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TOWARD THEOLOGY OF SCIENCE: PHILOSOPHICAL REFLECTION ON THE DEVELOPMENT OF RELIGION-BASED SCIENCE

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Abstract : *The relationship between science and religion is one of the academic issue that has not been resolved completely until now'. Although some universities in Indonesia and even Malaysia have developed academic traditions with the paradigm otintegration of science, they still leave a fundamental problem refsted to aspects okscientihc science developed with religion. To meet scientihc and objective criteria, science must avoid the element of subjectivity of scientists, and eliminate the intersubjectivity of tradition and culture. This paper will analyze, especially to emphasize the position of philosophy in the development of religion-based science, as well as reflection for the development of ph'hosophy oksciences. This paper will discuss two main problems, the investigation of the religious dimension for science, and the role of religion-based science development for the development of philosophy of sciences. The study found the t in addition to the theoretical tramew'ork and scientihc paradigm, there is one more thing the t cannot be left behind in the process of developing science, namely the ideological assumptions or theological dimensions of science. So that the basis of the development okscience not only consists ottheories and paradigms, but also theological assumptions. This article concludes that the theological dimension allow's for the development okreligion-based science.*

Abstrak Hubungan antara *sains dan* agama *merupakan salah satu* wacana yang *belum sebesar secara tuntas hingga saa t rat. Meskipun beberapa perguruan* tinggi *di Indonesia bahkan Malaysia telah mengembangkan*

tradisi akadernik dengan paradigms integrasi ilmu, riamun *masih says menyisakan persoalan mendasar terkait* tingkat *kedrrilahan shins* yang *dikembangkan dengan agama. Untuk* memenuhi **tier** a ilmiad *dan ob yektij shins harus terhindar* dari unsur *sub jektivitas para* ilmuwan, *dan menghilangkan intersubjektivitas tradisi dan* hudaya. *Makalah rat akan menganalisis, terutama* **unit** *menegaskan posisi ihmu kilsakat dalam pengembangan* ilmu *berbasis agama, serta relleksi untuk pengembangan* ilmu *khsatat. Makalah ini akan rnembahas dna masalah utama, penyelidikan tentang dimensi agama* untuk *sores, dan per*an *pengembangan swims berbasis* agama untuk *pengembangan ihnu O Ilsata I Studi ini menemukan bahwa selain kerangka teoretis dan paradigms ilmiah, ada satu hal lagi yang tidak dspat ditinggalkan dalam proses pengembangan sores, yaitu asumsi teologis* atau *dimensi teologis swims. Sehingga dasar pegembangan sairis* hukan *honya terdiri* dari *teori dan paradigms,* riamun juga asumsi *teologis. Artikel ini menyimpulkan bahwa dengan dimensi teologis memungkinkan* adariya *pengembangan swims berbasis agama.*

Keywords : *Scientihc* Paradigm, *Islamic w'orldview', History of Science, Anthropology okscience, Theology okscience*

A. Introduction

As a discourse, scientific integration, including the interconnection of Islam and Science, has been discussed for almost half a century. Not only theologian-religionist, but also scientist-academician have proposed their ideas, including integration, confirmation, islamization of science, scientification of islam, science of al-Qur'an, islamic science, and many more. However, one view is missing from the scientific integration discourse, a philosophical science view. The issue on scientific integration is indeed not only appealing to be viewed as a scientific discourse, but will be even more properly viewed from the philosophical science perspective. Establishment of several state and private Islamic Universities in Indonesia, such as Universitas Islam Negeri, Universitas Nahdatul Ulama, Universitas Muhammadiyah, UNIDA Gontor, after long process of institutional convertion, promotes the issue beyond discourse to be an integrative scientific paradigm with specific charasteristic. Several universities aforementioned above even developed the unique scientific tradition in which religion is an inseperable part of a scientific building. From philosophical perspective, scientific development in those universities

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produces fundamental problem, can religion-based science be scientific. For science to be scientific, science has to be avoided from the subjectivity of the scientists and distanced from the intersubjectivity with tradition and culture. And with the incessancy of the science and religion integration, philosophical science has to view this as a sophisticated issue which needs to be solved.

The idea to connect science and religion has developed into a reasoning consideration and even scientific paradigm, e.g Scientific Integration based on Perennial Phi1osophy,[1] Islamization of Science,[2] Scientification of Islam,' Scientific Integration-Interconnection,' and many more. In the context of scientific philosophy, the scientific paradigm on the interconnection between science and religion, will only has an unprecedented significance, if it was proceeded with a product of new science based on religion, or Theistical Science as a form of science which in unison with religion, or Islamic Science as science cohered with Islamic religion.

Along with those development, the study of the al-Qur'an also seems to develop its discourse area into the Scientific Philosophy. The scientific paradigm built by several State Islamic University or Universtas Islam Negeri [UIN] in Indonesia, also establish al-Qur'an as the basis for its scientific development. To just name a few, UIN Jakarta has Re-integration of Sciences in Islam; UIN Yogyakarta with the concept of Integraion-Interconnection presented in a Spider Web of Sciences metaphor; UIN

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[1] The influential figure for this idea is Seyyed Hossein Nasr, who seeks to incorporate the tawhid principle into science development. See Hossein Nasr, Science *and Civilization* in *Islam* (New York: New American Library, 1970), p. 21-22.

