

## Factors Behind the Rise of the West

Hamid Fahmy Zarkasyi \*

### Introduction:

Generally, the emergence of a civilization is traced back through the observation of social, political, cultural and even military factors. Quite a few, not to say none, who approaches the rise of civilization from its fundamental element namely the worldview formation. This approach is important since men intellectual and scientific achievement cannot emerge or develop without the existence of a sophisticated worldview in the society.<sup>1</sup> This methodology is considerably appropriate to sketch the rise of Western civilization because historical facts suggest that prior to the modern ages the Western civilization was tinted by Greek, Christian and Islamic worldviews. This is also buttressed by the fact that the most important aspects of the Renaissance was essentially scientific worldview characterized by an enthusiastic attempt to revive the Greek and Roman past, but at the same time to shift away from the former almost myopic adherence to Christian theology and to move toward more rational way of life. Among those factors i.e. Greek, Roman, Christian, and Islamic worldview there must be one most pivotal factor that brought about the rise of scientific worldviews in the mind of Western people that resulted in the emergence of the modern Western civilization. It is the disclosure of the main factor that this paper attempts to achieve.

### The Greek Factors:

With regard to Greek factor the historians are divided into two different approaches. The *first* approach admits Greek intellectual legacy as the beginning and the root of the rise of Western philosophy and sciences. The *second*, in somewhat different tone, holds that Greek legacy and Western civilization are related but not in the sense of borrowing, origination or beginning. Among those in the first approach is Jones, who in his *A History of Western Thought*, assumes that "presumably a history of western philosophy should begin with the beginning of western philosophy, which begun in the sixth century BC with Thales, the father of Greek philosophy and thus the father of philosophy in the western world".<sup>2</sup> This approach was supported by R.B.Onians<sup>3</sup> and W.H.A.Arthur,<sup>4</sup> and the others. The background of their assumption is based simply on the fact that the fundamental question in Greek philosophy such as nature of mind, soul, nature of life, body and soul etc. were responded by later philosophers and become customs of society that had been

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\* Director of Center for Islamic and Occidental Studies (CIOS) Darussalam Institute of Islamic Studies Gontor, East Java, Indonesia.

Ages) was the total dominance of Christianity. In the first six centuries, the Christianity had spread outward from its cradle-land Palestine into Europe, Mesopotamia, Armenia, Caucasus, Nubia and Abyssinia. In the area where Christianity was spread there was no reliable record of a significant intellectual achievement, namely philosophy and sciences. It was because during these Ages, knowledge survived only in monasteries, and there were very few schools. Very few people could read and write and nobody expected conditions to improve.

However, there are some who claimed that Syriac Christian had transmitted most of Greek intellectual heritages before they were translated into Arabic. They also contended that Greek-Latin translations available in the West, especially on Aristotle, are more than Arabic-Latin translation.<sup>13</sup> This claim, according to Demitri Gutas is erroneous. The reason was that there were relatively few secular Greek works that had been translated into Syriac before the Abbasid period. The works done by Sergius and Boethius in the sixth century, for example were not as successful as the Muslim in the ninth and tenth century.<sup>14</sup> The lack of translation of the Greek speculative thought in the early Middle Ages (5th century) as was asserted by Marenbon could be traced back from Peter's statement is that the Christians cannot complete, for example, the translation or Aristotle's organon assuming that it would jeopardize their faith.<sup>15</sup> In other words they did not dare to synthesize the Greek thought with their Christian doctrines. This implies that they could not absorb the sophistication of Greek thought due to the unavailability of 'a sophisticated mechanism' for the production of scientific knowledge or 'scientific conceptual scheme' in their world view. Since the translation of Greek speculative thought into Syriac at Middle Ages was considerably few, the extent to which the Greek Fathers contributed to the development of early medieval philosophy in the West was consequently so limited,<sup>16</sup> or at least their role were replaced by the Arab Muslims translations and appropriations.

