellectual and cultural landscape that preceded the European Renaissance. By revisiting these historical narratives, this study seeks to contribute to a more inclusive and accurate portrayal of the interconnectedness of human intellectual achievements and the transmission of knowledge across civilizations.

## INTRODUCTION :

The Renaissance, often hailed as the cultural and intellectual rebirth of Europe, is a period intricately associated with groundbreaking advancements in art, science, and philosophy. However, beneath the commonly held narrative of a solely European phenomenon lies a rich tapestry of contributions from Muslim scholars that played a foundational role in shaping the intellectual landscape that preceded this transformative era. This study embarks on an analytical re-visitation, seeking to illuminate the often overlooked but significant Muslim contributions to historiography, geography, cartography, and philosophy.

In the realm of historiography, Muslim scholars crafted narratives that not only chronicled historical events but also laid the groundwork for methodological approaches. Figures such as Ibn Khaldun and Ibn Miskawayh engaged in profound analyses of societal changes, contributing to the understanding of historical processes that influenced the European Renaissance.

Advancements in geography and cartography are explored through the lens of Muslim polymaths like Al-Idrisi and Ibn Battuta, whose meticulous mapping efforts provided a comprehensive understanding of the known world. These contributions not only enhanced geographical knowledge but also served as a catalyst for the Age of Exploration.

The intellectual landscape of Muslim philosophers, particularly Ibn Sina (Avicenna) and Ibn Rushd (Averroes), is examined for its profound impact on philosophical inquiry. Their works not only preserved the classical Greek philosophical tradition but also laid the groundwork for the revival of philosophical thought in Europe during the Renaissance.

This study employs an analytical lens, delving into primary sources and scholarly insights to shed light on the interconnectedness of civilizations and the transmission of knowledge across cultures. By revisiting these historical narratives, the research aims to contribute to a more inclusive understanding of the Renaissance as a culmination of intellectual achievements that transcended cultural and geographical boundaries. In doing so, it seeks to recognize and appreciate the integral role played by Muslim scholars as forerunners of the Renaissance, fostering a more comprehensive and nuanced perspective on the roots of this transformative period in human history. The prevailing cultural conditions of the world just before the birth of Islam were not encouraging, and as far as the intellectual tradition of the Greeks and the early Romans was concerned, it was dormant. The Europe, which now indeed leads technological revolution, was a gloomy place where many educated men who wanted to indulge themselves into the classical treatises of the Greeks were persecuted and sometimes tagged „seditionists“. Many ancient libraries which had been founded by the Greeks were burnt to ashes. The wellknown facts which are now taken for granted were mere claims and at times considered crimes against the God and the states. For example, believing in the roundness of the earth was unpalatable crime. The same evil instinct which tore Hypatia"s body

into pieces in the Church of Alexandria for her thirst of knowledge brought Galileo into the custody of the familiars of the Holy office at Rome. A man could not be suspected of doubting the popular belief without risking his goods, his body or his life. As a consequence, there could be no lawgivers, no philosophers and no poets. Whoever wanted to express any opinion contrary to the prevailing priestly beliefs, was not only stigmatized as a heretic but also persecuted, inhumanly tortured, and even mercilessly put to death. A renowned scientist Lucilio Vanini was one such example, whose tongue was pulled out of his mouth and who was ultimately burnt alive for his belief in the theory of evolution. It was such a systematic regression very much imposed by the institutions like Church that Gregory the Great (540 AD 604 AD) banished all the educated men from Rome and the famous philosophical library which was founded by Augustus Caesar (63 BC 14 AD) was put on fire at his orders. Under his maladministration, it was strictly prohibited to read old Greek and Roman books.<sup>1</sup> Prof. Lake says, “Islam opened the gate of freedom of thoughts in the 7th century and brought the cultivation of learning into Europe. In fact, before the conquest of Spain by the Muslims, science in Europe was in a dormant state and little known, confined mostly to priesthood who used it in promoting superstitions by which they profited and ruled. Thus, science was checked and retarded in Europe during the Middle Ages”.<sup>2</sup>

France, Germany and Spain were not enlightened in culture. Stanley Lane-Poole has described the condition of Spain under the Romans, “In Spain the richer classes were given over to luxury and sensuality. They lived only for eating and drinking, gambling and all kinds of excitements. The mass of the people were either slaves or labourers, who were bound to the soil and could not be detached from the land they cultivated but passed with it from master to master. Between the rich and the slaves was a Middle Class of inhabitants who were perhaps even worse off, for on their shoulders lay all the burdens of supporting the state? They paid the taxes and supplied the money which the rich squandered on their luxuries”.<sup>3</sup> the present western countries which now astonish the world with their science and civilization were founded long after the establishment of the Muslim empire. The Burgundy came into existence in 8th century, Hungary and Bohemia in 12th century, Russia and Poland in 15th century and Switzerland and Prussia in the 17th century A.D. The intellectual progress of the Europe was also hindered by internal troubles. Compared to the Europe, the cultural position of India was, on the whole, better in the pre-Islamic days.<sup>4</sup>

Literary Contribution of the Muslims in the Early Islamic Period though there was no educational system in the Jahiliyah period (age of ignorance), the Arabs before Islam were not altogether devoid of literary culture. The fair of Ukaz was nothing less than the annual gathering of a PanArab literary conference. It goes without saying that the Arabs had much literary taste. There are certain historical recordings that suggest the literary activities of the pre-Islamic Arabs were not few. Ghailan Ibn Salamah of the tribe of Taqif is known to have used to hold a literary gathering, once a week, where poems were recited and literary discussions and criticisms exchanged. Imraul Qays, Tarafa bin al Abad, Antara bin Shadad al Absi, Harith bin Hilliza, Tabib bin Rabia and Amr bin Kulthum were some of the important poets and literary

figures in preIslamic Arabia. The language of the pre-Islamic Arabs had been so rich that it can be favourably compared with the modern developed languages of Europe. It could never have reached that stage of maturity and extensiveness without great literary activities and talents of the people who spoke it.<sup>5</sup>