[2] His idea was pioneered by Syed Muhammad Naquib al-Attas, who was first presented at the Makkah conference and reviewed again at the Second World Conference on Islamic Education in 1980 in Islamabad. See Syed M. Naquib al-Attas, *Islam and Secularism* (Kuala Lumpur: Young Malaysian Youth Force, ABIM, 1978), p. 43—44; see also Syed M. Naquib al-Attas, *The Concept of Education* in *Islam* (Kuala Lumpur: Muslim Youth Movement of Malaysia, 1980), p. 155-156.

[1] This thought was built by historians and culturalists I€untowijoyo. Further read Kuntowijoyo, *Islam Sebagai Ilmu: Epistemologi, Metodologi,* Dan *Etna* (Bandung: Teraju, 2004).

This idea was built by M. Amin Abdullah. See "Profil Kompetensi Akademik Lulusan Program Pascasarjana Perguruan Tinggi Agama Islam Dalam Era Masyarakat Berubah", Presented in the Meeting and Consultation of the Director of the Post-Graduate Program of Islamic Higher Education, Hotel Setiabudi, Jakarta, 24 - 25 November 2002.

Malang with a concept of Scientific Integration in Islam in a Tree of Sciences metaphor; UIN Bandung with Revelation Guides Science shown as a Wheel metaphore. UIN Makassar with "Integration and Interconnection of Science and Theology concept with a Pine Cells metaphore; UIN Pekanbaru with the concept of Reinforcing the Existence of Scientific Metaphisics in Islam.' Lately, UIN Sunan Ampel Surabaya has also developed its own scientific paradigm with Integrated Twin-Towers.'

Prior to that, several ideas have been developed which offers scientific models to connect al-Qur'an and Science with Harun Yahya-ism[7] and Bucaillism" being the most popular among others. Both of those scientific models aimed to find the congruence of scientific findings with verse in al-Qur'an. These models received critiques, mainly because scientific findings are not guaranteed to not be changed in the future. Hence, assuming al-Qur'an similar to something changeable also means that al-Qur'an is changeable as well.' This model, in the Malaysian Moslem scientific community, is known as "model remeh ",[10] for its nature to not considering the relativity and mortality of scientific findings and scientific

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' Nanat Fatah Natsir and Hendriyanto Attan, Sfrategi *Pendidikan: Upa pa Memahami Wahyu Dan Ilmu* (Yogyakarta: Student Library, 2010), p. 1-2.

' Husniyatus Salamah Zaini, Desain Pengembangan XurñuJum *LMN Men uju UIF Sunan Ampel: Dart Pola Pendekatan Dikotomis Ke Arch Integra tip Multidisipliner-Model Tain Towers* (Surabaya: UIN Sunan Ampel Press, 2016), p. 93.

" See Zainal A. Bagir, "Islam, Science, and Islamic Science: How to Integrate Science and Religion?," in Science *and* Religion in *The Post-Colonial World:* Interfaith *Perspectives,* ed. Zainal A. Bagir (Adelaide, Australia: ATF Press, 2003), p.4-3.; see also Ibrahim I€alin, "Three Views of Science in the Islamic World," in Cod, Life, and fee *Cosmos, Christian* and *Islamic Perspectives,* ed. Ted Peters, Muzaffar Iqbal, and SN Haq (Aldershot: Ashgate, 2002).

This model uses the name Maurice Bucaille, a French medical expert, who once shocked the Islamic world when writing a book entitled "La Bible, le Coran et la Science". See Maurice Bucaille, *Bibel, Qur'an* and *Sains* Modern, trans. A. Rayidi Jakarta: Bulan Bintang, 1992).

Sharp criticisms of this approach were put forward by Ziauddin Sardar, who said that Bucaillism contained a false logic. See Ziauddin Sardar, *Islamic Futures: The Shapes* of *Ideas to Come* (New York: Mansell, 1983), p. 20.

" Wan Ramli bin Wan David and Shaharir bin Mohamad Zain, "Pemelayuan, Pemalaysiaan Dan Pengislaman Ilmu Sains Dan Teknologi Dalam I€onteks Dasar Sains Negara," *Kesturi Journal,* no. 1 (1999): p. 8.

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theories compared to the unadulterated nature and immortality of al-Qur'an.

Apart from them, physicist Mehdi Golshani, produced works such "The Holy Qur'an" and "Sciences of Nature"[11] in the 1980s as his early quest to connect science and Islam based on al-Qur'an. To support his ideas, in 2004, Golshani wrote Issues in Islam and Science".[12] Golshani made a distinction between what he referred as "Islamic science" and "Secular science" with a reasoning that metaphisical assumptions are often could be rooted to religious view.[13] In Indonesia, historian and humanist Kuntowijoyo with his Islamic Scientification also positioned a1-Qur'an as the basis for science development.[14] The idea for scientification ofIslam, in its application, is produced by undergoing several processes. First, the source of knowledge and truth in religion is in the form of Gods revelation, al-Qur'an. This religious truth is then manifested as the form of humans reasoning achievement, with logical and ethical standards, known as theoanthropocentristic. That would trigger dedifferentiation, the unification of religion in every living aspects and activities, such as politics, economy, law, and culture. The end product of this process is the birth of integralistic science, science in which not only connect, but unify Gods revelation and human reasoning.[15]

In the context of Philosophy of Science, an idea could develop into scientific paradigm if it fulfdled at least three main characteristics: first, the idea has a convention or concensus from the scientific community,[16] meaning that the idea is supported by groups of scientific community or researchers; second, the idea has been structurized in the consciousness, or has become a mindset, therefore, a unique scentific tradition and culture can be formed; and the third, the idea is supported by considerable amount of

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[11] This book is published in a translation edition, see Mahdi Gloshani, *Filsalat* Sains Menuruf A-Qur'an (Bandung: Mizan, 1988).