Therefore, Gutas' inference seems tenable, since historical facts suggested that Christian scholars absorbed Greek philosophy only within the boundary of theological discourses and therefore Marenbon described philosophy in this period as theology. Consequently, big thinkers of the early medieval ages (450 AD to 1085 AD) were theologians, who were interested in understanding the makings of the spiritual universe and our place within it, rather than the details of the physical universe. In other words, the Christian worldview for absorbing Greek thought was not as sophisticated as that of the Muslims whose intellectual adventure covered almost the whole subject, whereas in Christianity all scientific thought including art, science and progress that contradicted the Bible was suppressed. The most legendary example concerns about the church belief that the earth revolved around the

sun. This is based on clear statement of the Christian Bible that the sun revolves around the earth. The result was that for centuries the important of astronomical discovery that the sun was the center of the universe was deliberately suppressed by the church, with proponents of the non-Christian theory being persecuted for their endeavors. Another famous suppression of scientific advance created by the church was the belief that the earth was round. The Bible talks very clearly of the four corners of the earth. Therefore, the church argued, it must be square. This dogmatic belief was quietly dropped only when the voyages of discovery finally proved beyond debate that the earth was round: despite this fact having been known by the non-Christian Classical Greeks since the time of Alexander. For the Muslim such a kind of discovery has nothing to do with the theological doctrine, and should be dealt with rational thought without abandoning the guidance of revelation. Thus, Christian worldview cannot be deemed as the main factor for the rise of scientific worldview of the West. If one assumes the other way around then philosophy and sciences must have been flourished during the third and the fifth centuries. Now we shall turn to discuss the Muslim factor that based on their worldview.

### **Islamic Worldview Factor:**

The Islamic worldview factor should be discerned not only through its source i.e. revelation but also its application in social and scientific activities. Islamic worldview which is projected by the revelation, according to Naquib al-Attas is:

the vision of reality and truth that appears before our mind's eye revealing what existence is all about; for it is the world existence in its totality that Islam is projecting".<sup>17</sup>

This definition implies that the Muslims had developed their worldview initially from mere understanding of revelation that encourages the search of knowledge into an organized concept of belief and scientific thought. Just as the worldview is about the vision of reality and truth it is not surprising that Franz Rosenthal, in his *Knowledge Triumphant* clearly infers that "Knowledge is Islam."<sup>18</sup> This means that the worldview projected by revelation is so sophisticated that the door for any scientific inquiries is widely opened for Muslims. In other words, it was because of the conceptual structure within the revelation and sophisticated vision of reality projected by their worldview scientific activities during the Umayyad and later the Abbasid period from seventh to fifteenth centuries underwent rapid development.<sup>19</sup> Therefore, the Muslims scholars had no restriction to translate philosophy and sciences from foreign culture, such as Greek, Persia and India.

However, Muslims scholars had not only translated the foreign text or appropriation of Greek learning by employing the linguists, either from non-

Muslim or from the Muslim experts, but also made commentary or modified the ideas in order to assimilate them with Islamic teaching. Lucid example was in the case of *falsafah*, in which the Muslims did not simply copy the Greek legacy but creatively modified them in order to be fit with Islamic teaching. Marmura's statement below is quite instrumental in understanding this matter:

Thus, the *falasifah* did not simply accept ideas they received through the translations. They criticized, selected, and rejected; they made distinction, refined and remoulded concepts to formulate their own philosophies.<sup>20</sup>

Certainly, Islamic worldview in the Muslims' mind was an important tool for their criticism, selection, rejection, refinement, and modification of foreign ideas and concepts by which Muslim scholars could produce their own ideas and concept. As a result by the twelfth century the Muslim savants had mastered the learning of their Greek and Indian predecessors and finally came up with new fresh theory or doctrine and numerous details of new principles of science including bodies of fresh knowledge such as mathematics, medicine, chemistry and optic. Commenting this achievement William McNeill infers that Islamic science "went beyond anything known to these ancient preceptors".<sup>21</sup> In addition, Josep Puig conceded the originality of the Muslim thought and identified three fresh and new Muslims thought contributed to the West, they are: *First* is the nature or the essence of the soul, *second*, the process of reality of knowing and *third* is the creation of ontology.<sup>22</sup> These three issues were neither present in Aristotle's metaphysics nor in Neoplatonist teaching but were ascribed to Ibn Sina.

So, Muslims' contribution to sciences after the process of modification is manifest. A. Sabra provides a very good sketch of these contributions in *Dictionary of the Middle Ages* 11:81-88.