Apart from the very large number of poems ascribed to the Jahiliya, we possess literal records of a good many orations, sermons, proverbs, anecdotes and other prose monuments. They will convince any reader of their rhetoric, minute observation, wit and fine taste. IbnQutaiba says in his book, *Uyun-alAkhbar* that Zilmah used to amuse herself in her childhood by thrusting pens in and out of the inkpot. The fact shows that the children of both sexes in the preIslamic days used to receive education of whatever crude and primitive form it might have been. The Quraysh who were the most important tribe in Arabia could boast of their literary men who could write. The names of Umar ibn alKhattab, Ali ibn Abu Talib, UthmanibnAffan, Talhah, Abu Ubaydah al-Jarrah ,

Yazidibn Abu Sufyan, Abdullah ibnSa'dibn Abu Sarh, HatibibnAmr, Abu Salmah, Abu SufyanibnHarb, Muawiyahibn Abu Sufyan and Khalid IbnSa'd may be mentioned here. Among women, Hafsah, who was later on married to Prophet Muhammad (PBUH), knew reading and writings. According to Baladhuri, the Aus and the Khazraj tribe of Arabia had the fortune to have men like Sa'dibnUbayda, Abdullah ibnUbayya and Suwaidibn al-Saamit, who knew writing, swimming and shooting. At the infancy of Islam the Prophet Muhammad (PBUH) availed himself of the services of those who knew writing to record the Revelation for him. Abdullah IbnSa'dIbn Abu Sarh was the first among the Quraysh to have this honour. The first man who used to write for the Prophet in Medina was UbayyaibnKab al Ansari. Later on, this honour was given to Uthmanibn Abu Affan, ShurahbilibnHasan, Khalid ibnSa'd and Muawiyahibn Abu Sufyan. Still there was a need for a systematic approach to education and Prophet Muhammad (PBUH) gave a definite shape to it and introduced an elaborate system for the spread of education among his followers.<sup>6</sup>

## **HISTORIOGRAPHY**

Before the advent of Islam, there was no systematic and „scientific“ way of compiling history. The documentation of sayings of Prophet (SAW) was the first attempt by Muslim scholars to devise methods of historical verification. Compared to the previous historical writings, the Muslims attained appropriate advancement in the sociological understandings of history and the systemization of historiographical writings. The abundance of historical tales in the Quran and the life of the Prophet (SAW) of Islam created an incentive for the Muslims to study history. In the early ages, historical incidents were generally bound to memory but later on, huge volumes of history writings were compiled. History has always been referred the most significant subject in the curriculum of the Muslim's education. The writings of history began in the period of the Umayyad Dynasty and were developed during the Abbasid Dynasty. The historians of the early ages relied on the continuity of the series of reports, more relatively on the authenticity of the reporters. The initial

historical literature was mostly based on traditions, legends, genealogies and biographies .

The writing of history in fact started in the second century A.H. Ali bin Muhammad bin Abdullah Madani (b. 135 A.H.), a copious writer, occupies an outstanding place among early Arab historians. He made a tour of Basra and Madain and later settled in Baghdad where he was sponsored by the eminent musician Ishaq al Mawsuli. He wrote a number of works which had been divided into books; the first discusses the records of the Prophet (SAW), the second dealing with the records of the Quraysh, the third engage with the marriage of the nobles and the records of women, the fourth encapsulates the records of the orthodox pious Caliphs, the fifth deals with historical events of Islam, the sixth is based on the debates of Islamic conquests, the seventh with the records of the Arabs and the eighth covenants with the poetical history.<sup>7</sup> Madaini is considered as an authority on early history writing by later historians. Hisham bin al-Sayyib al-Kalbi of Kufa was another famous historian during the second century of Islam. He wrote more than 150 works and is considered an expert on genealogies. Muhammad ibnIshaq of Madinah (d. 151 A.H) wrote the biography of the Prophet (SiratRasul Allah) at the behest of the Abbasid Caliph al-Mansur. The work of IbnIshaq on the life of Prophet Muhammad (PBUH) is collected in three volumes. His work has been preserved by IbnHisham who knew the book through a pupil of IbnIshaq. IbnHisham took from the first part only the history of Muhammad"s ancestors since Ibrahim but combined the two separate parts with occasional credible abridgements into the KitabSiratRasul Allah.<sup>8</sup>

Muhammad bin Umar-al-Waqidi (130-207 A.H.) was the most reputable historian of the second century of the early history of the Islam. He was a productive writer and outstanding character on various subjects. His major focus on chronology has been remarked upon by western writers. He wrote Maghazi which threw light on the conquest of Uqbah in the West Africa. AlWaqidi is considered an authority on tradition, Islamic jurisprudence and history. The secretary of al-Waqidi wrote a history dealing with the life of the Prophet Muhammad (PBUH) and his followers.<sup>9</sup> The third century was a century of intellectual attainments in the history of Islam. It was the period that some of the brightest luminaries appeared in the horizon of Arab learning"s. Ahmad ibnYahya al-Baladhuri of Iran was one of the earliest and leading historians of the third century. He travelled extensively in quest of historical knowledge. The main contributions of this historian are Futuh-al-Buldan and Ansab al-Ashraf (Book of the Lineages of Nobles). The Futuh al-Buldan deals with the records of Muslim conquests and also describes the subsequent history of the countries concerned. He received the designation, Baladhuri because he died (279 A.H) of mental disorder after drinking Baladhur (Indian Bhang). AlBaladhuri was not only a great historian but also a famous geographer.<sup>10</sup> Abu Hanifa Ahmed al- Dinawari who flourished in Dinawar (in Persian Iraq) was an authority on astronomy and botany and also left behind valuable works on mathematics, geography, philosophy, literature and history. His work is written in 13 volumes on the Quran. His famous work which was entitled; al-AkhbaralTiwl (long narratives) is a universal history up to the history of MutasimBillah. Abdullah bin Muslim bin Qutayba (213-270

