The background of the cover is a photograph of the interior of the Mezquita de Córdoba in Spain. It features a series of overlapping arches supported by columns, creating a sense of depth and architectural grandeur. The arches are decorated with alternating red and white stripes, and some have Arabic calligraphy. The lighting is warm, highlighting the textures of the stone and the intricate details of the architecture.

Essentials of Islamic Epistemology

**A Philosophical Inquiry into
the Foundation of Knowledge**

**Foreword by
Osman Bakar**

Mulyadhi Kartanegara

#720424901

If 'knowledge is analogized to 'light' and 'ignorance' to 'darkness' then the light discharged by sciences born from the womb of modern epistemology is like a dim light insufficient to illuminate the dark side of the modern man. This work would like to shed more light on it, by critically investigating a number of shortcomings found in Western Epistemology and by proposing the Islamic epistemology as an alternative. As part of philosophical studies, the discourse of Epistemology has not yet reached an established field of study in the Malay world, or maybe in the contemporary Islamic world. Only few works of its kind have been published. Therefore this book can be a kind of antidote not only for those philosophically-minded people but also for anyone who is in dire need of an alternative discourse amidst the domination of Modern-Western Epistemology. This volume is a treatment of epistemology in its various aspects and dimensions. Given its wide range treatment of epistemological issues this work would be of significant benefits to academics and scholars of various academic disciplines, particularly Islamic philosophy of science.



Dr Mulyadhi Kartanegara He obtained his BA degree from the State Islamic University (UIN) Jakarta. He pursued his Master degree and Phd from the University of Chicago. He later returned to his country Indonesia and taught Islamic Philosophy and Mysticism at UIN Jakarta for several years. In 2001-2003 he was appointed as the Executive Director of Center for Religious and Cross-cultural Studies at Universitas Gajah Mada (UGM) Yogyakarta. He returned to resume his post at UIN and in 2005 he founded the Center for Islamic Philosophical Studies and Informa-tion (CIPSI) and became the Director of this center till now. In 2009 he taught at ISTAC Kuala Lumpur as a Senior Visiting Professor. He wrote some 20 books on Islamic Philosophy and Mysticism, such as, *The Gate of Wisdom: An Introduction to Islamic Philosophy, Integration of Knowledge and Into the Heart of Sufism*. He is currently an Associate Professor and a researcher at Sultan Omar Ali Saifuddien Centre for Islamic Studies (SOASCIS), Universiti Brunei Darus-salam and as a researcher he is conducting other research on Islamic Scientific Tradition.

This volume is a treatment of epistemology in its various aspects and dimensions. It is especially welcome given the fact that books on the subject are rather few especially written by Muslims. Its author, Mulyadhi Kartanegara, formerly a Professor of Philosophy at the UIN (State Islamic University) Syarif Hidayatullah, Jakarta, Indonesia, is to be congratulated for coming up with this significant volume on a wide range of epistemological issues. He has succeeded to a certain extent in presenting these issues in a rather simplified way that are otherwise difficult in nature to deal with.... Given its wide range treatment of epistemological issues this volume would be of significant benefits to academics and scholars of various academic disciplines, particularly Islamic philosophy of science.

Osman Bakar, from the Foreword

The issues related to Islamic epistemology, in which the subject matter is basically complex in its nature, have been an ongoing discussion among Muslim thinkers particularly in the last five decades. This work is yet another valuable contribution to this field of study where the author discusses and compares skilfully each segment... In my humble opinion it is a great work!

--Mesut Idriz Faculty of Arts & Social Sciences, International University of Sarajevo

This beautiful work written with deep insight and in readable English covers essential aspects of the Islamic philosophy of knowledge. Drawing on the writings of the classical and modern Islamic philosophers, the author has presented in a coherent manner the Islamic philosophical foundation of knowledge that extends far beyond the boundaries of the material world. The comparison of Islamic epistemology with that of the West brings into sharp focus the substance of the Islamic philosophy of knowledge with all its complexities. A must read for all students of Islamic philosophy, a taste of the deep intellectual heritage of Islam.

--Shaikh Abdul Mabud--Director General, The Islamic Academy Cambridge United Kingdom

Sound Epistemology is the bedrock of any knowledge culture and Islamic Civilization for that matter. Despite all that we are literally made to read and listen to, about Islam, in contemporary times, it is refreshing that this book outlines the essentials of epistemology from the Islamic perspective. The book is enthralling and very valuable for both specialists in the field and ordinary students of Islam, Philosophy, and Education in general.

I recommend it highly to all those eager to update their reading on epistemology and Islamic epistemology for that matter.

Jabal M. Buaben, Formerly of the School of Philosophy, Theology and Religion, University of Birmingham, U.K.

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Essentials of Islamic Epistemology

Essentials of Islamic Epistemology

*A Philosophical Inquiry Into the
Foundation of Knowledge*

Mulyadhi Kartanegara

Forward by
Osman Bakar

ubd
Press

The Essentials of Islamic Epistemology : a philosophical Inquiry into the Foundation of Knowledge

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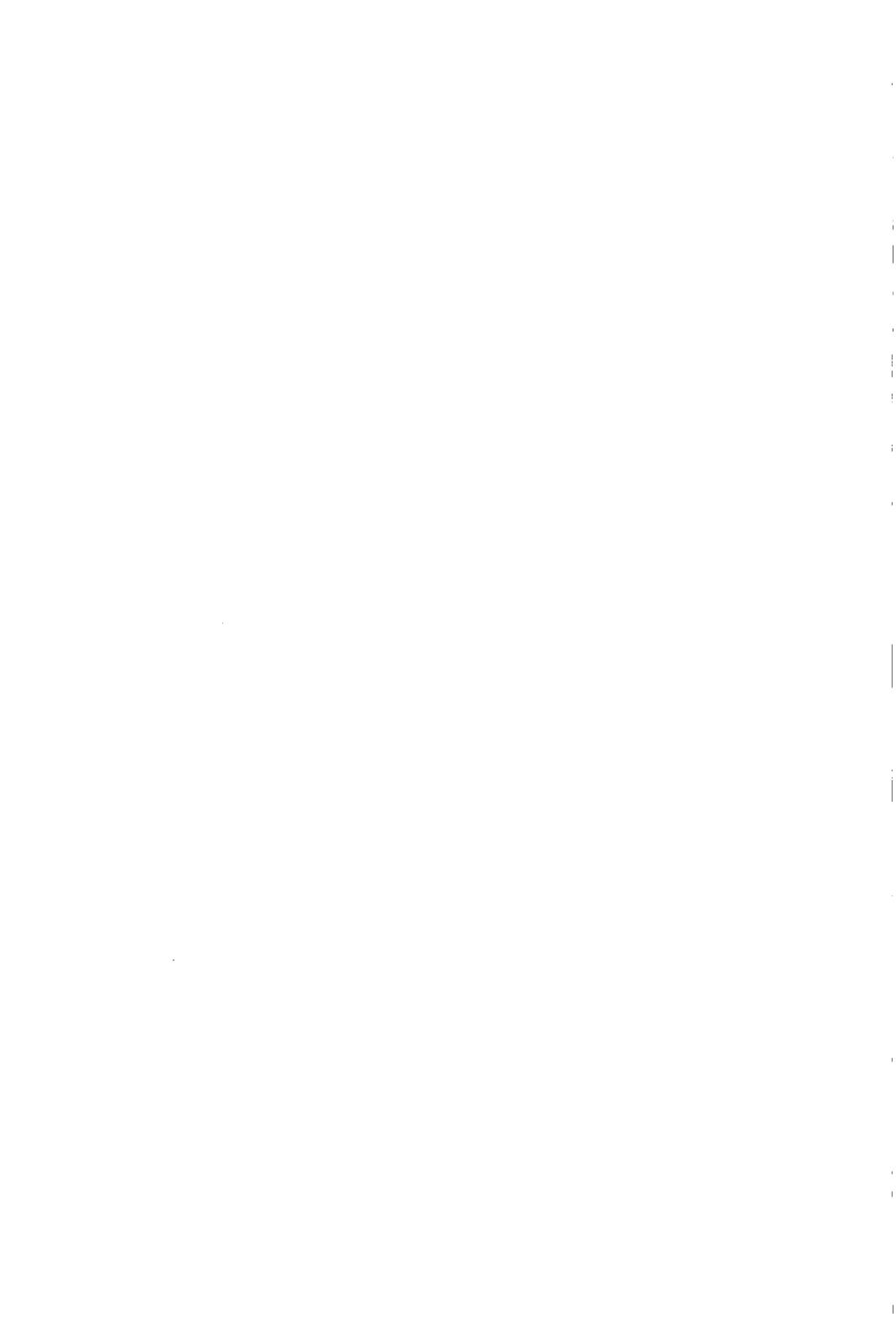
Dedicated with great respect and deep love to my parents

Rd. H. Supriyadi and Hj. Eti Suhaety, who have brought me up well

with a great care and sincere love.

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Foreword

In the Name of God the Most Gracious, the Most Merciful

Epistemology as traditionally understood refers to the theory or philosophy of knowledge. If we go by the original meaning of the Greek word *teoria* from which the English word 'theory' is derived, then in speaking of epistemology we are actually referring to nothing less than our total vision of the realm of knowledge. This is because in Greek *teoria* means vision. In the light of its etymological meaning alone, the fundamental significance of epistemology as a field of study or as a branch of knowledge becomes immediately clear. First, epistemology presents itself as a very broad academic discipline by virtue of the fact that its object of study is nothing less than knowledge itself and its diverse facets. Second, it is a difficult subject, and the difficulty of it is easily understood as arising also from the very nature of its object of study. We study things generally with knowledge. Logically then, epistemology calls upon us to study knowledge with knowledge. No wonder many people complain of epistemology as too mind boggling a subject to be given serious thought for study. Third, notwithstanding the vastness of the scope of this discipline and the difficulty of its subject matter, epistemology is still viewed by many people as a very important branch of knowledge thanks to its invaluable applications to many braches of knowledge.