[12] Mahdi Gloshani, *Issues in Islam* and *Science* (Tehran: Institute for Humanities and Cultural Studies, 2004), p. 77-102.

[13] Mahdi Gloshani, "Sacred Science vs Secular Science," in Science and Religion in *Post-Colonial World, Interfaith Perspective,* ed. ZainalAbidin Bagir (Adelaide, Australia: ATF, 2005), p. 77-102.

[14] *See* I€untowijoyo, *Islam Sebagai* Ilmu: *Epistemologi, Metodologi, Dan Etika*

[15] Ibid., p. 55.

[16] See David Novitz, *Picture and Their Use* in *Communica tion: A Philosophical* Essay(Netherland: The Hague, 19177), p. 77.

supportive works as auxiliary hypotheses",[17] which develop the idea into a specific scientific aspect, and break it down into a more practical-applicative area in the form of methodology and research methods. With this main charactersitics, not all scientific ideas could then be positioned into scientific paradigm, no matter how genuine and how sophisticated they are. Hence, scientific idea with the highest probability to become a scientific paradigm is the idea that is developed into scientific building in universities or scientific institutions.[18] However, it still need to be noted, that no matter how advanced or sophisticated the scientific paradigm is, in time, it will undergoes anomaly, and then crisis, and finally paradigm shifting. Such trend is inevitable, because only by that process, science is able to be developed.

As a mindset [collective], the characteristic of scientific paradigm is similar to system [thought], and in time it has to updated and changed, and its form as a tradition and culture [scientific], will also experience upgrade and development. This is where the scientific paradigm developed by several Islamic Universities showed its significance, as well as becoming a new scientific chapter, which not only fulfdled the criteria to be scientific paradigm, but more than that, could be more effective to perform its function as a basis for scientific development in new systems.

With such framework, this paper will analyze, mainly to assert the position of philosophical science in the development of religion-based science, as well as a re0ection for the development of philosophical science. This paper will address two main problems, investigation on the religious dimension for science, and the role of religion-based science development for the development of philosophical science.

B. Theology of Science as A New Dimension for Science

The constructed new scientific building of religion-based science, turns out resulted in the formation of a new dimension in science which linked to the Islamic aspect of science. Literally, dimension is defined as

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[17] Bruce J. Caldwell, "The Methodology of Scientific Research Programs: Criticisms and Conjectures," in *Economics, Culture, and* fiducafiori: *Mark* BJaug *Aldershot's Essays* in *Honor,* ed. GIS. Shaw (UK: Elgar, 1991), p. 95-107.

[18] Steve Fuller, Kuhn *vs Popper: The* Struggle for *The Soul of Science* (New York: Columbia University Press, 2004), p. 128.

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aspect, feature, element, angle, or side of a situation or problem. Dimension could also be defined as size, proportion, length, depth, volume, capacity. By no means to discuss it further into philosophical and logical realm, the definition of dimension is identical with accidention and closely related to substantion in philosophical discourse,[19] or interpreted as extension which in the logical discourse is related to intention,[20] or in Manthiq which has al-mafhum wa al-mashadaq,[21] then dimension could be defined as mashadaq.

From several definitions mentioned above, dimension could be simply defined as side, aspect, feature, element, facet, and range of a thing, which by having dimension, that thing could be understood comprehensively and in detail, and in the absence of dimension, that thing is space-less and therefore incomprehensible. If one dimension is lost, than it losts one comprehensive characteristics and details. In contrary, if another dimension is found, then the definition will be more comprehensive and more detailed. Therefore, the definition of scientific dimension is the side, aspect, feature, element, facet and range of science, which in its presence, science can be understood in a comprehensive and detailed manner, and without its presence, science will be unbounded, hence, incomprehensive. And similar to the basic characterisitics of dimension, if another scientific dimension was to be found, the definition of science will be more comprehensive and detailed.

Considering this definition, therefore, in a project of the development of science, the dimension of science is not only a consideration matter, but even more, it should always exist and in conjuction. Thus, internally, the consciousness on the existence of this dimension of science

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[19] In the study of philosophy, accident is "an attribute which may or may not belong to a subject, without affecting its essence". See William Keith Chambers Guthrie, *A History of Greek Philosophy* (Cambridge: Cambridge University Press, 1990), p. 148.

[20] "Intention and extension" is usually also called "connotation and denotation". Intention is "content" contained in the term, while extension is "scope" designated term. Compare Ali Abri, *Pengantar Logika Tradisional* (Surabaya: National Business, 1994), p. 54.

[21] In a study of Science Manthiq there is discussion about the actual meaning of lafadz regarding the content and breadth of the concept of (al-tashawwur) consisting of al-understand and al-maṣadaq. Al- Mafhum is "[illegible]" (Meaning or understanding shown by lafadz kulli), while al-mashadaq is "[illegible]" (Individuals intended by that meaning or description). See Motahhari, *al-Durus al-Manthiqi*, (Cairo: Madrasah al-Islamiy ah al-Mishriyah, 1986), p. 31.

permits the scientific works or the scientific development programs to be realistic, rational, ethical, and religious, since not a single aspect that needs to be considered is missed. Externally, it awakes the realization that science is multi-aspect. Therefore, science, whether as a scientific activity or scientific product, has many aspects or sides, which each one of those could basically be used as a point of view. However, the success of revealing science from a certain perspective, has to be remembered or remain under consciousness that it is just a success of viewing it from one perspective.