A.H.) was another historian of the early Islamic age. He was the Qazi of his native place Dinawar and he wrote numerous important discourses on the literary subjects. His historical work entitled *Kitab al-Maarif* (Book of Knowledge) is a stockroom of information about the holy Prophet (SAW) and the Arab genealogical table.<sup>11</sup>

IbnWadi Al-Yaqubi was a famous historian and geographer whose compendium of universal history contains the ancient and unfalsified Shi'ite tradition. Abu Jafar Muhammad ibnJarir al-Tabari (838-923 A.D), was born in Tabaristan, the district of Persia, is generally well-known as the father of Islamic history and he was one of the prominent and renowned historian of the world.<sup>12</sup> Tabari was talented child who learnt the Quran by heart when he was only seven years old. He toured across Asia and Egypt in pursuits of knowledge, collected the data and primary information for historical writings. According to Yaqut, alTabari wrote approximately 40 pages daily for almost 40 years. Among his works on multiple subjects, the two were most brilliant which greatly inspired the later writers due to their exhaustive commentary on the Quran and his universal history well-known as *Tarikh al-RasulwalMaluk* (Annals of the Apostles and Kings). According to George Sarton his written history is outstanding, elucidate and accurate. He started history writings which begins with the creation of the world and ended till the 915 A.D. This was the first explanation of history and also considered the complete historical account in the Arabic language. The later historians including AbulFida, IbnAthirMiskawayh and IbnKamil used this work as a primary source for information and knowledge.<sup>13</sup>

AbulFarajIspahani (897-967 A.D.) was of an Arabian descent and wrote a famous book entitled *Kitab al-Aghani* in which he had discussed the lives and activities of Arabian poets and musicians. It is a significant work on Arab antiquity, which had been called the "Register of Arabs" by IbnKhaldun. The historical combination of the Muslims in Arabic touched its zenith in Masudi and Tabari. AbulHasan Ali al-Masudi (912-957 A.D.) was famous geographer and historian. He was one of the versatile characters of the 5th century writers. Barnes describes him as the Herodotus of the Arabs for he possessed the same avid curiosity and zeal for information as did the father of history. He belonged to an Arab family and was born at Baghdad. In his youth, he travelled almost all over the Muslim world for the quest of learning. His *Muruaj al-Dhahabwa-Maadin al-Jawahar* (Meadows of Gold and Mines of Precious Stones) is a record of his travel experiences and observations. According to Philip K. Hitti, he was among the first who distinctively used the historical anecdotes.<sup>14</sup> Ibn al-Athir was also a renowned historian of the 13th century, who wrote *Kamil*, (a complete) history of the world up to 1231 A.D. His significant book entitled as *Usd al-Ghabah* (the Lions of the Thicket), a collection of 7,500 biographies of his contemporaries. IbnKhallekan produced an important geographical dictionary, often cited by the European authors. The Muslim Spain witnessed a host of historians, such as IbnQutiya, Abu Marwan HayyanibnKhalif, surnamed IbnKayyan, Ibn al-Farabi and IbnKhaldun was prominent among them .

IbnKhalidun was one of the most important historiographer who emphasized on the scientific and verification process for historical recordings. He was born in Tunis in 1332 and in the mid of all the revolutions which Africa was witnessing in the 14th century. His marvelous work on history is regarded as a Prolegomena (Muqadama), in itself a stockroom of knowledge, information and philosophical discourses. In this excellent work, he investigates the origin of the society, the growth of civilization, the courses and debates which led towards the rise and fall of various dynasties and raised many questions, the influence of climate on humans and the formation of nation building. According to Syed Amir Ali, IbnKhalidun narrates with justice and introduces a new technique of writing history. No historian had ever taken a view so inclusive and none had endeavored to touch the deeply hidden causes of events in order to interpret the moral and mystical forces at work in national building and decay .

IbnKhalidun achieved his name and fame due to his a magnum-opus (masterpiece) work Muqaddamah. The first volume of his notable book, Kitab al-Ibar in which he mentioned the history of the Arab, Berbers and Persians.<sup>15</sup> Prof. Hitti remarked that IbnKhalidun was the eminent historian and philosopher that Islam had ever produced and he was recognized as one of the greatest figure of all times.<sup>16</sup> The list of historians and historiographers is long in Islamic Golden Age and their contribution to history is immense .

### *Geography*

The institution of the holy pilgrimage, the orientation of the mosques towards Makkah and the need for influential direction at the time of prayer give religious stimulus to the Muslim study of geography. The Muslims made great strides in geography and their contributions to it were of enormous value. They demonstrated the spherical shape of the globe at a time when the scientists of Europe emphatically asserted that it was flat. The interest of the Muslims in geographical matters was largely born of the environment in which they lived. The children of the desert had to have knowledge of the fixed stars, the movements of the planets and other heavenly bodies and of the change of weather. These were carefully observed for the purpose of travel over the vast expanses of the desert. The knowledge about the position of the stars led to the determination of latitude and longitude. The scientific study of geography in early Islamic period was started under the Greek influence. The Muslim scholars translated the Greek literature into Arabic language and the impact of the extensive activity in translating Greek works was that the Muslims became familiar with the geographical works of Ptolemy. The Greek work of geography touched its heights with the contribution of Ptolemy. They not only translated Greek works into Arabic language but they also cultivated number of important additions and developed it .