This volume is precisely a treatment of epistemology in its various aspects and dimensions. It is especially welcome given the fact that books on the subject are rather few especially written by Muslims. Its author, Mulyadhi Kartanegara, formerly a Professor of Philosophy at the UIN (State Islamic University) Syarif Hidayatullah, Jakarta, Indonesia, is to be congratulated for coming up with this significant volume on a wide range of epistemological issues. He has succeeded to a certain extent in presenting these

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issues in a rather simplified way that are otherwise difficult in nature to deal with. Dr Kartanegara is intellectually qualified to deal with the subject. He did his doctoral dissertation on Islamic thought at the University of Chicago under the supervision of the late Fazlur Rahman, once the doyen of Islamic studies in the United States. He is well quite knowledgeable in traditional Islamic philosophy and modern Western thought.

Dr Kartanegara is a prolific author of books on traditional Islamic thought. Unfortunately till now, practically all his published works have been in the Malay-Indonesian language, which limits the scope of their readership. We hope beginning with this volume he will be publishing more of his works in the English language. This volume is comprised of lectures that were originally published in the Malay-Indonesian language but now extensively revised for the purpose of this publication. Given its wide range treatment of epistemological issues this volume would be of significant benefits to academics and scholars of various academic disciplines, particularly Islamic philosophy of science.

We wish Dr Kartanegara well at his new home institution, Sultan Omar 'Ali saifuddien Centre for Islamic Studies (SOASCIS), Universiti Brunei Darussalam. We hope he will find SOASCIS a congenial place for him to produce more meaningful scholarly works in his main field of specialisation. *Wa bi'Llah al-tawfik wa bihi nasta'in.*

Osman Bakar, PhD
Chair Professor and Director
Sultan Omar 'Ali Saifuddien Centre for Islamic Studies (SOASCIS)
Universiti Brunei Darussalam
28 Dhu'l-hijjah 1435/23 October 2014

Preface

The present work is actually a loose and up-dated translation of my own book in Indonesian language entitled *Menyibak Tirai Kejahilan: Sebuah Pengantar Epistemologi*, published by Mizan in 2013. It contains of 14 lectures on Islamic Epistemology. The initial idea of writing this book came to my mind after having orally delivered 10 lectures on the post-graduate programme at the State Islamic University (UIN) Sunan Kalijaga, Yogyakarta in 2002. After pondering upon the positive responses of the graduate students of the university and the importance of the materials, I decided to write down the 10 lectures already delivered, and to add four other lectures requested to complete the module.

Alhamdulillah, with the high spirit I had at the time, I could finish the draft of the book within 5 weeks in the manuscript (hand-written) form. Soon after typing the manuscript and providing it with necessary references, I offered it to the Mizan Press for publication, and, the offer was accepted. The book was published in the year 2013 with only minor changes from the original manuscript. Since its publication in 2013, the book has been used as a text-book for the module of Philosophy of Knowledge (Epistemology) at both public and religious universities in my country, Indonesia.

In 2013 I started working as a lecturer and researcher at the Sultan Omar Ali Saifuddien Centre for Islamic Studies (SOASCIS) Universiti Brunei Darussalam (UBD). As a researcher, I still consider the book important to be taught and known to international readers, and that was why I then took initiative to translate it into English with several significant changes in certain parts (especially chapters 5 and 10) and to update the old and inaccurate information in accordance with the availability of new references. It is also important to note that the present book omits a long foreword by

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Prof. Armahedi Mahzar of ITB Bandung, and this is replaced by a foreword by Prof. Datuk Osman Bakar.

But soon I realized that the work will not be possible without necessary facilities from the Universiti Brunei Darussalam and assistances from colleagues and friends. Therefore, in this opportunity, I would like to express my deep appreciation and gratitude to Prof. Datuk Osman Bakar, the director of SOASCIS for his sincere support, useful advices and especially his willingness to provide it with the foreword. I also would like to thank Professor Glenn Hardaker, the Sultan Hassanah Bolkiah Institute of Education (SHBIE), UBD for his critical and yet sympathetic comments on the work and Professor Shaikh Abdul Mabud of THE Cambridge University for his encouraging support and positive comments.

Further, I would like to express my sincere gratitude to all my colleagues and friends, who had contributed in different ways and levels to the completion of the book, especially Assoc. Prof. Jabal Buaben formerly of the University of Birmingham for his willingness to proofread the book and his very useful suggestions, Dr. Gubara Said Hassan of the Institute of Policy Studies (IPS), UBD who read certain chapters of the book, for his sincere support for publishing the book. Sincere gratitude also go to Dr. Gabriel Fouad Haddad, Research fellow SOASCIS, UBD for his proof-reading of the introduction to the book and encouraging comments, Dr. Mesut Idriz of Department of Social & Political Science Faculty of Arts & Social Sciences International University of Sarajevo for his nice words and supportive comments and finally to Dr Pg Norhazlin binti Hj Muhammad, the Deputy Director of SOASCIS for her warm support for the publication of the book.

I am also happy to express my gratitude to my employer, the Universiti Brunei Darussalam for providing me with generous financial support, necessary facilities and friendly atmosphere and to my former university, UIN Syarif Hidayatullah for bringing me up as a scholar and for allowing me to work temporarily at the UBD, and the last but not the least to UBD Press for their agreement to officially publish my book. Finally, I am grateful to my beloved wife Thien M. Setiawaty and children for their whole-hearted support toward the work and patience and understanding they had showed me during the preparation of the work.[]

Transliteration

Arabic Letter	Transliteration	Short	Vowels
ا	'	اَ	a
ب	b	بَ	u
ت	t	تَ	i
ث	th		
ج	j	Long	Vowels
ح	h	أَ	ā
خ	kh	وُ	ū
د	d	ي	ī
ذ	dh		
ر	r		
ز	z	وَاوْ	aw
س	s	يَايْ	ay
ش	sh	يَايْ	iy
ص	ṣ	وَاوْ	uww
ط	ṭ		
ظ	ẓ		
ع	'		
غ	gh		
ف	f		
ق	q		
ك	k		
ل	l		
م	m		
ن	n		
ه	h		
و	w		
ي	y		
ة	t		

Introduction

AS a philosophical study, epistemology (theory of knowledge) has not yet reached a sufficient level in the Malay world. In my country, Indonesia, and I believe also here in Brunei, we can hardly find good books on this subject by local writers. Even the few books that we may find are mostly still in introductory level. The fact that Jujun S. Surjasumantri's *Filsafat Ilmu: Sebuah Pengantar Populer*¹ has been reprinted several times, indicates not only its popularity but also the insufficiency of studies devoted to epistemology.

Even so, we should admit that the study of epistemology in its general sense is, as demonstrated by Juhaya S. Praja, still fares much better than that of Islamic epistemology. To my mind, Islamic epistemology is very important to cultivate as an alternative for the Western epistemological system that has so pervasively dominated the contemporary discourses on the subject everywhere, including the Malay world.

Maybe we can say that almost all epistemological works written by Indonesian scholars are still very much Western-oriented. Only a few works on Islamic epistemology have been written in that country. Even so, in their contents and analysis these works by no means represent the real essence of Islamic epistemology.

A book by Juhaya S. Praja, *Filsafat dan Metodologi Ilmu dalam Islam dan Penerapannya di Indonesia*² for example, does not discuss Islamic epistemology as comprehensively as expected. Miska Mu-

¹See Jujun S. Surjasumantri: *Filsafat Ilmu: Sebuah Pengantar Populer*, Second Edition (Jakarta: Sinar Harapan, 1985). See also another good book by Prof. Noeng Muhajir, *Filsafat Ilmu: Positivisme, PostPositivisme dan PostModernisme*, second Edition (Yogyakarta: Rake Sarasin, 2001).

² Juhaya S. Praja, *Filsafat dan Metodologi Ilmu dalam Islam dan Penerapannya di Indonesia* (Jakarta: Teraju, 2002).

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hammad Amin, the author of *Epistemologi Islam*,³ briefly mentions the views of Muslim philosophers (*falāsifah*) on the subject without any comparative analysis or criticisms of the Western epistemology. The work briefly describes the epistemological concepts of the philosophers, without even referring to their original works.

Today we are in dire need of an alternative epistemology capable of responding effectively to several important contemporary issues raised by the dominant Western epistemology, as well as conducting a creative and critical dialogue with it. Modern epistemology has posed a great challenge, if not a threat, to our system of education and belief. It is in this context that I hope this humble work can meet at least the minimal requirement for this alternative epistemology.

However, this does not mean that I don't like or hate Western epistemology or modern sciences. I just try to become a critical observer of Western science and philosophy. The Modern science, with its epistemology, cannot be put aside just like that. It has contributed a lot of discoveries and advancements. The restriction of science to the empirical fields is not without values and adventures. A good number of spectacular findings in the scientific fields have brought enormous and unprecedented benefits to humankind, such as that of electricity by Thomas Edison. Likewise, the discoveries in the medical field have produced many drugs badly needed by modern man and has cured so many diseases which in the past were thought as incurable, such as chicken pox, measles, leprosy. Modern scientific method, with its emphasis on sense perception and observation, has discovered many things unreachable in the pre-modern eras. Scientific researches into the sub-atomic world or outer space for example are among the great and spectacular achievements of modern science.

Even so these illustrious scientific achievements of modern science, in my opinion, should not hinder us from seeing its negative sides, especially its secular impact, on our religious doctrines. Hence, a critical and careful attitude should always accompany us

³In addition to the above mentioned book, another book on Islamic Epistemology is written by Miska M. Amin. See Miska M. Amin, *Epistemologi Islam* (Jakarta: UI Press, 1983)

Introduction

when we conduct our research and study on modern science and philosophy. At the same time I firmly believe that a critical attitude cannot be brought about if we study them from just one direction. Without a critical comparative study between modern epistemology and others, the critical mind will be very difficult to create, since we have nothing to compare between the two, just like it is very difficult, if not impossible, to know well what 'day' is without comparing it with 'night.'

Hence I would consider it important to study Islamic epistemology systematically and compare it critically with Western epistemology. I hope that the 'lectures' presented here can meet the above criteria. There are 14 epistemological themes which I would like to present in this humble work. The first three chapters are basically a philosophical exposition of some important technical terms in epistemological discourse, such as 'science, *'ilm* and opinion' (Chapter 1), 'science, philosophy and religion' (Chapter 2) and 'sense, intellect and heart' (Chapter 3). In the first chapter, I would like to point out that science and *'ilm* etymologically are not so much different. As 'science' in modern epistemology is differentiated from 'knowledge,' so also *'ilm* in Islamic epistemology is distinguished from 'opinion' (*ra'y*). 'Opinion' in Islamic tradition should be understood as 'knowledge' in the West.