Islamic astronomy is a good illustration of the relationship between Islamic and Greek science. Muslim astronomers produced a great deal of very sophisticated astronomical work. The work was carried out largely within the Ptolemaic framework (though we must acknowledge early Hindu influences on Islamic astronomy, largely displaced by subsequent access to Ptolemy's *Almagest* and other Greek astronomical works). Muslim astronomers sought to articulate and correct the Ptolemaic system, improve the measurement of Ptolemaic constants, compile planetary tables based on Ptolemaic models, and devise instruments that could be used for the extension and improvement of Ptolemaic astronomy in general." Whatever their role of disciples might involve, Muslim scientists made important contributions to medicine, astronomy, optics, and mathematics.<sup>23</sup>

From the foregoing illustration we may posit our basic assumption based on William McNeill's statement in his work *The Rise of the West* that "West took great benefit from the material as well as the spirit of scientific activities from the Muslim minds."<sup>24</sup> The term "spirit of scientific activities"

employed by McNeill is nothing else than Muslim's scientific worldview projected by the revelation. It is this worldview that the West took the benefit from the Muslims and developed it into the so-called "modern scientific worldview" that predominantly prevailed after the Dark Ages, yet the mode by which this worldview was transformed into the Western mind is subject to further clarification.

### **Mode of transmission:**

In order to see the process of transmission, which was predominantly by way of translation we shall examine the historical chain of translation of Muslim works from Arabic into Latin and its related issues. According to Myers the process of translation went on throughout the eleventh and the first half of fourteenth century, but the most important period of translations according to Myers were three: the second half of the eleventh century, the first half of the twelfth century, the second half of twelfth century.<sup>25</sup>

The translation during the 11<sup>th</sup> century was marked by the establishment of translation bureau in many places. A translation bureau was established as soon as the Christians conquest of Toledo in 1085 AD. The Archbishop Raymond de Sauvetat (1126-1151) and his successor Juan (1151-1166) had committed the work of translation there. Besides, there were also two teams at work: the *first* was Dominicus Gundisalvus (or Gundissalinus) (1133-1190) and Ibn Dawud, a Jewish converted to Christianity. The former translated from Arabic to Latin and the later from Arabic to Old Spanish. The *second* was a team consisted of Gerardus of Cremona (1114-1187) and A *Mozzarab*, Gallipus or Galib. These two teams had carried out most of the philosophical translation.<sup>26</sup> It was also reported that Gundisalvus collaborated his translation with John of Seville (1126-1151) and resulted in the translation of Arabic works in philosophy and science. At the end of the 12<sup>th</sup> century, Europe including Christian Kingdoms of the peninsula could read al-Kindi, al-Farabi, Ibn Sina, and even al-Ghazzali in Latin. Myers even regards that the philosophical writing of these Muslim philosophers as a revelation to the Latin world and deeply influenced the development of scholastic philosophy.<sup>27</sup>

Although translation project was institutionalized in the West, there were also individual endeavors to study mathematics, philosophy, medicine, cosmography and other subjects and in due course became candidates for professorship in the Western universities that would be established later. For that purposes there were many students from Italy, Spain and southern France who attended learning activities of the Muslims. An example for this was Constantine (born in Carthage), who by the end of 5<sup>th</sup> / 11<sup>th</sup> century traveled all through the East and then made translation from the Arabic into Latin the work of Hippocrates and Galen, and other original works of Muslim scholars in medical sciences.<sup>28</sup> Another important translators in the first half of the 12<sup>th</sup>

century was Robert of Chester (1141-1150), Adelard of Bath (1116-1142), Herman Dalmatian (1138-1145), Hugh of Santalla (1119-1151), Plato Tivoli (1133-1150), Stephen of Antioch (c.1128), James of Venice (1128-1136) and others. Robert of Chester was a Christian English who translated the first time the Qur'an into Latin at the request of Peter the Venerable for the purpose of refuting it. He also translated for the first time al-Khawarizmi's algebra and was considered as the mark of the beginning of algebra in Europe.<sup>29</sup>

Besides, in France and especially in Normandy, scientific trend appeared first among the monks. Robert, the King of France of the Capetian dynasty was quite familiar with the Muslim scientific endeavors. He also invaded southern Italy, and Sicily where the Muslims were a ruler from 902 to 1091. Here Robert observed the seminaries in Sicily and Naples, and borrowed many Arabic masterpieces from them.<sup>30</sup> These two cities acted as the important transmission media of Islamic sciences to the West.