By having this definition, the dimension of science is not merely an external side of science, because the dimension of science will always follow any scientific works and has to have a serious attention in every scientific works. And yet, despite always following any scientific works, the success of any scientific work also depends on other aspects beyond the core element of the scientific works. Similar to substantion which could hardly be understood without accidention, intention or al-mafhum will be meaningless without extension or al-ma$adaq.[22]

In line with the layers of scientific building, science has three working areas: logic, culture, and religion, or in a technical term: theory, scientific paradigm, and scientific theology. Based on those three working areas of science, the dimension of science could then be divided into the same areas.

1. Area of Logic or Theory

Within the area of theory, there are three aspects of science: logic, language, and mathematics. *First,* the aspect of logic; with this aspect, science can be viewed from the perspective of internal consistency to sceintific propositions which emphasizes the formal law of logic approach.[23] From the same perspective, science can be understood as a logico-inductive system, therefore, scientific works are mainly a coherent logical explanation on order, which in its time, scientist found it in nature.[24]

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[22] See further at Mahmud Zaki Najib, *Al- Mantiq al-Wadh'i* (Cairo: Al-Anjalu al-Misriyah, 1973), p. 103-107.

[23] For example Henry E. Keyburg. Jr, *Philosophy of Science: A Formal Approach* (New York: Macmillan, 1968).

[24] Taylor stated: a logical coherent account of that order which the scientist of the time finds in nature. See F. Sherwood Taylor, *A. Short History of Science and Scientific Thought* (Baltimore: Pelican, 1963), p. 3.

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Second, aspects of language; this aspect brings scientific work as a building or linguistic arrangements, not more than a set of signs with certain specific relationships with one another, with objects, and with practice.[25] From this point of view, Richard Schlegels perspective is understandable, than science is a construction of language.[26]

Third, the mathematical aspects; this aspect emphasizes the quantitative aspect and the quantification process in science. However, an excessive mathematical perspective will bring science as knowledge which must then be expressed by mathematical formulas. As a consequence of this mathematical aspect, in scientific work, facts are observed and grouped, then quantitative rules are formulated and proven, which include the application of mathematical reasoning and data analysis of natural phenomenon.[27]

2. Area of scientific culture or paradigm

In this area of scientific culture or paradigm, there are a number of dimensions for science: first, the sociological dimension; this dimension invites scientific work to be in a social institution, as well as a social activity, which is in a network of habits and roles.[28] It is from this sociological aspect that the scientific research community is known.[29] In further developments, this dimension grew into a separate scientific discipline called Sociology of Science. Sociology of Science is the study of the development of science, especially those relating to the underlying social conditions, including the social effects of science, and social structures that in0uence the process of scientific activity. Sociology of Science also concentrates on seeing the

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[25] Morris stated: a body of signs with certain specific relations to one another, to object, and to practice. See Charles W. Morris, Otto Neurath, and et. al, "Scientific Empiricism," Encyclopedia arid Unified *Science,* 7th impression, 1970, p. 70.

[26] Richard Schlegel, *Inquiry into* Science: *Its Domain and Limits* (Garden City, NY: Anchor Books, 1972), p. 7.

[27] Mentioned in McGraw-Hill Dictionary: study in which facts are observed and classified, and usually, quantitative laws are formulated and verified, involves the application of mathematical reasoning and data analysis to natural phenomena. See Daniel N. Lepedes, ed., *McGraw-Hill* Dictionary of Scienfific and *Technical Terms* (New York: McGraw-Hill, 1974), p. 1305.

[28] Joseph H. Haberer, "Politicalization in Science," *Science* Volume 178 (1972): p. 713-724.

[29] Michael Mulkay, "Sociology of the Scientific Research Community," in *Science,* Technology and *Societ:y: A Cross-Disiplinary Perspective,* ed. Ina Spiegel-Rosing and Derek de Solla Price, Chapter 4, 1977.

characteristics of science in a scentific tradition and institution."[10] Among the originators of Sociology of Science were Harry Collins, Paul Feyerabend, Steve Fuller, Thomas I€uhn, etc. Apart from the aforementioned name, there is Robert I€etton, but he is more classified as a developer of the Sociology of Scientists.

Second, the historical dimension; the historical dimension of science brings scientific activity to see science as a very powerful force in history in building human social existence in a new direction."[11] In addition, it also brings scientific activities to not denying the historical factors of science, and that finally there is an awareness that science is a historical product that has historic characteristics. In its development, the scientific view on the historical aspect of science was born as a field of science known as History of Science. Although the search for science, in terms of growth and development, e.g. the history of the history of kalam, the history of jurisprudence, the history of philosophy, etc. has been carried out, but the History of Science is a discipline that reveals the growth and ups and downs of scientific theory [2] and the trend on the development of science from its historic aspect, as a historic product with the charactersitic of human and social construction." Thomas S. I€uhn is the key figure in the birth of Sociology of Science.