However, since the end of the nineteenth century, the term science in the West has been restricted to empirical fields only, while in Islamic epistemology *'ilm* has continued to apply to virtually 'any organized knowledge' covering not only the physical sciences but also non-empirical ones, such as philosophy and theology.⁴ In the second chapter on 'science, philosophy and religion,' I would like to discuss the characteristics of these terms: 'science' basing itself on sense perception, 'philosophy' on intellect or reason, and 'religion' on the authority of revelation (*wahy*). In addition, here we will also mention the nature and excellence of philosophical and religious languages as compared to scientific language. The third chapter deals with the 'instrument' or 'source'

⁴ Statement that 'science' in the beginning of the nineteenth century was defined as 'any organized knowledge' has been put forwards by Professor Karier. See Karier, *Scientists of the Mind* (Chicago: University of Illinois Press, 1986), p. 7.

Essentials of Islamic Epistemology

of knowledge: sense, intellect and heart or intuition. Sense and intellect are doubtless highly appreciated both in modern and Islamic epistemologies, while heart or intuition is not so appreciated in the West. In Islamic epistemology, heart is highly appreciated, especially in relation to the mystical and prophetic experiences. Since it is through the heart, not sense perception or intellectual reasoning that prophecy is granted by God. Hence, the rejection of intuition as a medium of knowledge will imply the rejection of prophecy. It is from this function that the significance of the heart fundamentally derives.

The following three chapters deal with three main pillars of epistemology: the ontological status of objects, the ontological basis of knowledge and the scientific methods employed in both Western and Islamic epistemologies. The fourth chapter will address the ontological status of scientific objects as discussed in Islamic philosophy, which will certainly influence the nature of its scientific classification and the methods it uses. A philosophy that does not recognize the ontological status of non-physical objects will certainly influence the system of its classification and scope of knowledge. It is why, for example, in the West, science has been confined only to empirical or 'positivistic' fields, while an Islamic epistemology, which recognizes the ontological status of both physical and non-physical objects, will include into its classification of knowledge not only empirical disciplines, such as physics, biology and chemistry, but also non-empirical ones like theology, mysticism and philosophy. The question "How did Muslim philosophers establish philosophically the ontological status of scientific objects" will be fully addressed as the main subject of this chapter.

The fifth chapter will deal with the classification of knowledge, which includes not only physical-natural sciences, but also mathematical and metaphysical ones. However, this chapter will not so much discuss the classification of knowledge *per se*, but rather its ontological basis. This is important, for without it no scientific discipline can be established. This chapter will try to answer the question "on what basis are physics, mathematics and metaphysics included in the system of classification of knowledge in Islamic epistemology?" The sixth chapter deals with scientific methods employed in Islamic epistemology. It will answer the quest-

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ion “how can we obtain the objects of knowledge?” Since Islamic epistemology deals not only with physical objects but also with non-physical ones, Muslim philosophers do not use only one method, such as in the West, the ‘experimental method,’ but various methods in accordance with the different natures of its objects, such as ‘demonstrative method’ (*burhānī*), ‘intuitive method’ (*‘irfānī*) and ‘explanatory method’ (*bayānī*).

The next two chapters will address a deeper subject-matter in Islamic epistemology. How can we be so sure that knowledge in our minds (*adliḥān*) corresponds to the objects in the external world (*a‘yān*)? In pursuing this, chapter seven will critically question the ‘objectivity,’ frequently claimed by modern scientists, of our knowledge. This critical inquiry had brought about some doubts on the possibility of knowledge among philosophers both in Islam and the West, but chapter eight will show us how Muslim philosophers resolved this problem with their attempt to rationally approach the truth. Doubt or scepticism was considered valid by Muslim philosophers, but not as a legitimate school of thought. Doubt is just a way or method to radically question the foundation of knowledge in order to acquire the truth by using various scientific methods, or at least approach it as closely as possible--but again not as a philosophical doctrine or school of thought.

The following three chapters will discuss other yet more profound issues related to metaphysical matters. The ninth chapter will address the mystical experience in term of its possibility, both ontologically and epistemologically. Ontologically speaking, it will discuss the reality of mystical experience and epistemologically, its validity as a source of knowledge. The tenth chapter is still related to the mystical experience but focus on its ontological aspect. Some philosophers have written the so-called ‘visionary recitals’ describing for us their spiritual experiences, in form of transcendent voyages. Through these works, the philosophers tried to demonstrate that the physical world is not the only world we have. Through the mystical experiences they had, they could go beyond sensory perception into metaphysical worlds and become witnesses to the existence of these splendid spiritual worlds. The mystical experience is actually very closely connected to ‘prophecy’ which,

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according to Farid al-Dīn 'Aṭṭār, is the peak of mystical experience.⁵ The philosophy of this prophecy is the main topic of the eleventh chapter. This chapter will demonstrate, through the *falāsifa's* works, how prophecy (*al-nubuwwah*) is philosophically or rationally possible.

The last three chapters will be addressed in the context of Islamization of knowledge. In order to understand its significance and to make more sense of it, two important terms should be separately discussed in advance: the first is 'naturalization' of knowledge and the second is its 'secularization'. These two terms will be dealt consecutively in chapter 12 and 13. Chapter 12, entitled the 'Naturalization of Knowledge' will demonstrate "how science has been adapted to certain cultural and ideological circumstances" in its long course of history, which Professor Sabra of Harvard termed 'the naturalization of knowledge.'⁶ The significance of it is that science has always been influenced by people who develop it, which makes an absolute freedom from subjectivity impossible. Chapter 13 will discuss the 'secularization of knowledge' which has created some crucial problems for Islamic epistemology and has become the main source of crisis in the Islamic education system. In our present context, it is the main reason for the importance of the Islamization of knowledge. The last or fourteenth chapter will specifically discuss the 'Islamization of knowledge' as carried out in various countries in the Muslim world, including its possibility, reason, significance, concepts, and applications. All these are serious attempts by a number of Muslim scholars and institutions to cope with the crisis in the Islamic system of education caused by 'secularization of knowledge.'

I will conclude this work by drawing some important conclusions by way of representing the core thesis of each chapter, followed by a number of critical remarks and a lot of steps that need

⁵See Farid al-Dīn 'Aṭṭār, *Muslim Saints and Mystics: Episodes from the Tadhkirat al-Awliyā'* (*Memorial of the Saints*), translated by A.J. Arberry (London: Routledge & Kegan Paul, 1966), p. 59.

⁶See Toby Huff, *The Rise of Early Modern Science: Islam, China and the West* (Cambridge: Cambridge University Press, 1993), p. 63.

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to be taken for future research on epistemology in general and Islamic epistemology in particular. I really hope that this work will encourage more serious and comprehensive works, which are well beyond the scope of an introductory work like this. Finally, beyond its simplicity and modest scope, I hope that this work can still give some benefits to its noble readers, especially those in search of a more balanced scientific outlook more suitable to our cultural and religious values. []

27 Rajab 1435/ 27 May, 2014.
Bandar Seri Begawan-Brunei

Mulyadhi Kartanegara

Chapter 1

Science, *'Ilm* and Opinion

One of the most important terms in modern discourse on philosophy of knowledge or epistemology is 'science,' which is commonly differentiated from 'knowledge.' It is not really clear, however, whether the term science is the same or different from word '*ilm*. Sometimes, '*ilm* is considered to be similar to science, but quite often it is rendered as knowledge. Sometimes in the Malay language the word *ilmu pengetahuan* is used to refer to a science which differs from *pengetahuan* (knowledge).

The term '*ilm* in Islamic epistemology, in my opinion, has many similarities with the term science in the Modern epistemology or theory of knowledge. For example, as science is differentiated in the modern epistemology from knowledge, so also '*ilm* is differentiated in Islamic epistemology from opinion (*al-ra'y*).¹ Furthermore, science is defined as "any organized knowledge,"² '*ilm* is defined as "knowledge of something as it is."³ From this, we realized that '*ilm* is not just any knowledge or any opinion, but is a well proven and established knowledge. Hence, we can conclude that in reality the concept of '*ilm* is not so different from that of science, except that while science has been restricted into physical and empirical fields. '*ilm* transcends the physical fields to include non-

¹ See Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam* (Bandung: Mizan, 2002), p. 57.

² Karier, *Scientists of the Mind* (Chicago: University of Illinois Press, 1986), p. 7.

³ Al-Baqillānī defines '*ilm* as *ma'rifat al-shay' 'alā mā huwa bili* or 'knowing something as it is.' See Franz Rosenthal, *Knowledge Triumphant: The Concept of Knowledge in Medieval Islam* (Leiden: E.J. Brill, 1970), p. 53.

Science, 'ilm and Opinion

physical fields as well, like mathematics and metaphysics. This affinity between 'ilm and science has been supported by Professor Karier, the author of *Scientists of the Mind*, in the statement, that "...in the beginning of the nineteenth century, science was understood as any organized knowledge, which includes also theology."⁴ It is in this latest sense that the affinity between 'ilm and science should be apprehended.

Now, let us discuss these two important concepts, 'ilm and science, in more detail way. In order for us to understand the position of 'ilm in conjunction with science, and by assuming that "science" had been known prior to 'ilm by most modern intellectuals, we will begin the discussion with science and only then I discuss 'ilm. Opi-nion will not be addressed in length for it is sufficient for us to understand it as any or common knowledge whose truth is not yet approved or established, or in a sense, it likes a common sense.

According to *Webster's New World Dictionary*, the word science derives from a Latin verbal word, *scire*, which means to know. Lexicographically, science means "a state or fact of knowing and very often is taken in the sense of knowledge contrasted from intuition or belief."⁵ However the word science in the course of time has undergone a significant change in meaning so it became "a systematic knowledge derived from observation, study, and experiments conducted to figure out the nature or principle of object under investigation."⁶ Therefore, there was a transformation in meaning of science from "any organized knowledge" to "a systematic knowledge based on the sense perception."⁷ This trend later has led to confining the scope of science only to the physical world. This transformation can be clearly seen in another definition of science by the same dictionary as "a systematic knowledge of the physical world."⁸

⁴ See Karier, *Scientists of the Mind*, p. 7.