Muhammad bin Musa al-Khwarizmi (d. 847 A.D.) was the significant geographer who laid the foundation stone of geographical science in Arabic language. His work, KitabSurat al-Ard (The Book on the Shape of the Earth) which is considered as the launching-pad for the up-coming writers and readers of the first half of the 9th century A.D.<sup>17</sup> Prof. Minorsky stated that

his work is exemplary, the like of which no European nation could have produced at the dawn of its literary activity. He was one of the earliest map-makers in Islam. The first map of the world was shaped during the era of Mamun by many scholars among whom al-Khwarizmi was the most significant.<sup>18</sup> Muhammad bin Musa made a measurement of the earth at the inspiration of al-Mamun. One of the earliest geographical works of this period is that of Ibn Khurdadbih who was of Persian descent. His famous book entitled *Kitab al-Masalik wal-Mamalik* (On Routes and Kingdoms) provides a summary of the main trade routes of the Arab world and the descriptions of distant lands; such as Japan, Korea and China. This work was utilized by many later geographers and quoted it. Ibn Wad'ah al-Yaqubi was also prominent and a distinguished geographer. He was a Shi'ite and lived in Armenia and Khorasan. He made an extensive tour of India and the Maghrib (N. W. Africa). His book *Kitab al-Buldan* (Book of Countries) provides comprehensive information about numerous places and attempts have been made to state facts of physical geography, explaining the human geography of different areas which was written in 891 A.H. Yaqubi was personally interested in the topographical and statistical aspects. He was generally acknowledged as the „Father of Muslim Geography“.<sup>19</sup> Ibn al-Faqih al-Hamadani who was born in Hamadan (famous city of Iran), is generally known as the author of a geographical miscellany. His works *Kitab al-Buldan* is often quoted by Yaqubi and Masudi .

Another geographer of Persian origin Ibn Rustah also flourished during that period. He was the author of an encyclopedia, in this work its 7th volume deals with the geography. Abu Zaid al-Balkhi was a well-known scholar at the court of the Saman Dynasty. He was favoured by the Vazier al-Jaihani who was the writer of numerous geographical discourses. Al-Balkhi was one of the early Muslim map-makers and his work, *Surat al-Aqalim*, (Figures of Climes) consists of explanations of charts. He also wrote 'Routes and Kingdoms' (*Kitab al-Masalik wal-Mamalik*) which was compiled in 921 A.D. Al-Istakhri, an Iranian scholar, also wrote a similar work named as *Kitab al-Masalik wal-Mamalik*. In his work, he pointed out that the maps played an important role. His work based upon Balkhi's works of the same name. Ibn Hawqal was a widely travelled man whose travels lasted no less than 30 years. He travelled throughout the Muslim world gathering store of knowledge and experience. He at the request of al-Istakhri revised his maps and text of his geography. Later on, he re-wrote the same book and issued it under his own name.<sup>20</sup>

Al-Maqdisi, a native of Palestine, was the most celebrated geographer of the Islamic world. His reputation as a geographer has been widely recognized in the West. He was a famous traveller who visited almost the whole Muslim world except Spain and India. In his writings he revealed himself as a very close observer of life and professions. He seems to have a great insight into the literature of the lands which he visited. In 985 A.D. he compiled a comprehensive account of his twenty years of travel in a work entitled, *Ahsan al-Ta'asim fi Marifat al-Aqalim* (the Best of Divisions for the Knowledge of the Climes). Al-Maqdisi divided the lands of Islam into fourteen divisions or provinces. He prepared separate maps for each division and in these maps he



used symbols and method of representation of relief, etc. for their proper comprehension by all. Al-Beruni (Abu Raihan Muhammad bin Ahmad) has been regarded as one of the greatest geographers of the Muslim world. His keen sense of geographical observation reveals through famous work, *Kitab al-Hind*. Yaqut Hamavi (Ibn Abdullah al-Rumi) was one of the celebrated of the Eastern Muslim geographers. He came of a Greek parentage and was born in Asia Minor in 1179 A.D. His great contribution named as *Mujam al-Bulban* (Geographical Dictionary) is a detailed encyclopedia consists of valuable information and knowledge on history, natural science and ethnography. Yaqut's another significant study named as *Mujam al-Udaba* (Dictionary of Learned Men) provide valuable geographical knowledge. He was a self-made man of wide experience and learning. Al-Qazwini, a prominent geographer of Arab family, was born at Qazwin in Jibal (North Iran). His geographical and astronomical accounts are also laced with fantastic details. Another important geographer who flourished in the 14th century A.D. was al Dimishqi, who was an authority for Arab's knowledge of South India. Spain produced a good number of geographers of outstanding merit. Al-Bakri who was born in 1040 A.D. at Cordova wrote a geographical dictionary and a book on 'Routes and Kingdoms.'