Third, the psychological dimension; this dimension brings scientific works to look at the attitudes and behavior of scientists and the scientific community as well as the influence on their concept of reasoning. This dimension also undergoes development into a new scientific discipline called Psychology of Science. In general, this science studies the thoughts, attitudes, cognitive development, personality, motivation, and behavior of individuals and organizations involved in the construction of theories, which

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"[1] Joseph Ben-David and Teresa A. Sullivan, "Sociology of Science," Arinm Review of SocioJogyVol 1, no. 1 (1973): p. 203-222.

" Gilkey stated: science is a historical force of overwhelming significance, shaping the social existence of mankind in evernew direction. See Langdon Gilkey, "The Future of Science," in *the* future of *Science,* ed. Timothy CL. Robinson (New York: John Wiley, 1977), p. 105.

"[2] Jan Golinski, *Making Na tural Kn owledge: Constructivism and the history of Science* (Chicago: University of Chicago Press, 2001), p. 2.

"' Thomas S. Kuhn, *The* Structure of *Scientifc Revolutions* (US: University of Chicago Press, 1970), p. 137.

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studies scientific or mathematical concepts, model formation, including those working in the field of technology.'[4]

Fourth, the dimension of anthropology; this dimension brings scientific works to a realization that the cultural trends of scientists and the scientific community contribute and in0uence the scientific works itself. By utilizing the typical concept of cultural anthropology, this dimension is also confirmed to be the Anthropology of Science. The scientific contribution of the Anthropology of Science is to provide valuable unique insights into the way science works in its cultural context." In addition to these four dimensions, several publications also mention other dimensions, namely the economic dimension'[6] dan political dimension.'[7]

3. Area of religion or theology

As mentioned earlier, the constructed scientific building of Islamic science has opened the potential to emerge a new dimension of science, as a consequence of the accessibility of religious or theological domains. It is called "accessibility", because the existence of this area ofreligion or theology in scientific buildings is indeed not completely non-existed, but it is not completely accessible yet, it remains sanctioned, and even if it had been seen, it would still be deliberately denied. So, with the discovery of this new "glasses", and at the same time, by the emergence of this new perspective which put religion as an inseparable part of the scientific buliding, the existence of religion or theology becomes 'tangible' and its position and role could be clearly defined. From this point, it is only natural that some groups would view that the correct definition of the meeting between religion and science is not integration, but [re] integration or [re] unification, because religion and science is actually integrated or united from the beginning, and it is the human perspective which separates it, and even more, contrasts it.

"' See GregoryJ. Feist, *The Psychology* ofScience and the Origins of the *Scientihc Mind* (New Haven & London: Yale University Press, 2006).

"' Emily Martin, "Anthropology and the Cultural Study of Science," Science, TecnoJogy, *& Human Values* Vol. 23, no. 1, Special Issues: Anthropological Approaches in Science and Technology Studies (Winter 1998): p. 24-44.

"' This dimension sees science as a productive force, which without this, scientific work will produce nothing. So that science is a "major factor in the maintenance and development of production". See JD. Bernal, "Science in History," in the Emergence of *Science,* Volume I (Cambridge MA: MIT Press, 1979), p .31.

"' Haberer, "Politicalization in Science," p. 713-724.

If in the two previous regions, several scientifc dimensions or science were found, indeed in the area of religion, several dimensions also exist in order to understand the existence of religious aspects of science, or the theological aspects of science. In relation to this religious or theological aspects, to simply give the term, it is called theology of science. This term is chosen not without any reasoning. Prof. Amin Abdullah, in several of his articles, briefly mentioned and used the term "theology of science" as the efforts to position religion, more specifically the Qur'an, as the basis for the development of knowledge, ethical basis, and wisdom.'[8] The existence of the theology of science means that there is a theological dimension in science which presupposes scientific work or the development of science within the framework of religion. In addition, it also provides the possibility to see science from the theological point of view.

Similar to the two previous regions, the area of religion, as a part of this theological dimension, also has several elements. First, the elements of the Qur'an, this element brings the scientific works to the framework of the Qur'an. The meaning of within the framework of the Qur'an is certainly not radically and suddenly rooted scientific findings to the Qur'an, nor does it directly "lower" the verses of the Qur'an to the area of knowledge, but by heeding the scientific standards and ethics in every scientific activity, to avoid fatal mistakes that are not in line, or even more, contrary to the Qur'an. By this definition, then the position of Qur'an in the scientific works is not to measure the truth as the general public understands it, but rather to measure the error, in the sense of'where' from the Qur'an has been violated by science. With this mindset, the correctness of scientific works is not measured by showing which verses justify it, but by passing the error test based on the Qur'an. In a concrete definition, if with all well-reasoned perspective, not a part of the Qur'an has been violated, misinterpreted, or deliberately opposed, then the development of science must be regarded as not wrong, but still not losing its value as non-immortal.

Second, the element of faith; like the elements of the Qur'an, the element of faith also brings scientific work within the framework of faith. The words 'in framework' are clearly not to question or doubt them. And even though it is also not intended to prove it, it serves to manifest faith with the best efforts. Third, the element of worship; this element provokes the

[8] "Profil Kompetensi Akademik Lulusan Program Pascasarjana Perguruan Tinggi Agama Islam Dalam Era Masyarakat Berubah."