⁵ *Webster's New World Dictionary of the American Language* (Cleveland and New York: The World Publishing Company, 1962), p. 1305.

⁶ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

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As a systematic knowledge, science is not so unique, for all kinds of proper knowledge, including theology and metaphysics, should be systematic or organized. The unique characteristic of science will come to the fore only when this systematic knowledge is deemed to be derived solely from observation, and by this it means sense perception, with or without using tools, such as microscope or telescope. By imposing observation or sense perception as the only valid source of science, science must be empirical in nature, regardless of whether it deals with physical, chemical, or biological, psychological and sociological fields. All scientific disciplines should be empirical, i.e. should be proven and observed through senses. Experiments can be conducted to inorganic objects, such as atom or molecule, or living objects, such as plants and animals (rats, monkeys or dogs) as far as the experiments can be verified and observed by senses or sense perceptions. In psychology, for example, experiments can be done to human beings (usually done to the brains neurological system), provided that it is empirical so that it is measureable. And in order to be empirical and measurable, the objects of science should be physical or using August Comte's terminology, 'positive.' For this reason, science should be positivistic in nature. This is the most fundamental characteristic of science, which, as we will see in our discussion on the secularization of knowledge, has proven to be very significant impact some people's religious view and has dragged some towering figures in modern science such as Laplace, Darwin, Freud and Durkheim into atheism.⁹

In spite of that, there is still one very important issue related to the characteristic of science: mathematics. If the object of science must be empirical or 'positive,' the question will be what is exactly the scientific position of mathematics? Is mathematical object empirical? At the first glance, it seems there is no doubt that mathematics is science, hence the term mathematical sciences. So also there is no doubt that mathematics—in its basic level—is always related to, or abstracted from, physical objects, although in itself it

⁹ The impact of modern science upon the system of belief will be addressed in chapters to come, since in this chapter the main purpose is to explicate the nature of science and its definition.

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is no longer physical. But it is exactly here that we find a crucial problem: If the mathematical objects are in themselves not physical or empirical, how can it be considered to be a science and not simply an instrument or tool of science? The answer is not really clear. According to Paul Davies, in his book *The Mind of God*, the mathematicians are divided into two groups. One group like Platonist points out that mathematical objects have a clear ontological status, while other rejects it, saying that mathematics is only a tool of science. He says, "...already by the time of Plato some philosophers asserted that mathematics possessed an existence of its own."¹⁰ However, from my brief reading, it is somewhat clear that mathematics can be classified into exact sciences. Therefore, it is the exactness of mathematics, and not its ontological status that probably justifies the inclusion of mathematics into the category of science.

Now, let us turn to discussion on definition and characteristics of 'ilm. The term 'ilm derives from an Arabic verbal word 'alima, which means literally "to know." Thus, the word 'ilm semantically speaking is not different from science which derives from a verbal Latin word 'scire' which also means "to know." Terminologically, however, 'ilm is difined, for example by Ibn Hāzım, as "knowledge of something as it is" (*ma'rifat al-shay' 'alā mā huwa bih*).¹¹ This sense of 'ilm as knowledge of something as it is implies that 'ilm is not just any knowledge based on opinion or false impression of senses. 'Ilm is knowledge whose truth has been tried, proven and established by facts and evidences, and not just an opinion or an assumption. In other words, 'ilm possesses all the criteria science has as a systematic and organized knowledge. However, it is important to bear in mind that 'ilm does actually have fundamental differences from science in other respect: the scope. While science has restricted itself to the empirical-positive fields,

¹⁰Nevertheless, he continues, "many mathematicians retain the belief that mathematics is only an invention of the human mind." See Paul Davies, *The Mind of God: The Scientific Basis for a Rational World* (New York: Simon and Shuster, 1992), p. 108.

¹¹ See. Franz Rosenthal, *Knowledge Triumphant*, p. 54.

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'ilm includes not only empirical fields but also non-empirical ones, such as mathematics and metaphysics.

The question now is: "Is it the inclusion of mathematics and metaphysics into 'ilm philosophically possible? Muslim scientists, if they intend to know empirical-physical objects as they are, would conduct a careful research--through observation and experiment - on the objects as objective as possible by utilizing a scale or other measurements. For this purpose, they have created a sophisticated system of measurement, such as made by al-Birūnī, to weight and measure accurately certain physical objects, especially metal or other mineral substances. Due to this measurement and scale, he has succeeded in figuring out the specific weight for different physical elements, known in the modern physics as 'specific gravity.'¹² Perhaps, the most famous book on weighting *Kitāb Mīzān al-Hikmah* by 'Abd al-Raḥmān al-Khāzinī by utilizing the works of Archimedes and Muslim predecessors, such as al-Nayzirī, and especially, al-Birūnī. Similarly, in order to improve certain scientific theories prior to their times, Muslim scientists had conducted a lot of scientific experiments, such as carried out by Ibn Ḥaytham on the theory of direct vision as described by himself in his *Kitāb al-Manāẓir*, or astronomical observations as done by al-Qūshī and his friends, or by Naṣīr al-Dīn Ṭūsī and Quṭb al-Dīn al-Shirāzī at Maraghah.¹³ Of course, these scientific activities were not so much different from the modern scientific pursuits, except that the technical procedures and scientific instruments of the latter were probably more refined and sophisticated so that they found and invented some more spectacular breakthroughs. But, the principle and the nature of their scientific activities remain the same.

¹² S.H. Nasr defines specific gravity as "specific weigh of a substance." He compares the result of al-Birūnī's measurement with that of modern one. Their measurements are sometimes the same, as in the case of gold, but at other time, are slightly different, as in the cases of other elements. See for a more detailed description Nasr, *Science and Civilization in Islam* (New York: New American Library, 1968), p. 140.

¹³ See, Toby Huff, *The Rise of Early Modern Science: Islam, China and the West* (Cambridge: Cambridge University Press, 1993), p. 57.

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However, had this scientific investigation halted at the empirical fields, 'ilm will be no different from science. 'Ilm is different from science exactly because it transcends the physical realm and steps into non-physical fields such as mathematics and metaphysics. Like in Modern epistemology, in Islamic epistemology, mathematics also is considered as a science, but with different reason. The reason to include mathematics into 'ilm in Islamic theory of knowledge is, in my view, more substantial than in modern one. For while in modern epistemology mathematics is categorized as 'ilm due to its 'exactness,' in Islamic epistemology the inclusion is based on the ontological status of mathematical objects. Thus, when science has made physical entities as the objects of its investigation, since these entities have clear ontological status, 'ilm has made mathematics as a legitimate science because the objects of mathematics, in the view of Muslim scientists, have clear ontological status like that of physical objects even though they are not physical. According to Muslim philosophers, especially al-Fārābī and Ibn Sinā, there are objects of knowledge necessarily connected to physical bodies and movements.¹⁴ But there are also objects that, in themselves, are not physical but still have relation with physical entities and finally there are objects of knowledge which are non-physical and have no relation with physical entities. Mathematical objects, in this case, belong to the second category, that is, the objects that in themselves are not physical, but still have relations to physical objects. Nevertheless it is important to note that, although they are not in themselves physical, mathematical objects are considered by Muslim scientists or philosophers as valid objects of 'ilm as the physical objects, because they have their own definite ontological status.

Apart from these physical and mathematical objects, 'ilm also includes the metaphysical objects or entities. Like the physical and mathematical objects, metaphysical objects also have a fixed ontological status. Metaphysical objects, such as God, angels, jinn and the spirit are as real as physical or mathematical objects are.

¹⁴ Osman Bakar, "Science," In S.H. Nasr & Oliver Leaman, *History of Islamic Philosophy*, vol. 2 (London: Routledge, 1996), p. 935.

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Therefore, theology, angelology, eschatology, psychology, ontology, and cosmology, and philosophy are considered to be the legitimate branches of knowledge (*ilm*). These sciences (*ulūm*) have secure scientific status which is as strong as that of physical and mathematical sciences. For some scholars its scientific status is loftier than that of physics and mathematics since it occupies the highest rank of sciences. For this reason, they called it "the crown of knowledge," probably similar to the position of physics in modern times as 'the Science.'

This is our view on science and *ilm*, in term of its similarities and differences. From this we can conclude that in the beginning *ilm* and science have similar definition and even scope. But later science restricted itself only to the physical world (with all its complexities), while *ilm* remains covering not just physical objects but also mathematical and metaphysical ones. As for opinion (*al-ra'y*), as previously mentioned, is a simple knowledge or any knowledge whose truth is not yet proven through a rigorous scientific investigation or verification.

Finally, we would like to look at the relation between religion and science. It is very often stated that science does not contradict religion. Therefore, science should not be posed against religion. In principle, I agree with this statement, but my question is which science are we talking about? Al-Qur'an stipulates the existence of beneficial and harmful knowledge. For us any knowledge or science developed hand in hand with religion is beneficial and must not contradict religion and its principal doctrines. However, any science developed without considering God and whose proponents rejected Him in the name of scientific procedures and methods should be carefully scrutinized. For example, any astronomical theory which considers useless to relate the nature to God, simply because He is unseen,¹⁵ is contradictory to the religion. Therefore we realize that not all sciences are beneficial and supportive of religion. Even there exist sciences whose theories contradict the

¹⁵ Laplace, for example, has considered God as an unneeded hypothesis. See Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam* (Bandung: Mizan 2002), p. 88.

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principle of religion. Sciences like these clearly are contradictory and harmful to religion, and therefore they should be studied and treated them very carefully and critically. Meanwhile sciences that study natural phenomena as the signs of God, wherein His attributes (*ṣifāt*), such as His wisdom, greatness, beauty, kindness etc. are explained beautifully and correctly, such sciences are not only in harmony with religion, but also noble or sacred. Therefore, we should not so easily and uncritically say that science does not contradict religion, without knowing clearly in mind which science are we talking about.[]

Chapter 2

Science, Philosophy and Religion

1. Science

SCIENCE, as mentioned before, is 'a systematic knowledge of the physical world.'¹ Science has diligently and profoundly studied all aspects of the physical world, so that it became the most comprehensive study of the universe. Even in its development, science has managed to formulate its own unique world-view apart from, and very often contradictory with, philosophical and religious views. Let us talk about these three terms more detailed.