Muhammad bin Abu Bakr Az-Zuhri and Al-Mazini are also the next two notable geographers of Granada. Abu Bakr Az-Zuhri was one of those first writers who gave their work the name of geography.<sup>21</sup>

Al-Idrisi was perhaps the best known geographer in the West. He came of an Alid family and was born at Ceuta in 1099 A.D. He attracted the attention more than any other Spanish geographers. Al-Idrisi settled down at the court of Palermo and there he wrote a discourse, „Amusement for him who desires to travel round the World“, also known as *Rugari* (Book of Roger). At the same time he made a spiritual domain and a depiction of the known world in the form of a disc, which gives him an out-standing place among the Muslim cartographers. The work of Idrisi is certainly the most notable example of the fusion of ancient and modern geography.<sup>22</sup> Among the other best known are the Spaniard Ibn Jubair and Ibn Batuta, a man from Morocco. Abu Abdullah Muhammad Ibn Batuta was the famous medieval traveller who travelled throughout the lands of every Muslim ruler of his time. He gives a fine description of every country which he visited. He is rightly remembered as a distinguished descriptive geographer. Attached to geography, cartography was also a distinctive feature and province of the Muslim scholars .

### ***Cartography***

The Muslims introduced a new chapter in the history of cartography, the science of map making was developed way beyond it was expected by the scholars of 12th and 13th century. They were inspired by the Greek writers, and most of them based their writings upon Ptolemy's works. However, they did not follow them blindly and slavishly. The personal contributions are quite noticeable in the discipline of cartography. The Muslims discarded the idea of the Greeks on several points. They refused to accept Ptolemy's idea of the connection between Africa and South-Eastern Asia, making the Indian Ocean

a landlocked Sea. It clearly shows their advancement of knowledge in cartography which may be regarded as one of the divisions of geography. Ptolemy was undoubtedly the greatest and by far the best cartographer in the ancient world. Nevertheless, the fundamental error he made in making the maps was his underestimate of the earth's size. In his estimation, Europe and Asia extended over one-half the surface of the globe while in reality they cover only about 1300 degrees. In the same manner he counted the length of the Mediterranean sixty two degrees whereas, in reality, it is only forty two degrees. The Arab geographers and the marine chart-makers of the 13th century had corrected this distortion but yet it continued to figure in European cartography until 1700 A.D. Among the earliest map-makers of the Islamic world was alKhwarizmi whose *KitabSurat al-Ard* was written in explanation of the maps. It is supposed that he copied it from Syrian copy of Ptolemy's maps. He also made a map of the Nile. He participated in the scientific activity in which no less than seventy scholars took part for the preparation of the map of the world during the reign of Mamun.<sup>23</sup> Al-Balkhi was the next distinguished map-maker in early Islamic period. His Atlas contained a world map, a map of Arabia, the Indian

Ocean, maps of the Maghrib (Morocco, Algeria, etc.); Egypt, Syria, the Mediterranean and about a dozen other maps of the Central and Eastern Islamic world. His geo-graphical works are written in explanation of his maps and Mr .K. Miller calls it 'The Islam Atlas'. In later years, maps of Istakhri and IbnHawqal were based upon the works of Balkhi. The closing stages of the Balkhi

School were represented by the famous geographer Al-Idrisi who says, "In the making of maps we have done our best to bring out correct representations of the different parts of the empire after carefully studying a number of drawings and also the drawings of Istakhri which come nearer to fact and are worthy of reliance although confused and imperfect in many places".<sup>24</sup> He divided the lands of Islam into fourteen provinces and showed each one in a different map. In his maps, he used different colours to illustrate things better and differently. Al-Beruni, an all-round scholar, made a round map of the world in his book, *Kitab al Tafhim* (the book of Stones). In this map he illustrated the position of the seas accurately. He also devised method for the projection of the sky and the earth in his famous discourses, „chronology of ancient nations“. Al-Idrisi was unquestionably the best map maker who is said to have made seventy maps of climatic divisions. He also indicated seven latitudinal climatic divisions. He also made a map of the world on a silver plate. These maps of al-Idrisi indicate the Western Islamic World better than the Eastern. The world maps of Qazwini and al-Wardi were made after the world map of the Balkhi School. Abdur Rahman al-Sufi made two celestial globes towards the 11th century, and Ibn Hula of Mawsul made his bronze globe in the year 1275 AD.<sup>25</sup>

### *Philosophy*

The Muslim scholars not only kept themselves confined to the advancement of science but they made great contributions in other branches of knowledge. It is

generally supposed by other religions of the world that Islam has no philosophy. This is quite strange to us when we read the philosophy of Imam Gazzali, al-Kindi, al-Farabi, IbnSina and others who played no less important role than other people of the globe in the field of philosophy. The Muslims were in many cases the forerunners of the Europeans in the arena of philosophy. Alfred Guillaume commented, „had the Arabs been barbarians like the Mongols, who stamped out the fire of learning in the East so effectually that it never recovered; the Renaissance in Europe might well have been delayed more than one century“. The philosophy that the Muslims extended further was not rootless rather they were greatly influenced by Greek philosophy. It is said that with the conquest of Rome and Persia, the conquered people became Muslims for some reasons and these people predominated the philosophy of Islam. In this respect the Arabs were indebted to Greek philosophy. Aristotelian philosophy left a marked impression on the thoughts of the Arabs and in later days the Europeans borrowed Aristotelian philosophy from the Muslims, who preserved it in their language.<sup>26</sup>