Thus the Western interest towards Islamic philosophy and sciences that begun by the end of 5<sup>th</sup> / 11<sup>th</sup> century can be considered as the result of those efforts carried out by the Christian West in Toledo, in France, in Sicily and other places. Spain, however, was the most important place of translation, which mostly done in Toledo. As we have illustrated above the cultural and religious feature of Spain, was the major factor that encouraged the translation work so that the role played by Archbishop Raymond I and other churchmen in these works were so great.

So, after long historical process of transformation and absorption from Arab into Latin West, the Western scholars under the leadership of Christians Bishops in the middle of the thirteenth century the translated knowledge from Muslim works became available in Europe, from which they started to develop their philosophy and sciences. By the closing of fifteenth century their concept or ideas concerning the universe and the nature of human knowledge became matured and paved the way to the progress of philosophy and sciences in the West. So, Myers' conclusion is right that the awakening of Europe was decisively helped by those translations.<sup>31</sup>

### **The impact of translation:**

After having translated major texts and obtained adequate knowledge to be studied, the West took further step in transmitting the Islamic thought by establishing universities. The first Western University was founded in 12<sup>th</sup> century (6<sup>th</sup> of Hijrah), in the kingdom of Naples called Salerno seminary. At that period perhaps it was called seminaries rather than universities, for the reasons that the style of architecture of these universities, the curricula, and their method of instruction were exactly like those in the seminaries. In this university the courses offered were grammar, rhetoric, logic, arithmetic, music, geometry, and cosmography. The source materials used for the teaching

activities were from the Book of Aristotle and the Muslim works, although the translation activities were still underway. From this seminary the Books of Aristotle and the Muslims commentaries were brought to Italy. Emperor Frederick of Sicily who was known as a patron of Muslim sciences ordered that Aristotle's book be translated from Arabic into Latin and then founded another university in Naples. At the same time some other universities were also established at Padua, Toulouse and later in Leon.<sup>32</sup>

The transmission of Islamic thought in Britain leading to the establishment of Oxford and Cambridge University occurred in gradual manner. Burnett divided the process of transmission including the establishment of those universities into three stages, *first stage* which was happened at the end of the twelfth century, concerns the mathematical science and medicine. In the first year of twelfth century, which is the first stage, the English knew for the first time the Arabic numerals in Spanish form known as "ghubar" numerals. The other texts studied was from Adelard of Bath's translation on the astronomical tables of al-Khawarizmi and later on the astronomical table of al-Zarqali. The *second stage* that took place at the 13<sup>th</sup> century dealt with the studies of Islamic philosophical texts, especially the works of Ibn Sina and then followed by the works of Ibn Gabirol, al-Farabi, al-Ghazzali and others. This stage is closely related to the rise of the universities of Oxford and Cambridge, circa 1198. The *third stage* which was also occurred at the end of thirteen century concern the introduction of the philosophy of Ibn Rushd.<sup>33</sup>

During the seventh/thirteenth century the Oxford school became a centre of the activities of translation and interpretation. Among the outstanding figure of this school were Alexander Neckham or Nequam, Roberst Grosseteste, and Roger Bacon.<sup>34</sup> At this time the works of Ibn Sina and Ibn Rushd were translated and studied intensively. These two Muslim figures were quite well known in the West and regarded as torch bearer of the roots of rationalism in the West. Oxford is often related to English Avicennist. It is because in the last decade of 12<sup>th</sup> century and the first decade of the 13<sup>th</sup> century the earliest citation of Avicenna in England appeared in the works written by scholars closely connected with Oxford. By the time when Grosseteste became the first chancellor of Oxford university Ibn Rushd's commentary of Aristotle was studied in this university.<sup>35</sup>

In almost the same period, in 1200 shortly after the works of translation projects had been completed, the University of Paris was established and at almost the same time Koln university in Germany was also founded. Like in Oxford, at this time the philosophy of Ibn Rushd had become popular, particularly among the whole school of philosophers represented first by the faculty of Art at Paris. But on the other hand, it was also became a menace to

Orthodox Christianity and therefore in 607H/1210 the Council of Paris banned the Averroism and Aristotle's Natural History.<sup>36</sup>

From the translations and transmission of Islamic thought from Arabic to Latin, the emerging universities were able to construct a ready-made curriculum that comprised primarily of the exact science, logic and natural philosophy. For the Baccalaureate and the Master of Arts degrees in the arts faculty, the universities offered the courses of logic, natural philosophy, geometry, arithmetic, music and astronomy. According to Grant science and natural philosophy were a 'permanent fixture' of the curriculum in the medieval universities of Western Europe for about four hundred fifty to five hundred years.<sup>37</sup>

Thus, the transmission of Islamic thought through universities which was carried out by thinkers associated with that universities had resulted in the emergence of new theories. It should be realized that in spite of their intellectual manner in translation and transmission, the West were able to establish scientific tradition and later became a foundation of modern science. Later development was characterized by the intensive studies on particular field of philosophy and sciences. The building of intellectual network among the universities and the establishment of some new universities were the necessary consequences of that transmission. From Italy the Muslims' works were transmitted to France, England, Germany and other European countries.