The restriction of scientific scope into the physical or empirical fields has rendered its world view secular-materialistic. Cosmology created by science does not introduce spiritual elements such as God, angels or spirit, which commonly embellish (or even become very important component in) a traditional cosmology.² Scientific cosmology is basically a composition of physical cosmos, starting with the solar system, with the sun at the centre surrounded by several planets including our earth, our galaxy, the Milky Way, where our solar system, occupying only a small spot in it, has revolved together with hundreds of millions other stars around its nucleus. In this cosmology, our galaxy in turn is depicted as a small spot in the whole universe housing possibly billions of galaxies. The galaxies are believed (or proven) to ever expand by way of distan-

¹ See *Webster's New World Dictionary of the American Language* (Cleveland & New York: The World Publishing Company, 1962), p. 1395.

² For example, Ibn Sinā's cosmology is replete with spiritual agents called intellects ('*uqūl*) and souls (*anfus*). See Goodman, *Avicenna* (New York & London: Routledge, 1992), p. 81.

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cing from each other in a certain system of the universe, called the Expanding Universe.³ Moreover, in recent theories, this vast expanding universe has been believed to be one out of many universes.⁴ In this world view, the universe has been divorced from any intervention of external agents, such as God or angels, and it is believed that the universe has been run by its own natural law, which is independent, deterministic and unchangeable: a self-creating natural law without any external author.

Likewise, in such a world view, man has lost his spiritual dimension. Man has been viewed as merely physical creature with a sophisticated system of brain and nerve, but fails to create a soul as an immaterial substance. Man has no a special position in this universe, as usually given by philosophy as a microcosm, or by religion as God's vicegerent (*khalfifah*). Likewise, our Earth has no outstanding position such as conceptualized by religion or traditional cosmologies as the centre of the universe, for, as a matter of fact, the earth is no more than one of the nine planets revolving the sun. Therefore, in the scientific world view, man has no central and unique position in the cosmos. Man is no longer considered as a result of God's grand design or plan, needless to say as the ultimate purpose of creation, as believed by some Sufis,⁵ but simply as an accidental event in the universe—nothing more. Man's position in the universe is, therefore, very insignificant like an extremely fine dust in a very vast desert of the universe. In this kind of world view man does not have a clear origin. Man is just a biological creature who begins his life career in this world when he is born and will end at the same place when death comes. There is nothing transcendent about him, and there will be nothing surviving beyond the kingdom of this physical world, and there will be no 'returning place' except this very place where he was born.

³ For further explanation on the concept of the expanding universe, see Stephen Hawking, *A Brief History of Time*, especially chapter 3 (New York & London: Bantam Book, 1998), pp. 37-54.

⁴ See Mehdi Golshani, "Science and the sacred," in *the Proceeding of the International Seminar on Science and Religion*, held in Yogyakarta, Indonesia 2-5 January 2003, p. 7.

⁵ See Mulyadhi Kartanegara, *Menyelami Lubuk Tasawuf* (Jakarta: Erlangga, 2007), pp. 72-73 and Mulyadhi Kartanegara, *Jalal al-Din Rumi: Guru Sufi, Penyair Agung* (Jakarta: Teraju, 2004), p. 60 and 62.

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The strong materialistic tendency of science has encouraged it to apply various reductionist approaches to living creatures, including man. Other living creatures like plants and animals have been viewed as merely an increasing complex of chemical composition, but all can be reduced to some physical-chemical forces, which, like other things in the universe are governed by the same universal deterministic mechanical law. Likewise, man who has been looked at by philosophy or religion as having noble possessions such as soul, heart, and spirit has also been reduced by science into an extremely complex system of nerve and brain.⁶ In addition to it, human goal and freedom has been looked at as illusory by modern scientists, soon after they discovered that all human acts are no more than a deterministic response to external or internal stimulus. Freud, for example, states that human consciousness is just like a small part of iceberg popping up on the surface of the sea, while the most part of it, hidden below the surface, is the unconsciousness.⁷ This unconsciousness almost deterministically drives the acts of our consciousness. In biology, man has become an entity so forcefully determined by genetic factor, within which DNA is a binding mechanical law that dictates almost literally man's attitude, behaviour, character or even response to internal or external stimulus in life.⁸ Consequently, the freedom of choice that man should have as a moral being, will be very significantly threatened, soon after scientists find out that human freedom is not so real, even for some it is merely an illusion.

There is no doubt that science is the best result of man's sense perception and observation of the physical world. Even so, we are of the opinion that at a certain point, science has moved almost

⁶ At least, this is our impression upon reading neurological and physiological works. Even, the rejection by many scientists, as signaled by Ian Barbour, of dualism between mind and brain tends to negate a more abstract concept and their preference towards the brain, so this mind is considered simply as the neurological function of the brain. See Ian Barbour, *Juru Bicara Tuhan: Antara Sains dan Agama*, translated from Ian Barbour, *When Science Meets Religion* (Bandung: Mizan, 2000), p. 247.

⁷ See Holms Rolston III, *Science and Religion: A Critical Survey* (Philadelphia: Temple University Press, 1987), p. 157.

⁸ See Ian G. Barbour, *Juru Bicara Tuhan*, especially the chapter that talks about genetic determinism and human freedom, pp. 240-242.

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unnoticed to a metaphysical field which belongs properly to philosophy and religion. The restriction of science to empirical and physical fields has gradually encouraged it to formulate its own materialistic philosophy which strongly believes that matter is the only fundamental reality, upon which others are based or derived. This movement from facts to speculation can be seen clearly, for example, from some famous statements of the great modern scientists, such as Laplace, Darwin, Freud, Durkheim and Marx, which I have discussed in length in my work, *Menembus Batas Waktu*,⁹ which in essence they rejected in different ways the metaphysical and spiritual reality.

2. Philosophy

With this as a transition, let us now turn to the second topic: philosophy. If science relies upon sense perception, philosophy bases itself on rational reasoning. And this is so due to their peculiar subject-matters: science investigates facts and philosophy ideas. But it does not mean that there is no close relation between the two. Therefore, it so frequently happened that theories prevalent in scientific fields took their inspiration from philosophy, especially in the classical and medieval times,¹⁰ or it is just the opposite, a philosophical view is a reflection, or is greatly influenced by scientific theories, as it quite often happened to some philosophical systems of thought in the modern and contemporary times.¹¹

Of course, like science, philosophy is also a systematic knowledge (and for this reason, in Islamic epistemology it is considered to be an *'ilm*, while in the West it is not science). But it will not become a philosophy if it restricts its investigation only to the physical fields like science does. Unlike science, philosophy operates on a higher plane than the physical world, and that is why Comte called

⁹ See MulyadhiKartanegara, *Menembus Batas Waktu*, pp. 80-90 and 147-156.

¹⁰ Actually the influence of philosophy on science happened not only in the classical ages, when the influence of Aristotelian philosophy on later scientific theories was very obvious, but also in the modern times, when almost all the modern scientific theories have been very significantly influenced by Positivism.

¹¹ However, the influence of science upon philosophy can also be discerned, for instance, in Deism, which was very profoundly influenced by Newton's physics.

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it 'metaphysics' i.e. beyond the physical world.¹² Muslim philosophers would say that science deals with sensory objects (*al-mahsūsāt*), while philosophy with rational objects (*al-ma'qūlāt*).¹³ If these sensory objects can be perceived by senses, rational objects can only be conceived by reason (*'aql*). Therefore, I tend to say that the objects of philosophical inquiry centred upon ideas, thoughts, or concepts, so that its investigation will involve more rational and logical reasoning than sense perception and observation. This is why in the Modern epistemology which raises doubt on the ontological status of ideas, philosophy is not considered as a science, while in Islamic epistemology, which affirms their ontological status, philosophy has been categorized as a science, like physics and mathematics.

If science is capable of forming its own world view, so surely philosophy, dealing mainly with ideas, will be far more capable of formulating its own world view than science is. Having a wider scope of investigation than science, philosophy is more capable of formulating a distinctive world view, richer in content than science, since it can introduce non-physical dimensions into its explanation. Thus, in our opinion, philosophy can significantly enrich and make up for the scientific world view, which, due to the limit of its investigations, cannot be carried out so easily by science.

From the above discussion, it is clear that philosophy has flexibility in developing its world view than science. And with this flexibility they possess, philosophers can have a picture of the world to be more creative, and to some extent, more elegant. Just to take one example, with the imagination or intensive search of their logic, the philosophers can picture the world not as an ultimate reality as described by secular and materialistic scientists, but as the great work of an external Agent, who has designed it neatly and symmetrically, so it runs in an extremely systematic and harmonious way. The external Agent, that we usually call God, sometimes acts as a cause, that is, the First Cause (*Prima Causa*),¹⁴ that has

¹² See, Anthony Flew, *A Dictionary of Philosophy*, revised second edition (New York: St. Martin Press, 1984), 69.

¹³ For a fuller discussion on *mahsūsāt* (the sensibles) and *ma'qūlāt* (the intelligibles), see Mulyadhi Kartanegara, *Menembus Batas Waktu*, p. 56.

¹⁴ Antony Flew, *A Dictionary of Philosophy*, p. 69.

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brought all we can see in this world into existence, as the effects, or sometimes as the First Mover (*Prima Mover*),¹⁵ who became the first cause of all movement of everything that exists in this world, or in other time as the Attraction,¹⁶ as stipulated by Aristotle, toward which all mineral elements, plants and animals (including human beings) are attracted, just like certain metals (nail, needle and pin) are attracted toward a magnet, without necessitating it to move, or like bugs attracted toward a beautiful flower.

In addition, philosophers can also illustrate the effect or influence of this External Agent on the world in peculiar ways. Sometimes God is depicted as the direct cause of every movement or event in this world,¹⁷ or as indirect cause by delegating His authority to nature (*al-ṭabī'ah*), or through other agents, like intellects or souls, or in religious language, angels. However they describe the relation between the External Agent and the world, it is clear, that this universe has never been seen by (Muslim) philosophers as an independent or autonomous reality, as modern scientists will probably like to see, but a well-designed product of God who has created it with certain purpose and wisdom. Moreover, all powers which modern scientists call "the natural forces" such as weak and strong (nuclear) forces, electromagnetic, and gravity,¹⁸ are always connected by Muslim philosophers, like al-Fārābī, Ibn Sīnā, and Ibn Rushd, to a transcendent cosmic power. Ibn Sīnā, for example, states that interaction among material elements, or even among atoms, cannot be referred to their own selves, but to the influence of the Active Agent (*al-'aql al-fa''āl*) and

¹⁵ Thomas Aquinas has called it 'the First Unmoved Mover' or the first mover that does not move nor being moved by other. See Antony Flew, *A Dictionary of Philosophy*, p. 19.