The first thinker of the Aristotelian school was Abu Yusuf YaqubIbnIshaq Al-Kindi (813-874) who was of Arab descent and is known as an Arabian philosopher. He was born in Kufa and brought up at Basra and Baghdad. At first he began his career as a Mutazilite and was keenly interested in theological problems. Later on, he felt the necessity of studying Aristotle in the original in order to get an accurate knowledge of his philosophy. The quest for knowledge thus, led him to translate Aristotelian works from the original. He was a renowned translator of Greek works. He translated many Greek works into Arabic language. He also revised and improved the translations done by others. In some of his works al-Kindi endeavored to mix the point of views of Aristotle and Plato in Neo-Platonic fashion. As a student of the Aristotelian School, he tried to popularize Aristotle in the Muslim world. He has written no less than 265 books, but unfortunately most of his works have been lost. His principal work on geometrical and physical optics was greatly used until the appearance of the work of Ibn al-Haytham. Al-Kindi was one of the greatest scholars of his age. He holds opinion that philosophy cannot be studied without the knowledge of mathematics. To him, mathematics is the prelude to philosophy. He presented many problems of metaphysics to the Muslim world and was the first to divert Arabic thoughts in this direction. He also discussed the problems regarding the ideas of movement, time and space. His famous book named „On the Five Essences“ deals with the ideas of the five conditions of matter, form, movement, time and space. According to al-Kindi the world is but potentially unending. It is a system in which objects are necessarily and harmoniously connected with one another. Thus, there is a causal nexus in the world i.e., bodies are causally related. The world proceeds from a cause which is the highest. Again different religions also conclude that there is a first cause which is eternal. Things around us also speak of the existence of the first cause. The world for him is the work of God but the God does not directly work in it. The God works through different intermediary agencies. The highest intermediary agency is the Agent Intellect. It stands midway between God and the work of matter. The human soul is an emanation from this Agent Intellect. The human soul is connected with the body, but in its essence it is independent of the body. Al-Kindi divides the human soul into

four faculties, the last of which being the Agent Intellect, from which it comes. The other three faculties are: The latent or potential faculty, the active intellect and the degree of intelligence. Man possesses the potential faculty in common with all living objects. The lower animals possess the active intellect in common with man. But the degree of intelligence is to be found in man alone. It is actually developed in man when the Agent Intellect operates on the potential faculty .

As already said, al-Kindi took mathematics as a prelude to philosophy. He applied mathematics to the science of medicine also. This application of mathematics in different fields resulted in fruitful discoveries in the field of medicine and psychology. In medicine he discovered the theory of compound remedies. In psychology he discovered that a proportional relation exists between the stimulus and the sensation. This view is now known as the Weber Fechner Law in psychology. Though, he did not develop it fully, the credit of being the precursor of this law must go to him. Although al-Kindi considered empiricism as the appropriate source of knowledge, yet he believed in the truth of revelation. According to him they are not opposed to each other; rather the one supplements the other. Thus, he tried to reconcile reason with revelation. This trend is found in all the Muslim philosophers who are known by the name Falasifah or Hukama. The philosophers generally hold that man is the author of all his actions in the world of senses. But they hold that the highest knowledge of man i. e, the reason, comes from God. The moral acts of man are all due to God and to what is best in man. Besides being a philosopher, al-Kindi was an astrologer, alchemist, optician and music theorist too. No work of such great man has survived in its original language but a good deal still exists in Latin translations made by Gerard of Cremona and others and he died in 870 A.D.<sup>27</sup>

The synchronization of Greek philosophy begun by al-Kindi was continued by Abu Nasar Al-Farabi (870-950) who was of Turkish origin. He was born in the province of Farah and was educated under the Christian Physician Mtitta bin Yunus and the great Christian philosopher Yuhanna bin Khaitan. From his infancy he was of a meditative turn of mind and was never found laughing. He was a great original thinker of the Muslim world and probably the greatest philosopher among the Muslims. Al-Farabi was the author of numerous books on different subjects. He composed various research works on the difference of „Life and Soul“. He was a prolific writer and commentator on Aristotle and other Greek philosophers. He came to his motherland, the province of Farab and devoted himself to the study of philosophy. He is regarded as the teacher of all subsequent Muslim philosophers as they got inspiration for higher studies from his writings. Al-Farabi tried to harmonize the teachings of Islam with those of Plato and Aristotle. According to him philosophy is the science of all being and the aim of philosophy is the attainment of purity of the soul. In the Encyclopedia of Science he gives a general review of all sciences. According to al-Farabi human reason was only a capacity of knowledge. He divided the intellect into four domains such as, intellect in power, the acquired intellect, in act and the agent intellect. He was a passionate exponent of the theory that the world had no beginning. According to Al-Farabi the world of things may be divided into two categories, necessary and possible. Every possible being

presupposes a cause which is the result of another preceding cause. So on goes the chain of causation until we reach the first cause. Thus, if analyzed logically, at the end of the causal series there must be a necessary being which is self-caused. The ground of the necessary being is contained within itself. It is uncaused, unchanged and self-sufficing. It possesses the highest degree of perfection and combined in itself the thinking and the thought. This necessary being is God. Al-Farabi describes the different grades of being in a descending order. According to him, the forms of things existed in God, who exists from all eternity. The series of spiritual existence consist of six grades of being. Al-Farabi also gained reputation as a fair mathematician, physician, musician and an occult scientist. His discourse, *Kitab al-Musiqa al-Kabir* (the Great Book of Music) was immensely appraised by the then world .