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view that scientific work is also worship. To get to this dimension of worship, of course there are several conditions, including not breaking the rules, not cheating, and most importantly, being able to pass through the barriers of egocentrism, tO *II d I I'abb1$ 'aldlTlln.* Fourth, moral elements; this element requires scientific work to suppress the primitive nature, lust, and regulates sacred wishes.

In addition to the four elements above, some groups see the importance of preaching and good deeds as the framework or context of scientific work. These two things are actually important issues, but they are incomparable if they are aligned with faith, worship and morals. More than that, every activity, including scientific activities, if carried out within the framework of faith, worship, morals, and within the framework of the Qur'an, it is automatically a good deed and at the same time as a mission. As with sociological aspects, historical aspects, anthropological aspects, psychological aspects, etc., this theological aspect can continue to be sharpened and expanded.

C. Theology as the Mother of All Sciences [?]

Before being elaborated further, although this study often termed as theology, it needs to be conveyed, that this term is given a fairly loose definition, including the theological dimension with all its elements, as mentioned in the previous section, namely 'reason' of faith, worship, morals, and the Qur'an. In addition, theology is also interpreted as aqeedah, because of its close meaning to faith. Additional question mark [?] on this theme is used because the purpose of this discussion is still an initial experiment, a 'dream'.

However, the initial experiment needs to be continued, and the 'dream' had to be realized, because there were at least four ideas that inspired it, to not say based on. First, related to a Study Program at the Faculty of Ushuluddin which had been liquidated with the issuance of PMA in 2009," namely Aqeedah and Philosophy (AF). AF as the name of the department (study program), are refered to the leading Islamic universities in the world.

"'See Regulation of the Minister of Religion of the Republic of Indonesia Articles 36b of 2009 concerning Determination of the Establishment of Academic Sciences and Degrees in the College of Religion, and more clearly translated by the issuance of the Director General of Islamic Education Decree No. 3389 of 2013 concerning Naming Islamic Higher Education Faculties and Departments at the 2013 Islamic College.

But lately PMA eliminated this nomenclature, by offering other names, namely the Aqeedah Science, Religious Philosophy, Akhlak Tasawuf, and others. Indeed, it must be admitted, the Aqeedah Science as the name of the study program has never been established, and many even proposed to return to their original names as AF, and in fact at the beginning of 2016 there were universities in East Java that obtained the license to administer the S3 program with the AF study program. Aqeedah and Philosophy, are actually a unison. In Islam philosophizing should be in the framework of aqeedah, and Aqeedah must continue to be reflected, and contemplated, as deeply as possible, so that thoughts, attitudes, and behaviors of believing human beings continue to move actively, dynamically, productively, driven by His faith is in his position as *Muharl'1k* (driving force). In other words, the faith must be followed by smart thought and smart work.

Second, there is one article written by Dr. Hamim Ilyas, entitled: "Integrating Private Piety with Public Piety in the Perspective of Kalam: Strong Aqeedah, Great Productivity". In general, this article outlines the functional nature of aqeedah as the basis of people to become superior and outperforms other peoples, which in the present era is in the form of science, technology, commodities, and works that benefit others.[10]

Third, paper by Prof. Amin Abdullah entitled: "Renewal of Islamic Thought and the Need for Aqeedah Fundamentalism." In essence, the paper contributes on the importance of embedding the aqeedah in a correct manner for the thoughts, movements, attitudes and behavior of Muslims, while taking into account for various nuances, personal development, social and wealth dynamics solely for the Islam. Thus, in carrying out religious life, it will avoid the emergence of thoughts, movements, attitudes and behaviors that actually hurt the Mightiness of Islam.[11]

Fourth, starting in 2016, the Postgraduate Program of UNIDA Gontor has held a 53 program with the Department Islamic Aqeedah-Philosophy, with the tagline: "Aqidah Islamiyah, the mother of sciences".

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[10] See Hamim Ilyas, "Mengintegrasikan I€esalehan Privat Dengan Kesalehan Publik Dalam Perspektif Kalam: Akidah I€uat, Produktifitas Hebat," in *Rekonstruksi Ilmu-Ilmu Agarna* Islam, ed. Fahrudin Faiz (Yogyakarta: Postgraduate Program of UIN Sunan Kalijaga, 2014).

[11] M. Amin Abdullah, "Pembaharuan Pemikiran Islam Dan Perlunya Pendasaran Aqidah" (presented at the International Seminar of Cooperation between Muhainmadiyah University Prof. Dr. Hamka with The Perlis Malaysia I€ingdom, Aryaduta Hotel, Jakarta, February 19, 2007).

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Without discussing it further, but as the name implies, at a glance this tagline the word aqeedah is placed earlier than the word philosophy. And by using the Lakatosian model, it is not hardly understood.

By taking inspiration from the four ideas above, as well as in line with the major theme of this study, and as a consequence of the theological basis being accepted as an inseparable part of the scientific building, in time the "theology as the mother of all sciences" will be achieved. Of course this is not without basis, nor is it just a slogan, if theology (as a scientific basis, religious basis, basis of life), has really been underlying (as referred to by Prof. Amin Abdullah), functional (as Hamim Ilyas), and as Muharrik, who productively and creatively produces embryonic concepts, develops and nurture scientific tradition and scientific culture, finds new facts, new theories, and new methodologies in its form as scientific works that benefit life, humanity, and world survivability.