¹⁶ Abū Sulaymān al-Sijistānī, a tenth century Muslim philosopher, once explains how God can attract others (nature) towards Him without He Himself moves by comparing Him with a king who just sits on the throne to gather His subjects in a procession. See Joel Kraemer, *The Philosophy in the Renaissance of Islam* (Leiden: E.J. Brill, 1986), p.

¹⁷ The Ash'arite theory of atom, or the so-called 'Occasionalism,' is one of theologico-philosophical schools which sees God as a direct cause of whatever happens in the world.

¹⁸ The explanations on these four natural forces, i.e. gravity, electromagnetic, the weak force, and the strong force can be found in Stephen Hawking, *A Brief History of Time*, pp. 72-75.

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of the celestial bodies.¹⁹ Likewise, some faculties uniquely possessed by plants or animals are not simply natural, but also transcendent, so they are called *nafs* or soul.

These philosophers also have a nobler view on man. Man, viewed by modern scientists as merely a physical-chemical creature, has been called by both philosophers and Sufis (Muslim mystics) as a microcosm, since, even though man's physical size is very insignificant compared to the universe, he is believed to contain all the cosmic elements, mineral, vegetable, animal, and spiritual.²⁰ Man has also been considered by them in a more dignified way as a moral being since they believe that man has, to a certain extent, a free will or free choice in the form of voluntary acts.²¹ Here they are talking about a real, not vague freedom as conceived by some previously mentioned modern scientists. In the same way, the 'philosophical' man is defined as one who has a self-consciousness and intellect, as well as an independent and spiritual soul,²² and not just having a brain and nerve system as suggested by modern physiologists and neurologists. It is this spirituality that guarantees the survival of the soul (or intellect in philosophical terminology) after death to bear the responsibility in front of the Creator. Another thing that philosophy can contribute is related to the theory of evolution. Evolutionary movement described by scientist, like Darwin, as consequence of an independent mechanical law, called 'natural selection,' has long been viewed by Muslim philosophers or mystics (Sufis) as a consequence of the attraction of the External Agent or God, to whom all particles of the universe are attracted

¹⁹ See Herbert A. Davidson, *Alfarabi, Avicenna & Averroes: On Intellect* (New York & London: Oxford University Press, 1992), p.72.

²⁰The description of man as the microcosm can be seen in my works, *Menyelami LubukTasawwuf*, p. 10, and *Menembus Batas Waktu*, pp. 48-51.

²¹ Muslim philosophers and theologians have divided human acts into natural and voluntary. It is through the voluntary acts that they affirm human freedom. For a further discussion on this issue, see MulyadhiKartanegara, *Menembus Batas Waktu*, p. 26-29 and Fazlur Rahman, *Avicenna's Psychology*, p. 32.

²² The independence of the soul from matter can be seen, for instance, from Ibn Sinā's theory of 'the Floating Man,' where he proved that soul is an independent spiritual substance capable of surviving the physical death. See Goodman, *Avicenna*, p. 155.

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and getting closer.²³ He is an extraordinary charm, a brilliant and beautiful light towards which all lotuses are inspired to search and fly from their dark hidden places under the earth.

3. Religion

Now, we come to the third topic, after science and philosophy, i.e. religion. Unlike science that relies on sensory perception and observation and philosophy based on rational and logical reasoning, religion is basically based on revelation (*wahy*). 'Basing itself on revelation' will mean 'basing itself on authority,' i.e., the authority of the recipient of revelation (called in Islam Nabī—prophet) as the most trustworthy messenger of God. And that is why religious sciences (*'ulūm al-din*) are named as the transmitted sciences (*al-'ulūm al-naqliyyah*) not rational ones (*al-'ulūm al-'aqliyyah*). The purpose of religious sciences is, according to Ibn Khaldun, practical, that is "to guarantee the execution of religious law (*Shari'ah*) by adherents, while that of rational sciences is to know something as it is."²⁴

Like science and philosophy, religion can also have its own world view which is surely different from the scientific view, and not quite similar to the philosophical one. To religion, for instance, the universe, with all its contents, is by no means an independent or ultimate reality, but the sign of God.²⁵ The universe is thus a clear sign or indication, whereby man is expected to find a way toward Him. Since the universe consists of the signs of God, studying it will mean exploring and searching for the traces of God (*Vestigia Dei*), and it is understandable that studies on it, in Islamic view, will and can increase our belief in God, instead of a rejection of His existence, as done by Great modern scientists like Laplace, Darwin, Freud and others.

Moreover, according to religion, the universe is a creative work of God who has created it with certain plans and purposes. It

²³ Mulyadhi Kartanegara, *Renungan Mistik Jalāl al-Dīn Rūmī* (Jakarta: Pustaka Jaya, 1986), p. 76.

²⁴ See Muhsin Mahdi, *Ibn Khaldūn's Philosophy of History* (Chicago: The University of Chicago Press, 1971), pp. 77-79.

²⁵ The Qur'an: 2: 164.

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is a great work of its Creator. Sir Muhammad Iqbal once stated that this world is a creative field of God;²⁶ therefore to learn how nature works will be similar to enquiring the way God works and creates, or in other words, to know His behaviour or custom (*sunnat Allāh*). Moreover, since nature is God's great wonderful work having a very finely tuned system, to learn it will make us understand how wise, intelligent and great its Creator is.

In the eyes of religion, God is close to nature. For instance, God has been described in the Qur'ān as being responsible for sending down the rain as His blessing for humankind. He enlivens the dead earth and causes springs to gush forth from it. He also causes the varieties of fruits and flowers to grow and blossom.²⁷ He also provides ample water for wells after being dry for a while, and provides man with various vegetables, fruits and roots. He also has created for man many kinds of animals for different uses, such as for riding (horse, camel, buffalo, donkey, etc.), foods (meat) and drinks (milk).²⁸ All these things are described by religion as direct works of God. Even so, sometimes He works indirectly through some intermediary agents, such as angels with various tasks or jobs. For example, Gabriel has been assigned to bring down revelation (*wahy*) to prophets or messengers, and *Raqīb* and *'Atid* to write down man's acts or doings, good or bad, and so on. Whatever the nature of God's relation to nature, direct or indirect, one thing is clear that nature cannot and will never be independent from God's will and wisdom, and also will never be void of spiritual and divine providence. So, this rich and dynamic view of religion is surely different from a lonely and cold scientific world view, being stripped off from any supernatural elements.

Like philosophy, religion provides man with a lofty position in the cosmos, for however small and insignificant the human body may be, man has been appointed the vicegerent (*khālī-fah*) on earth,²⁹ a position that has never been given by any other philosophy and ideology, even by modern humanism that puts man as the

²⁶ Sir Muhammad Iqbal, *The Reconstruction of Religious Thought in Islam* (New Delhi: KitabBhavan, 1981), p. 43.

²⁷ The Qur'ān: 36: 33.

²⁸ The Qur'ān: 36: 73.

²⁹ The Qur'ān: 2: 30.

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main subject. Being the vicegerent of God, man has also been given a wide authority to manage the world and his life as long as it does not contradict His wills and regulations. And in order to facilitate the execution of the duties as the *khalifah*, God has given man countless bounties and goods (*ni'am*) on earth, since it is said in the Qur'an that "He has made whatever on earth for mankind."³⁰ As His vicegerent, man has been conferred rights, duties, and regulations for his life and religious laws as guidance to reach salvation. Religion provides us with meticulous explanations of many different things which cannot be possibly offered by science nor can be digested solely by reason, such as the fate of man after his demise, his state in grave and after the resurrection (*qiyamah*). Only religion, through revelations, sent down to God's messengers, can disclose clearly and authoritatively these unseen (*ghayb*) worlds, not science, and not even philosophy.

From this analysis, we can see how religion can still give a higher and more beneficial meaning to complete scientific and philosophical views, for it speaks with a symbolic and mythical language that is able to enrich our ordinary outlook. It is for this reason that Ernst Cassirer and Suzanne Langer say that religion should not be worried about being pushed aside by the scientific view, since these two 'entities' have their own contribution to human understanding. While science lends us a theoretical mode to reality, the mystical consciousness, as marking religious view, lends us mythical mode to it. Although they are different, these two modes can be looked at as specific and unique refraction index.³¹

With this I will close the second chapter on science, philosophy and religion, with all their differences and implications to the world views they have built up in their own ways, and I hope it will enable us to have a better and more clearly defined view and understanding out of these three epistemologically very important topics.[]

³⁰ The Qur'an: 2: 29.

³¹ Walter H. Capps, *Religious Studies: The Making of a Discipline* (Minneapolis: Fortress Press, 1995), p. 213.

Chapter 3

Sense, Reason and Heart

ANY theory of knowledge or epistemology cannot escape from talking about the source of knowledge for human beings, whereby one obtains all material needed. These sources, according to Islamic epistemology are three: sense, reason and heart. Let us begin with sense. As a source, or tool of knowledge, of course, sense is very important. So important is the sense that certain philosophical schools, such as Empiricism, claim that it is the only source of knowledge.¹ It is through sense that we know the world around us. With eyes we can observe and know the form, colour, characteristics of many things in this world. With ears we get to know another dimension of the physical objects that cannot be perceived by eyes: sound. Likewise, with the tongue we can perceive another dimension, i.e. taste (bitter, salty, sweet, etc.) which cannot be perceived by the eyes nor heard by the ears. No less important than these is the sense of smell. It can perceive yet another aspect of the physical object which cannot be seen, heard or even felt, i.e., smell, which makes possible for us to differentiate between good smells (of flower, perfume) and bad smells (of rotten meat or dead animals). Like the sense of smell, the sense of touch is also important in order for us to differentiate between hot and cold, smooth and rough, soft and hard that cannot be perceived by other senses.