He breathed his last in 950 A.D at the age of about eighty.<sup>28</sup>

Though, Ali al-Husayn ibn Sina (980-1037) achieved the greatest fame in the west as a renowned physician, yet he was equally honored in the Arab world as a brilliant philosopher. During his early life, some Ismailian missionaries arrived in Bukhara from Egypt and converted their father to their beliefs. This conversion had an important effect upon the education of Ibn Sina for the Ismailian movement of Islam was closely associated with the translation of Greek philosophy into Arabic language. From the Ismailian missionaries, he learnt Greek philosophy, arithmetic and geometry. The writings of al-Farabi, another unique thinker of Islam, inspired this young scholar towards the intensive knowledge of Aristotle. His interpretation of Aristotle was mostly based on the writings of Farabi. In this respect he may be called a pupil of Farabi. Ibn Sina was a great commentator on Plato and Aristotle. His teachings on philosophy, particularly his commentaries on Aristotle and Plato, later exerted a tremendous influence on European philosophy during the middle ages. Most of the later philosophers both in the East and the West were greatly influenced by his writings. According to Syed Amir Ali, Ibn Sina was unquestionably the master spirit of his age, and in spite of the opposition raised against him by radicalism and self-interest, he left his impression of an unending character on the thoughts of the coming ages. His enormous works affirm to the outstanding activity of his mind. He organized Aristotelian philosophy and abridged the void between man and God in Aristotle's scattered psychology by the doctrine of intelligence of the domains conceived after a scientific method. Some orthodox Muslims regarded Ibn Sina as heretic. He was never an atheist but in some points he disagreed with the orthodox section of the Muslims. He believed in the existence of God and in the Prophet-Hood of Muhammad (PBUH).<sup>29</sup>

In his famous book *Al Shifa*, he wrote, the true religion which was brought to us by our Master and Prophet Muhammad (PBUH) has explicitly described the pleasure and pain of the future life. Thus, he believed in the future of the physical body as well as the spiritual soul of man after death. Although he was a student of Aristotle, Ibn Sina disagreed with the Greek philosopher on the important relationship between God and the universe. Aristotle maintained that the world is eternal and its movement's transient. God, he believed, was not the Maker of the universe but only of its movements. Ibn Sina, on the other

hand, declared that the universe is both eternal and a creation of God, the Primal Cause. This thesis resulted in the simultaneous timing of cause (God) and effect (the universe), but IbnSina reasoned that cause does not invariably precede its effect in time i.e., the movement of a key is the cause of the opening of a lock, although the action of cause and effect takes place simultaneously. IbnSina wrote a number of books on various subjects, such as Physics, Metaphysics, Mathematics and Philosophy. His *Kitab al-Shifa*, (Book of Healing), a philosophical encyclopedia based upon the Aristotelian tradition as modified by Neo-platonic influences and Muslim theology has been divided into three parts, namely, *al-Mamiq* (Logic), *al-Tabiyyat* (Physics) and *al-Ilhiyyai* (Theology). IbnSina died at Hamadan at the age of 53. With his death there passed away from the arena of this world a personality who held an undisputed leadership in the world of both literatures and science not only of his own time but of the century's to-follow him.<sup>30</sup>

Abu Bakr Muhammed Ibn Yahya, popularly known as Ibn Baja, was one of the most celebrated philosophers in the Muslim Spain. Saragossa was his birth place near the end of 11th A.D. century and he lived in Seville for some time, then he proceeded to Africa and was appointed to the higher post under the Almoravids. Ibn Baja was not only a philosopher, physician, mathematician and astronomer, but also a musician of the first rank. When the study of philosophy had become extinct after the demise of IbnSina, he being the disciple of Farabi took up the task of developing the system of his master and introduced the NeoPlatonic interpretation of Aristotle in a conservative line. He wrote many original works on different subjects. He died at Fez in 1138 A.D. IbnTufayel (Abu Bakr Muhammad Ibn Abdul Malik ibnTufayel al-Kaisi) was born at Wadiash in the province of Granada in the beginning of the 12th century. He was a distinguished philosopher, physician, mathematician and poet and was held in high respect at the court of the Almohade Dynasty.<sup>31</sup> His teachings were related to the parameters of Ibn Baja but with an additional stamp of a mystic strain. According to him ecstasy is the means of attaining the highest truth and knowledge. His major contribution called as „*Hai Ibn Yaqzan*“, manifests the continuous and successive growth of intellect and analytical power in a person completely unsupported by outside instruction. He died in Morocco in the year 1185 AD.<sup>32</sup>

IbnRushd (Averroes in Latin) came from an illustrious family of Cordovan jurists. He remained for centuries a beacon light in the ocean of darkness in which medieval Europe lay engulfed. He was the greatest Muslim philosopher and the profoundest commentator of Aristotle. His father and grandfather, like himself, had graced the chair of chief judge (*Qazi-ul-Quzzat*) at Cordova. He devoted his early life to the study of Theology, Law and Philosophy most of which he mastered at the feet of Abu Ja'far Harun of Truxilo, an eminent scholar of the day. In philosophy he came under the influence of IbnTufayel. IbnRushd's chief contribution to philosophic literature is his commentaries on Aristotle's work. It is needless to say here that he was a devoted student of Aristotle. IbnRushd had the highest regard and admiration for him. Aristotle for him was the supreme perfect man, the greatest thinker, the philosopher who was in possession of an infallible truth. The chief work of Ibn Rushd on philosophy apart from these commentaries is *Tahafut-al-Tahafut* (Destruction

of Destruction), a rejoinder to al-Ghazzali's *Tahafut al-Filasa*. (Destruction of Philosophers) in which he defends the philosophers against the charge of free thought and unbelief leveled against them by orthodox theologians. He further develops them in his *Kitab al-Filasa* (Book of Philosophers) and his *Fasl-ul-Maqaliah*, *MuwafaqatilHikmatwal Sharia*, (a true and critical discussion on the question of agreement between philosophy and revealed religion).<sup>33</sup>