If it is true, even if it was in the future, that aqeedah or theology is the mother of all sciences, of course aqeedah or theology in question has surpassed [not denied] the 'traditional' understanding. If so far, 'traditionally', aqeedah is understood as a 'teaching' (doctrine), now it must be developed into, aqeedah as a 'lesson', in the sense of a 'room' of learning, which since "min al-mahdi ila al-lahdi" has not yet finished to be studied and will not be fully peeled. Aqidah, with such meaning, at the level of the faithful people will produce ethical behavior, high work ethic, and professionalism. In contrast to its meaning as 'teaching' which tends to be passive, theology in its meaning as 'lesson' is actually active, so the faithful people will continue to be productive, creative, and spread the benefits as widely as possible, within the limit of its ability, age, profession, and their respective circumstances.

In his position as the mother of science, theology, aqeedah, or faith, is the basis of 'the driving force', from which creative programs of scientific development, new concepts, new theories, new methodologies, new ways of solving scientific problems are born. This 'nature' of aqeedah started from the assumption that the 'passive' aqeedah is finished. If aqeedah continues to be studied, discussed, or taught no longer to strengthen, nourish, safeguard, rectify, purify, strengthen, and hold it tightly, but position it as a scientific basis, which actively push scientists in developing knowledge, moving religious activities to be dynamic and ethical, and triggers human life to build a victorious Islamic history and civilization. And so, realizing aqeedah in the

form of constructive and productive hard work is the right way so that aqeedah continues to be strong, straight, pure, and as equal.

More specifically, by positioning theology as the mother of sciences, then theology is intended as the basis of the building of scientific philosophy, methodology, and scientific practices. So the 'acknowledgment' of the existence of scientific theology is not denying the philosophical roles and positions within the scientific framework. Thus, it also does not deny its contemporary problems, including the development of science with various issues following it, but bringing scientific problems further through philosophical discourse to the deepest basis, the basis of theology. Thus, the theology of science is a region or area as: a). the basis of the development of sciences, which from the parent of theology will born the children, grandchildren and great-grandchildren of many sciences, and at the same time as b). basis for the integration of science, both among science, as well as between science and religion.

D. Theology *of* Science and *Is/amic Worldview*

This discussion is not intended to uncover what is the substance of Islamic worldview, nor what is the basis and the elements. However, its position as the basis of devoloping science will be briefly explained. In addition, this section will view the possibility that a life perspective can be internalized in a person, including scientists, scientific tradition and culture, which indeed affects their attitudes, behavior, and scientific activities.

On several occasions and in several articles, Prof. Amin Abdullah also mentioned Worldview in discussing the idea of scientific integration between religion and science. So, it must be understood that the worldview is in the same sense as theology, including in its nature and position. Thus, the two terms and their positions are equal, and unified. In linguistic, the worldview is similar to the word weltanschauung or weltansicht (German) which translates to 'world view', which is actually similar with the term 'way of life' which is popular first. In fact, what is understood as a worldview is indeed a principle 'way' of life, which at the same time has a very broad scope, as wide as the world [the scientific world, the world of education, the world of politics, the world of economics, the world of adolescents, the world of work, business, etc.). The same is true of theology.

Conceptually, worldview is the beliefs, feelings and things that are in people's minds that serve as a driving force for sustainability and social

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and moral change.[12] Thomas F Wall gives a clearer definition of the worldview as "a basic belief system that is integral to our essence, reality, and the meaning of existence"", while Alparslan Acikgence defines worldview as a principle for every human behavior, including scientific and technological activities. Every human activity can eventually be traced to its life perspective, in the sense that human activity can be reduced to the concept of that life perspective.[14]

As a concept, the word worldview, although added with Islam as in Islamic worldview, must be understood as a scientific technical term, which is unique to its discoverers and unique to the cultural traditions of its supporting scientific community. As a scientific technical term, of course, the term Islamic worldview has gone through a long and rigorous scientific development process. As with scientific works in general, in terms of constructing scientific concepts, sometimes unique new terms are used, including the term worldview, as Hamid Fahmy Zarkasyi states, is also a loan word" which is intentionally used to facilitate making further articulations in a discourse.

In Islam, or more concretely, in the Islamic tradition, indeed the term Faith, Aqeedah, Tawheed, Morals, Shari'ah, are a number of terms that have been very historical, and seem to have more 'sacred' nuances, because they are obviously the basic teachings of Islam. The scholars know more about these terms, and so does Muslims in general are quite familiar with the term, although sometimes they don't understand the meaning of it. Therefore, the development of the Islamic worldview concept will never be able to shift the concept (or even the teachings and lessons) of Faith, Aqeedah, Tawheed, Morals, and Shari'ah that are historical, and indeed it does not mean to do so. The concept of Islamic worldview will have

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[12] Ninian Smart, IVorJdview *Crosscultural Explorations* of human *Beliefs* (New York: Charles Scribner's Sons, nd), p. 1-2.

[13] Thomas F. Wall, *Thinking Critically* Abouf *Ph!ilosophica1 Problems, A Modern Introduction* (Australia: Wadsworth, Tjomson Learning, 2001), p.532.

[14] Alparslan Acikgence, "The Framework for a History of Islamic Philosophy," Af-Sha/ark: Journñ *of The* JnfernafionaJ Jnstifute *of Islamic Thought and Civilization (iSTAC)* Vol. 1, no. 1 (1996): p. 6.