Before going on to discuss 'sense' as a source of knowledge, we should mention something about other functions of sense as the

¹ William P. Alston points out that as an epistemological doctrine, empiricism holds that all knowledge is eventually based on experience. And by experience here, it means 'sense experience.' See William P. Alston, "Empiricism," in Edward Craig (Ed.), *Routledge Encyclopaedia of Philosophy* (New York & London: Routledge, 1998).

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tool of adaptation and that of survival. Eyes, for example, are extremely important for observing any possible dangers that threaten our life, such as a car accident, fire, or falling down into a trench. With these then we can take necessary measures to save our life. Ears also have the same function of survival. For example, ears can avoid similar accident, by going away from an incoming car upon hearing the sound of its horn that cannot, for one or another reason, be seen by eyes. Sense of taste can also prevent us from consuming rotten or poisoned foods and so on. Therefore, we realize that senses function not only as the source of knowledge, but also as a self-defence mechanism seriously needed to save us from any dangers that threaten our lives, or in few words as 'the instrument of survival.'

1. Sense

Let us now turn our discussion to the senses as the source of knowledge. At first glance, it seems that senses have met our needs for knowledge, for it is through senses that we can know five dimensions of a thing we perceive. And as mentioned, sense perception is sufficient to avoid many dangers that we need for our survival. Now, the question is: "Have the sense perceptions already sufficiently supplied our needs for knowledge of something as it is? Can our sight, for instance, give us information about heavenly bodies like the sky, or the moon, or the sun, as they are? At first, we might answer the question affirmatively, 'yes.' We can say, for example, that sky is blue, or the moon is like a round flat plate, or that stars are small. But does our sight really report those things as they are, or are they only the impressions upon our eyes? Are our impressions the same as their realities? Indeed, by imposing a rather critical question on the information of our senses, we know that sense perception or impression, in this particular case, is not the same as the reality of the thing perceived. That the star is small is obviously wrong, since there is a star out there which is much bigger than our sun, such as Vega and Betelgeuse in the Orion constel-

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lation.² We can also easily assume that the sky is blue, while we don't even know what the definition of the sky is. Our senses impress us that the sky is like a great dome seen from inside with stars and the moon attached to it. Obviously, it is not the case, since what we call "sky" is actually an almost unlimited outer space observable through our sight. Based on our sight, we will say that the star we see twinkling in the sky is there at the moment we perceive. But according to scientific research, it can happen that the star we see is no longer there in the sky, for the star we perceive is probably just a light emitted from it millions of years ago. The light needs one or more million years to travel and reach our eyes.³ Therefore, it is clear that the impression we capture is very different from its real situation or reality.

An error like this can happen not only to the sense of sight, but also to other senses, such as that of hearing. For example, the sound of an exploding bomb or volcano that we heard at 06:06 did not necessarily happen exactly at the time we heard it, since the waves of air needs some time to reach our ears,⁴ be it only two seconds or two minutes. In addition, we also know that not all sounds can be heard by our ears, for our ears can hear only sound with certain frequencies,⁵ not above or below these. In case that our ears have problems, we might not able to hear even the sounds within the ears' frequency. Also like the ears, our eyes too can only actually perceive light with certain wave frequencies, hence a light that goes higher or lower than the eyes' frequency, such as ultraviolet, x-ray,

² *Encarta Reference Library* mentions the existence of several stars bigger than our sun. *Acturus*, for example, is said to be 23 times bigger than the sun, while *Betelgeuse* is 1000 times bigger than it.

³ While sun light needs 8 minutes to travel 150 million km from the Sun to our earth, the light of one of the remotest stars needs not only million years but billions of years to reach the earth's surface.

⁴ According to the experts the acceleration of sound on the see's surface is about 1.190 km per hour (740 mph).

⁵ According to *Encarta Reference Library*, the hearing in human beings takes place when the air frequency of 15 to 20.000 Hz reaches our inner organ of our ears. And this is called 'audio frequency.' Any sound wave exceeding this limit is called 'ultrasonic,' and that below it is called 'infrasonic.'

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gamma ray, cosmic ray or even red infra, cannot be seen by us, although they really physically exist.⁶

From these two examples, hopefully we realize that senses, which seem at the first look to give us sufficient information on physical objects, fail to provide us with information needed for knowing the things as they are. For that very reason we need another tool or source of know-ledge if we want to understand the objects as they are. Al-Ghazālī (d. 1111 A.D), in his *Mishkāt al-Anwār*, considers reason (*'aql*) more suitable to be called 'light' than 'sense.'⁷ In other words, reason is better as the source of knowledge than sense. For instance, with the sense of sight we can see the moon only a half of it at one moment. The eyes cannot prove the existence of the other unseen half of the moon. In this case, only reason can complete the whole picture of it as a sphere. Also it is reason—using a certain measurement—that can estimate with logic and mathematical model the sizes of planet, star, the sun, or in this case the circumference of the earth such as carried out by al-Bīrūnī in the eleventh century.⁸ With reason we can also say that the pencil inside a glass filled with water is straight not bent like what appears to our eyes.

Nevertheless, before we continue to discussing reason as the source of knowledge, let us talk about other mental faculties called in Islamic epistemology as inner senses as against the external senses we have talked about before. There are five inner senses. The first is "common sense" (*al-ḥiss al-mushtarak*).⁹ It is true that eyes can see, ears can hear, skin can touch, nose can smell, tongue can taste, but they are individual and partial. None of them can synthetically unite and coordinate these specific sense data. Since, as a matter of

⁶ See R.L. O'Riordan, *Seni Penyembuhan Alami: Rahasia Penyembuhan Melalui Energi Ilahi*, translated from *The Art of Sufi Healing* (Bekasi: INSISMA, 2002), p. 92.

⁷ See al-Ghazālī, *The Niche of Lights (Mishkāt al-Anwār)*. A parallel English-Arabic Text, translated by David Buchman (Provo, Utah: Brigham Young University Press, 1998), h. 6.

⁸ Further discussion on this matter will be dealt with in chapter 6 on the scientific methods in this work, including the procedure to be followed by al-Bīrūnī to reach the value of earth circumference.

⁹ See Fazlur Rahman, *Avicenna's Psychology* (London: Oxford University Press, 1952), p. 31 and Peter Heath, *Allegory and Philosophy in Avicenna (Ibn Sīnā)* (Philadelphia: University of Pennsylvania Press, 1992), p. 62.

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fact, we cannot identify these sense data synthetically and organically, there should be another faculty out-side of external senses, capable of carrying out the function. This is what Ibn Sinā calls *al-hiss al-mushtarak* (common-sense or *fantasia*). It is this very sense that causes a particular physical object to appear as an integrated unit, not any more as a partial one, as generally contributed by a particular external sense.

The second is *khayāl* (Retentive Faculty). As we previously mentioned, eyes can perceive and capture the forms and colours of a thing in an amazing way, so also ears can perceive hundred different tones almost perfectly. But these two external senses cannot record or retain what they had perceived. Like a camera, eyes can see the perceived objects pretty well, but they do not have a "record button" that the camera has to preserve or retain them. This function is taken over and executed perfectly by another inner sense, called by Ibn Sinā as *khayāl* or "retentive imaginative faculty."¹⁰ Therefore, *khayāl* is a faculty that can preserve forms perceived by the eyes, sounds captured by the ears, and various perceptions of other external senses. This faculty is extremely important, for without it, we will never be able to remember, for example, the faces of our wife and children. If that happens to us, the consequence would be grave; we will become amnesiacs.

The third inner sense is *wahm* or estimation. Yes, our external senses can wonderfully perceive diverse dimensions of a physical thing, but they cannot capture the intention (*ma'nāin* Ibn Sinā's term) hidden in it. The function of capturing the intention is performed well by *wahm*, or 'estimative faculty.'¹¹ It is this particular inner sense that can estimate whether, for example, a thing is beneficial or harmful to us, so that we can take a necessary measure to avoid it, if it is harmful, or to obtain it if it is beneficial and needed. Of course, this faculty is very important for the survival of our life. The intention as an inner aspect of it can, therefore, be known only by *wahm*. Another significance of *wahm*—especially for a practical purpose, and in its relation to a particular animal faculty of *ḥarakah* (movement) probably can be seen in the following consideration. As mentioned before, with *wahm* man (or also animal) comes to realize

¹⁰ Peter Heath, *Allegory and Philosophy*, p. 62.

¹¹ Rahman, *Avicenna's Psychology*, p. 39.

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that something is dangerous or beneficial for his life. As our estimative faculty (*wahm*) concludes (of course based on actual experience) that fire is hot, we will take a measure needed to 'move away from' it, or else to put it under control. Conversely, when our *wahm* concludes that foods and drinks are good for our health, we will also take a measure to 'move towards' them to meet our needs for nutrition. Without this faculty, man will be very prone to dangers, even more seriously to a greater disaster which threatens his life.

Now, let us turn to the fourth inner sense, called 'imagination' (*al-mutakhayyilah* or compositive imaginative faculty).¹² As common-sense (*al-ḥiss al-mushtarak*) is capable of capturing a physical object completely, so also imagination is capable of perceiving form (*al-ṣūrah*) comprehensively. Superiority of imagination over the sense of sight can be observed through the following comparison. While our sight can see a form in a particular object, imagination is able not only to abstract forms from the objects, but also combine them at will. We can, for instance, combine the forms of bird and horse into a unique form of Pegasus. This form exists only in our imagination but never exists in the external reality. Or, if we want to use Ibn Sīnā's example, man can imagine a mountain made of emerald and gold, so that we can call it the 'emerald or gold mountain.' Or other things, such as glass shoes, a golden apple, unicorn, flash Gordon, etc.

The last inner sense is called Memory (*quwwat al-ḥā-fīzah*). As the images appearing to the common-sense cannot be preserved by the common-sense itself, but by the retentive faculty (*khayāl*), so also the intention or meaning (*ma'nā*) cannot be preserved by the Estimation (*wahm*) itself. To do this, we need Memory whose function is to preserve the intention, in the same way we need *khayāl* to retain physical forms captured by the common-senses.¹³ It is this memory that causes us to remember not only physical forms but

¹² Peter Heath, *Allegory and Philosophy*, pp. 62-63.

¹³ According to Ibn Sīnā, memory is the reservoir of all estimation's perceptions, whose function is to preserve meaning or purpose, like *al-khayāl* (the Retentive faculty) which preserves images or forms of the common sense (*al-ḥiss al-mushtarak*). See Peter Heath, *Allegory and Philosophy*, p. 63.