His other works include a commentary on Plato's *Republic*, "Criticism on al-Farabi's Logic", "and Discussion on certain theories of IbnSina "and" Glosses on the *Aqida* of *MedhiibnTumrat*". However, a large part of his work in original Arabic is lost. *IbnRushd* has for centuries been represented both in the Muslim East and the Christian West as the author of the thesis that philosophy is true and revealed religion is false. Yet there is hardly any truth in this imputation; for he held that philosophy and revealed religion both preached eternal truths and that the incompatibility of philosophy and revealed religion was unthinkable. According to Syed Ameer Ali, he claimed that divine revelations were important for promoting among the masses the lasting virtues which both religion and philosophy claim as true.<sup>34</sup> *IbnRushd* dealt with this subject at full length in his book, "*Fasl-ul-Maqali fi MuwafaqatilHikmatwal Sharia*". It is an irony of fate that, in spite of his role as a champion of the unity of Islamic faith and philosophy, his name has been associated with a grossly anti-religious school of thought, which goes under the name of Averroism. This Averroism is the product of the genius of Siger of Brabant and his fellow scholars; who dominated the intellectual circle at Paris in those days. The main doctrines which brought *IbnRushd* in conflict with Muslim theologians concern the question of the eternity of the world, the nature of God's apprehension, His fore-knowledge, the universality of the soul and of the intellect and the nature of resurrection. *IbnRushd* died in 1198 A. D.<sup>35</sup> There are many more Muslim philosophers whose contribution is so great that it is almost impossible to summarize them in books, and certainly not in articles. Let alone the philosophers, there existed intellectual groups who sought to revolutionize the development of Islamic philosophy. One such school was *Ikhwan al Safa* (The brethren of purity and sincerity), which became famous for eclectic approaches to reform Islam. The brethren wanted to keep alive the light of knowledge for Muslims and to create a healthy environment among the people, to save the Muslims moving towards the path of ignorance. The influence of these philosophers runs deep in the intellectual canons of both the West and the East .

## CONCLUSION

As far as the development of thought is concerned, Muslim scholars formed a continuum between the Classical World and the European Renaissance. Muslims today are in a strange position of being viewed through a lens that mostly depicts Muslim society as an inherently backward culture. The purveyors of such a view are neglectful of Muslim contribution, and many works either minimize or completely overlook the presence of the entire Islamic civilization and its indispensable progressive additions. The need to revisit the past is necessary both to bridge the intellectual chasms that are widening in the Muslim world and to disentangle the Muslims from the flawed perception that they are believers of regressive religion. This paper takes into

account the worthy Muslims scholars and their great developments that still resonate in the fields of historiography, geography, cartography and philosophy .

It has been the aims of this scribe to include in this article both the appraisals of the Western scholars on the Muslim intellectual progress and of the Muslim academicians on their forbearers. The work is an endeavor to garner and attract due recognition of Muslim cartographers, historiographers, geographers, and philosophers. Much filtered and selective accounts of civilizational development either overlook the immense works of the Muslims or too Eurocentric to highlight the glorious past of what they now see as „the other“, especially after the war on terror was waged in the wake of 9/11. The intellectual traditions borrows from one and another heavily, as the developing countries, in the contemporary intellectual exchange, borrows from the developed countries of the Europe in the same measures as the latter borrowed from the forbearers of the former during Renaissance. The processes of intellectual exchanges are healthy and help to transform whatever is underdeveloped into the developed .

#### REFERENCES

- Glick, Thomas F. *Islamic and Christian Spain in the Early Middle Ages*. Vol. 27. Brill, 2005, p, 173. & Draper, John William. *A History of the Intellectual Development of Europe*. Vol. 1. Harper & brothers, 1864 .
- Jayyusi, Salma Khadra, and Manuela Marín, eds. *The Legacy of Muslim Spain*. Vol. 12 . Brill, 1992, p. 952 .
- Lane-Poole, Stanley, and Arthur Gilman. *The Moors in Spain*. Vol. 6. T. Fisher Unwin, 1893, p, 144 .
- Aslam, Muhammad. *History of Muslim Education*, p, 15 .
- Hitti, Philip K. *History of the Arabs*. Macmillan International Higher Education, 2002, p .
- .405
- Ibid, pp, 406-7 .
- Rosenthal, Franz. *A History of Muslim Historiography*. Brill Archive, 1968, p, 10 .
- Hitti, p, 408 .
- Faizer, Rizwi S. "Muhammad and the Medinan Jews: A Comparison of the Texts of IbnIshaq'sKitābsīratrasūlAllāh with al-Waqīdī'sKitāb al-maghāzī." *International Journal of Middle East Studies* 28.4 (1996): 463-489 .
- Syed, Ameer Ali. *Spirit of Islam 1922*. Lahore: Islamic Book Service, 1985, p, 389 .
- .Hitti, p, 566 .
- Ameer Ali, p, 390 .
- Ibid .
- Hitti, p, 565 .
- Ameer Ali, pp, 390-91 .
- Hitti, p, 568 .
- L. V.D. *A History of Algebra: from al – Khwarizmi to Emmy Neither*. Berlin: SpringerVerlag. 1985 .



Ibid .

Ibid .

Levtzion, Nehemia. "Ibn-Hawqal, TheCheque, and Awdaghost." *The Journal of African History* 9.2 (1968): 223-233 .

Hitti, p, 570 .

Ahmad, Nafis. *Muslim Contribution to Geography*. M. Ashraf, 1965, p, 60 .

Jayyusi, p, 958 .

Nafis, Ahmed, pp, 62-63 .

Hitti, p, 570 .

Chejne, Anwar G. *Muslim Spain, its History and Culture*. University of Minnesota Press, 1974, p, 374 .

Klein-Franke, Felix. "Al-Kindi." *History of Islamic Philosophy, Part I* (1996): 165-177 .

Jayyusi, p, 309 .

Hitti, p, 572. & Syed Ameer Ali, p, 386 .

.Ibid .

Hitti, p, 566 & Jayyusi, p, 122 .

Hitti, p, 565 .

Ibid .

Ameer Ali, p, 379-80 .

Ibid.