[15] Hamid Fahmi Zarkasy, "Pandangan Hidup (Worldview) Sebagai Paradigma Keilmuan Islam & Islamisasi" (presented at the One Day Seminar on "Kritik Atas Epistemologi Islam dan sains Modern", The Postgraduate Program Faculty of Economics, University of Brawijaya, Malang, 2009).

extraordinary significance, if its existence is viewed as an effort to translate the teachings (and lessons) of Faith, Aqeedah, Tawheed, Morals, and Shari'ah into a more functional realm, to answer scientific, Islamic, humanitarian, and global challenges. Especially in the perspective of the philosophy of science, its position as the basis of the development of science. Although some groups view Islamic worldview as equal and meaningful to the paradigm (I€uhnian), and therefore positioned in the paradigm area, but in the perspective of Scientific Theology, the position of Islamic worldview is in the theological area, aqeedah, faith, or basic region of religion (ushuluddin).

As a concept, though ideal, Islamic worldview, just like Theological Studies, are not to be maintained, also not to be protected from all forms of danger, but to be lived and embodied in the real life, in the form of attitude and personal behavior, and in the form of cultured social life, as a personal, community, traditional and cultural perspective. However, a person, family, academic community, or the scientific community, will not immediately embodied Islamic perspective, if not through the process of living Islamic cultural life, and it starts from small things, from daily problems that can be encountered, and in accordance with their respective abilities. More than that, the effort must be carried out continuously and in a gentle manner, even naturally. Because, in principle, almost no person has no life perspective, nor no way of life, although not necessarily the right life perspective, or maybe even un-Islamic. But certainly, the formation of a life perspective on a particular person or community occurs and goes by the accumulation of experience (and definitely plus lessons) that is supported by its cultural environment.

Understanding the worldview in this perspective, which tempts people to identify as perspective, even though they are different, especially in terms of work area. The perspective is glasses which not only makes people appear more "stylist", but also can change, clarify, and exacerbate views. And just like glasses, perspective can be removed and reused. Meanwhile, worldview is the inner eye (the eye in the mind). And similar to perspective, worldview can also change, clarify, and can make people more confident in certain steps. But the difference from perspective, worldview cannot be installed and released, because it is formed in a person through a long process, in a complex environment of tradition and culture. In scientific buildings, the worldview is in the area of theology of science, while that perspective is in the realm of science theory, so it can be justified in changing

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perspectives. This is where Islamic Worldview can be positioned and found its significance in the development of Islamic-based science, or Islamic science.

As such, its form in life (not in books or papers), is that Islamic worldview is the lifestyle which full of wisdom, uses realistic considerations, logical, ethical, and religius-- are embodied, which automatically affects the way a person behaves, acts, and views at any aspect of life and towards anyone, so that it is easy to draw a dividing line with anything that is not right and not good, while not having the slightest difficulty in receiving, and picking up anything what is right and good. And so, from such worldview, good behavior (not good according to himself), righteous behavior (not just according to the group), humane, peaceful, productive, constructive, optimistic, solutive, are achieved and not otherwise.

Similar to the theology of science, a person may quickly find information on the Islamic worldview, or informed about the importance of Islamic worldview in life. But to be able to internalize it so that it becomes the character, a way of life, to be him/herself, is a long process that may even took the whole life. In reality, someone who is considered capable of living according to a certain worldview, still depends on the maturity of his/her life. And so, implantation of'awareness' to the theology of science or Islamic worldview is a process that leads to the entrance of religious recesses, so not only understand it, know it, get lessons and wisdom from it, nor even apply it in life, but to live in it.

E. Conclusion

What happened to several Islamic universities in Indonesia shows that the development of religion-based science is no longer hampered. The issue on the integration of science has also entered a new phase, from discourse, to a scentific paradigm, an integrative paradigm. The scientific development that put religion as the basis of the development has already in progress. Philosophical reflection on the development of religion-based science shows that in addition to the theoretical framework and the scientific paradigm, there is one more thing that cannot be left behind in the process of developing science, namely the theological assumption. The development of science as carried out in several Islamic Universities in Indonesia is increasingly affirming that the development of science cannot deny theological assumptions as an inseparable part of scientific building.

The scientific tradition that was developed not only integrates religious reasoning with scientific reasoning, but has also succeeded in finding new patterns by placing religion as the basis of the development of science.

With the opening of religious area in the science building, then as consequences it could open a new dimension in science, which brings scientific work to no longer able to deny the religious context. The new dimension is the theological dimension of science, that is the theology of science. In the study of philosophy of science, the existence of the theology of science on one hand is the basis of the integration of science, both between sciences and between science and religion [theology], and on the other hand, the theology of science is at the same time the basis of the development of the science which underlies the selection of scientific paradigms and theory as well as methodology in scientific works. Here the theology of science is transformed into a "worldview" of religion, or in this case the Islamic worldview, which plays a role as muharrik, so that it actively moves the productivity of scientific activities.

Furthermore, philosophical re0ection on the development of religion-based science shows that science with its logical, empirical, rational, and factual nature can be placed in a complex and humane cultural context, and can even be placed in a normative and theological religious context. If all this time the cultural context has only made science non-objective and unscientific, in the construction of an integrative scientific paradigm, the precise position of culture has become more clarified. If the view on when science and religion are joined together was it gave birth to pseudo science because science conceding element of faith, or otherwise just makes faith weaker even lost since religion is possessed by scientific elements, but in this perspective, from the point of view of the philosophy of science, each role has become clear, in line and occupy a position, with its unique nature and function.

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