### **Transmission of worldview:**

Theoretically worldview is formed in our mind through culture, technology, scientific, religious and speculative ideas by way of education or conscious effort to acquire knowledge.<sup>38</sup> Islamic worldview itself provides diversified concepts that pervade into all walk of Muslims life and therefore the mode of their penetration into the Western minds could be through more than one channel, similar to the mode of worldview formation. An excellent picture of the mode of such a penetration is to be found in Spain. In his extensive research entitled "the Legacy of Muslim in Spain" Jayyusi arrived at six conclusive modes of transformation, they are: *First*, that the Western people transmitted the Arab stories and poetry orally. *Second*, that there were Europeans travelling to Andalusia in search of Arab Islamic cultural lore during which direct contact exist necessarily. *Third*, that there were frequent trade relation and political contact through diplomatic embassies and as consequence there must have been some cultural transformation. *Fourth*, that there were political refugees from Europe such as *Mozarab* who emigrated in time of intransigence and religious fanaticism to the north of the Peninsula and naturally intermingled with their co-religionist. *Fifth*, that the scriptoria of the monasteries in the peninsula, especially of Santa Maria de Ripoll, in the 12<sup>th</sup> and 13<sup>th</sup> centuries, acquired a large number of Arabic scientific works which



were then translated by monks. *Sixth* the Christian kings established the school for translators in Toledo following the Christian conquest of that city in 1085 AD, with the purpose of digesting the Muslim knowledge which was accumulated in the great libraries of the former Muslim sovereigns.<sup>39</sup>

It is worth noting that the modes of communication in general were colored by Muslims' religious tolerance and good political will, and cultural interests of the West. These modes of communication were conducive not only for enhancing the appreciative attitude of the West towards the sophisticated culture of the Muslim, but also in realizing the importance of transmitting the Islamic worldview for the West. Thus, Jayyusi's findings imply that the West transmitted Islamic worldview in three main ways: through cultural transformation, through religious dialogue, and through conscious effort to transmit the knowledge by translation. These three ways, in Alparslan's theory,<sup>40</sup> are three major factors that play most important role in the formation of any worldview, including the West. Regarding this last point Eugene A Myers infers that the awakening of Europe, begun in the last half of the eleventh century, was sparked by the translation of Constantine the African in the field of medicine. ....The reawakening of Europe was decisively helped by translations, and translations served as a continuum in the revival of Europe.<sup>41</sup>

What Myers means by translation in the foregoing quotation was from Arabic into Latin, rather than from Latin into French, Celtic into Latin, or Hebrew into Latin, because it was the most important than all the others. However, behind the whole process of translation is the absorption of scientific spirits as well as scientific worldview. Scientific inquiries in the West emerged as soon as they encountered with the sophisticated civilization of the Muslims. It was because during the period of the Muslims cultural leadership from the 7th until the 15th century the West transformed not only Greek thought from the Arab to Latin but also absorbed their sophisticated intellectual mechanism. Jayyusi's depiction on the mode of Islam-West communication is an ample evidence of Western attempt to develop their scientific conceptual scheme within their worldview. After having developed their worldview the Christian West did not hesitate to translate any Greek text as ever before, especially from the text that has been synthesized in the Muslim doctrine.<sup>42</sup> Thus, the rise of philosophy and sciences in the West was owed much not only to the work of translators of Greek into Arabic or Arabic into Latin but also to the Islamic worldview.

In fact, the influence of Islamic worldview into the Western minds was imbedded in the fashion of the transformation. The Latin scholars blended the translation with transmission i.e. translating the text and transmitting the thought at once. Sometimes the translators make translations and at the same time they also claimed to be the original writers. Some scholars simply

translate, rearrange the passage and find the link of conception by which they build a system and claimed as their own.<sup>43</sup> This strange manner of Western intellectuals could suggest the lucid indication that the West silently 'adopted' the Islamic thought or Greek thought which had been appropriated by the Muslims. In other words the West understood Greek thought through the Muslims' worldview.

Moreover, the transmission of Islamic worldview into the West could also be marked out by pinpointing socio-cultural communication in Spain. During the Muslim occupation Spain and other areas like Levant became the brightest spot on the cultural map of the Christian West and the most dynamic cultural life. Scientifically, the Study of science, philosophy and medicine were maintained at a high level.<sup>44</sup> Socially, Spain as a Muslim territory and predominant Muslim cultural environment was a meeting place for Christian, Muslim and Jewish culture. Historical fact suggests that in Spain the Christians evolved what the so called Mozarabic culture.<sup>45</sup> Morris states that the Christian and Jewish' contact and conflict with Muslims stimulate not only ideology and intellect of medieval Europe but also its imagination.<sup>46</sup> It is true that when the Westerners realized that the Muslim possessed a sophisticated mind or scientific worldview more than what is available in Latin their curiosity aroused.

In conclusion, the most pivotal factor that brought about the rise of Western civilization is Islamic scientific worldview. The mode by which the Islamic worldview was transformed to the West is similar to the way of worldview formation,<sup>47</sup> which was through cultural, scientific, religious channels. It is also developed via speculative idea by means of education or conscious effort to acquire knowledge. Lucid example of the place of such formation is Spain, the place where the West absorbed scientific worldview from the Muslims, or to say the least the place where the West utilized their encounter with Muslim to enrich their own worldview.

## References

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- <sup>3</sup> Onians, R.B. *The Origin of European Thought*, Cambridge: Cambridge University Press, 1989.
- <sup>4</sup> Arthur, W.H.A., et al., *Reading in Western Civilization*, Chicago: University of Chicago Press, 1985.
- <sup>5</sup> Couplestone, Frederick J.A, *A History of Philosophy*, New York: Doubleday Dell Publishing Group, 1962, p. 11
- <sup>6</sup> Holmes, George, *The Oxford history of medieval Europe*, Oxford: Oxford University Press, 2001, pp, vi, ix.
- <sup>7</sup> Couplestone, *A History of Philosophy*, p.11
- <sup>8</sup> These subdivisions were popularized by Belgian historian Henri Pirenne and Dutch historian Johan Huizinga in the early 20th century.
- <sup>9</sup> Martin, C.J.F, *An Introduction of Medieval Philosophy*, Edinburgh: Edinburgh University Press, 1996, p.10. William McNeill also put the year of 1000 as the beginning of vigorous civilization of the western Europe. See William McNeill, *The Rise of the West*, Chicago: The University of Chicago, 1996, p.484.
- <sup>10</sup> John Marenbon, *Early Medieval Philosophy*, London: Routledge, 1991, pp. xvi; 27
- <sup>11</sup> Brown noted that in the areas of Latin west and in the Greek east literary production suffered a crisis between the late sixth and eighth centuries. See Brown, Thomas, "The Transformation of the Roman Mediterranean", in George Holmes, *The Oxford history*, p. 52
- <sup>12</sup> Holmes, George, *The Oxford history*, pp., vi, ix.
- <sup>13</sup> Edwards Grant, *The Foundation of Modern Science in the Middle Ages, Their religious, Institutional, and Intellectual Context*, Cambridge: Cambridge University Press, 1996 , p. 26.
- <sup>14</sup> Dimitri Gutas, *Greek Thought, Arabic Culture*, The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbasid Sociey (2<sup>nd</sup>-4<sup>th</sup>/8<sup>th</sup>-10<sup>th</sup> centuries, London and New York: Routledge, 1998, p.21-22,
- <sup>14</sup> Acikgenc, Alparsalan, *Islamic Science*, pp.14-15.
- <sup>15</sup> Marenbon, John, *Early Medieval Philosophy*, London : Routledge, 1988, p.17.

- <sup>16</sup> Al-Attas, SMN, *Prolegomena to The Metaphysics of Islam, an exposition of The Fundamental element of the Worldview of Islam*, International Institute of Islamic Thought and Civilization (ISAC), Kuala Lumpur, 1995, p. 2
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- <sup>18</sup> For detail exposition on the rise of scientific activities in Islam see Alparslan Acikgenc, *Scientific Thought and Its Burdens, An Essay in the History and Philosophy of Science*, Fatih University Publication, Istanbul, 2000, especially Chapter Four and Five.
- <sup>19</sup> Michael Marmura, dalam *The Encyclopedia of Religion*, ed. Mircea Eliade, London & New York: MacMillan Publishing Company & Collier Macmillan Publisher, p. 268, s.v. "Falsafah"
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- <sup>22</sup> A. Sabra "Science, Islamic." In: *Dictionary of the Middle Ages*, ed. J.R.S. Strayer, New York: Charles Scribner's Sons. Vol. XI(1988), pp. 81-88.
- <sup>23</sup> McNeill, William, *The Rise of the West*, p.441.
- <sup>24</sup> Eugene A Myers, *Arabic Thought*, p.133
- <sup>25</sup> *Josep Puig*, "The Transmission" pp. 12-13. See also O'Leary, *Arabic Thought and Its Place in History*, London: Routledge & Kegan Paul, 1922, pp.276-277.
- <sup>26</sup> Eugene A Myers, *Arabic Thought*, pp. 79-80.
- <sup>27</sup> Sharif, M.M. (Ed), *A History of Muslim Philosophy, Low Price Publication, Delhi*, vol. II, 1995, p. 1367
- <sup>28</sup> Eugene A Myers, *Arabic Thought*, pp.78-83.
- <sup>29</sup> Sharif. M.M., *A History*, p.1367.
- <sup>30</sup> Eugene A Myers, *Arabic Thought*, p. 85.
- <sup>31</sup> Sharif, MM, . (Ed), *A History*, p.1368.
- <sup>32</sup> Burnett, Charles, "The Introduction of Arabic Learning into British School", in Charles E. Butterworth. et al. *The Introduction*, p.40.
- <sup>33</sup> Sharif, MM, . (Ed), *A History*, p.1368.
- <sup>34</sup> Burnett, Charles, *The Introduction*, pp. 51, 53, 56.
- <sup>35</sup> Sharif, MM, (Ed), *A History*, p.1380.
- <sup>37</sup> Edward Grant, *The Foundation*, p. 172.
- <sup>38</sup> Alparslan Acikgenc, *Islamic Science*, 10

- <sup>39</sup> Salma Khadra Jayyusi, *The Legacy of Muslim Spain*, Leiden: E.J.Brill, 1992, p.1059-1060.
- <sup>40</sup> Acikgenc, Alparslan, *Islamic Science*, p. 15.
- <sup>41</sup> Eugene A Meyers, *Arabic Thought*, p. 85
- <sup>42</sup> Peter, F.E. *Aristotle and The Arabs, The Aristotelian Tradition in Islam*, New York: New York University Press, 1968, p.57.
- <sup>43</sup> Josep Puig, *The Transmission*, p.28. O'Leary also mentioned that this mode of transmission was the characteristic Middle Ages intellectual. See O'Leary, *Arabic Thought*, p. 277.
- <sup>44</sup> Brown, Thomas, "The Transformation of the Roman Mediterranean", 400-900, in George Holmes, *The Oxford History of Medieval Europe*, pp.50-51. He also noted that the remarkable success and the strength of Islam was due mainly to their ability "to evolve an original and durable synthesis". They took over the more effective and appealing tenets of other faiths and retained viable elements of Graeco-Roman administration and urban culture while maintaining the distinctiveness and vitality of their own culture. See also p. 11.
- <sup>45</sup> Mozarab was originally Spanish derived from Arabic *musta'rab* meaning 'arabized', or would-be-Arab, but the term is used for one who claims to be an Arab without being so. Mikel said that it is originally a pejorative term for Christian of Arabic origin living in the medieval Christian kingdom, particularly Toledo. But it also refers to a member of Christian congregation in Spain that maintains a modified form of its religion after the Muslim conquest. See Mikel De Eplaza, Mozarab, "An Emblematic Christian Minority in Islamic Andalus", in Salma Khadra Jayyusi, *The legacy of Muslim Spain*, pp.149-170. Cf. Allen Walker (Chairman of Editor) *The New International Webster Comprehensive Dictionary of The English Language*, Deluxe Encyclopedic Edition, New York: Trident Press International, 1996. p. 833
- <sup>46</sup> Morris, Rosemary, *Northern Europe invades the Mediterranean, 900-1200*, in George Holmes, *The Oxford...*, Ibid., pp.194-195
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