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also abstract forms, such as meaning or intention. Memory is the last inner sense in the system built up by al-Farābī and Ibn Sinā.

2. Reason

With the discussion of this last inner sense as a transition, we are now in position to discuss our main topic: reason as a source of knowledge. By Muslim philosophers, reason (*al-'aql*) has been divided into two: theoretical and practical. However, since we are talking about reason as the source of knowledge, while the practical reason is related to action (ethics) and we have discussed practical reason elsewhere,¹⁴ here we will focus more on theoretical reason. We have discussed the excellences of external senses and their shortcomings. For instance, not all light waves can be perceived by our eyes, just like not all sound waves can be heard by the ears. Only light within certain frequencies (400-700 nanometers) can be perceived by our eyes and only sounds with certain frequencies (15-20.000 hertz) can be discerned as sound by our ears.¹⁵ Or, using another example, only half of the moon can be seen by our sight when we see it. To complete these sensory images (impressions) so that we will have 'knowledge of the object as it is,' we need another tool or source called reason (*'aql*). It is through reason, that we can obtain a better picture of the moon, not the partial, as senses might impress us, but the full form thereof.

Now, the important question will be: "How does reason actually perfect our sensory perceptions and correct false impressions they have received? Man has been made different from other creatures through this extraordinary mental faculty, which no animal can have, i.e. reason. It can do many things that none of our senses (be it external or internal) can do, that is to ask critically. Reason, can ask, for instance, where a particular thing exists. It can also ask when an event we heard happened? Reason can also ask about the cause that has brought about the event, which was responsible for its happening and how it did happen. Through its

¹⁴ See Mulyadhi Kartanegara, *Menembus Batas Waktu*, especially chapter 9 on "Ethics as the Art of Living," p. 67-84.

¹⁵ This the datum we obtain from *Encarta Reference Library*, while another source states that the sound wave our ears can catch is between 20-20.000 Hz per second.

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capability to ask some questions about a thing, such as what? Where? When? Why? How? Who? and so on, reason has become a remarkably rich source of knowledge (information), by providing all the questions with sufficient answers that cannot be offered by senses. Therefore, there is no reason to doubt the importance of reason as the source of knowledge, without which man will be thrown into in a great trouble. How can reason's ability to ask be explained? It is so, because reason has a set of mental constructions, called by Kant as categories,¹⁶ such as space, time, substance, causality, relation, quantity, quality and so on within it.

The most essential excellence of reason, however, lies in its ability to capture 'quiddity' or 'essence' of a thing observed or pondered upon. With this, human reason can understand the universal concept of a thing observed by the senses, which is abstract and no longer related to any particular data.¹⁷ When we comprehend the essence of man, for example, we are not actually talking about any particular (a or b) person, but about man in a universal sense – humanity. When we talk about the essence of table, we do not talk about a triangular, a square, a rectangular or a round table, but a quiddity or essence of it enclosing all the particular tables. It is this essence that Aristotle calls 'form' (*śūrahī*).¹⁸ With the ability of reason to conceive essence (*māhiyyah*) of any objects, man can preserve millions of abstract 'meanings' or 'concepts' of various objects of knowledge, so that we don't need a large physical storage to save them in our mind.

With this brief analysis, it is hoped we have sufficiently talked about remarkable abilities and functions of reason as the source of knowledge, indispensable for any human being, and cannot be taken over by any senses, external or internal. The next crucial question is, do we, after having senses and intellect, still need other source of knowledge to perfect our knowledge of a thing as it is?

¹⁶ According to Immanuel Kant the 12 categories are the sub-divisions of the four main categories which are quantity, quality, relation and modality. He says that these categories can be applied to appearance or phenomena, but not the things as they are (*das Ding an sich*). See Antony Flew, *A Dictionary of Philosophy* (New York: St. Martin Press, 1984), p. 57.

¹⁷ F. Rahman, *Avicenna's Psychology*, p. 51, and Peter Heath, *Allegory and Philosophy*, p. 64.

¹⁸ See Antony Flew, *A Dictionary of Philosophy*, pp. 61-62.

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Can we simply rely on these two tools or sources of knowledge, sense and intellect?

Most of Muslim epistemologists believe in the limit of reason and in human need for another higher source of knowledge. Ibn Khaldūn (d. 1406), for example, says, "...as the scale of gold and silver, reason is just perfect. But even the most perfect scale of gold and silver cannot be used to scale a mountain."¹⁹ Hence we need another tool of knowledge to 'scale' other things that cannot be carried out by reason. Al-Ghazālī says, "When we are asleep (dreaming), all look reasonable, but when we are awake, they seem to be absurd, for reason cannot understand it." Even, the great philosopher Ibn Sīnā (d. 1137), who admires reason so highly, still believes in the existence of a human faculty higher than ordinary reason, i.e. intuition, or the sacred intellect (*al-'aql al-qudsī*)²⁰ possessed almost exclusively by the prophets.

3. Heart (*al-Qalb*)

Whatever these philosophers have said about reason, all agree that reason, however powerful it may be, has its own limits, and therefore, we are in need of another tool or source of knowledge: 'heart' or intuition. Bergson (d. 1938), suggests that "Intellect (reason) is very competent in analysing space, but not time. To understand time, we must use intuition as the most suitable tool or 'philosophical method' for doing it."²¹ Reason is also very competent to understand 'phenomenal experience' but not 'existential one.'

What is the excellence of intuition or 'heart' (*qalb*) as the source of knowledge? Generally speaking, we can say that intuition is capable of understanding many things that cannot be understood

¹⁹ According to Ibn Khaldūn, a pure intellectual reasoning is not sufficient to attain the true knowledge. We need intuition to obtain it. See Muhsin Mahdi, *Ibn Khaldūn's Philosophy of History* (Chicago: The University of Chicago Press, 1971), p. 115.

²⁰ Rahman, *Avicenna's Psychology*, p. 36, and Peter Heath, *Allegory and Philosophy*, p. 90.

²¹ G. Deleuze says that without intuition as a method, the duration of time will become just a psychological experience. See Gilles Deleuze, *Bergsonism* (New York: Zone Books, 1980), p. 33

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by reason. Let us now analyse some weaknesses of reason in order to know more easily the excellences of intuition:

(1) Rūmī (d. 1273 A.D.) says, "human reason may master 1001 scientific disciplines, but about man's real self, it does not know anything."²² Of course, reason gives us many benefits as the source of knowledge, but only as an intellectual faculty or intelligence. However, reason is quite often rendered helpless in coping with more profound life problems, especially those of emotional-existential dimensions of human life. When confronted with the question of love, for instance, reason can say nothing of substantial significance. Our mind will be bewildered, and our tongue will be speechless. Rūmī once says, "when reason is asked about love, it will fall down into the mud like a donkey." In other words, reason does not understand much about existential experiences, i.e. the experiences that we feel immediately, but not what we conceptualize through any means. Only 'heart' or intuition is capable of doing this task satisfactorily.

(2) Reason, with its custom to 'spatialize' any objects of investigation,²³ tends to understand something in a general and homogenous way so it will not understand the uniqueness of a 'moment' or a 'space' as experienced and felt directly by us. That every moment of our life is unique is difficult for reason to comprehend, since for it, one minute here will be exactly the same as one minute anywhere else. Or one square foot here will be the same as one square foot everywhere. Reason will not understand why there should be a lucky day or otherwise. Neither will it understand why, for someone, there should be some sacred or profane places.

(3) Reason, as stated by Rūmī and Bergson, cannot comprehend the reality of its object, since, due to its dependence on words or symbols, it can only revolve around it, but never directly touch it.²⁴ Reason's apprehension of the object is symbolic in nature, i.e. through symbols or words. But we know that words alone will not deliver the real knowledge of the object under discussion. Rheto-

²² Jalāl al-Dīn Rūmī, *The Mathnawī of Jalāl al-Dīn Rūmī*, edited and translated by Nicholson, vol. 6, (London: Luzac & Co. Ltd., 1977), p. 387.

²³ See Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam* (Bandung: Mizan, 2002), p. 13

²⁴*Ibid.*

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rically, Rūmī asks: “Could we pluck a rose from R.O.S.E? Of course, not. We just mention a name, seek for the named?”²⁵

It is in order to make up the reason’s weaknesses that Almighty has given us, human beings, the ‘heart’ (intuition) so that the tools of human knowledge becomes more complete. When reason cannot understand fully the area of human emotional life, intuition can do it very well. A well-polished ‘heart,’ for instance, can understand someone’s feelings only by listening to one’s sound, or just by looking into the eyes. While reason involves only in the level of consciousness, ‘heart’ can break through into the unconscious realm (or the unseen worlds in religious language), so that it can understand non-sensory experiences, or the so-called ESP (Extra Sensory Perception), including mystical and religious experiences. It can even ‘communicate’ through a non-verbal language with the unseen creatures, such as angels, jinni, even, in certain cases, with God Himself, as experienced by prophets. Like a radar, the human heart is sometimes capable of grasping lucidly a sign from heaven, however small and fuzzy the sign may be for reason.

In addition, ‘heart’ can also, as mentioned above, understand the uniqueness of every single event in our daily life. By rejecting rational tendencies for generalization and homogenizing things, it can perceive and deeply sense any event as special, unique, and particular. It is this very ‘heart’ that can comprehend a direct experience, that we feel in what we may call existential experience, that is real human experience as we directly feel, and not as conceptualized by our reason. It is the same ‘heart’ that can understand why, for example, one hour is felt different by a waited person and the waiting one. Likewise, the ‘heart’ can also understand fully why a particular ‘bus halt’ is felt so beautiful and impressive for those who are in love, and so ‘boring and flat’ for those whose minds are messy and confused. As for reason, the place will remain the same all the time and for everyone. Moreover, it is also through ‘heart’ that we will understand why for the believers, there exist the sacred places, such as the holy land, the holy mosque, holy days and holy months, as against the profane ones.²⁶

²⁵Rūmī, *The Mathnawi of Jalāl al-Dīn Rūmī*, vol.1, p. 188.

²⁶ See Mulyadhi Kartanegara, *Menembus Batas Waktu*, p. 15.

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The last but not the least, the 'heart' is also capable of perceiving its object more immediately and intimately. Intuitive knowledge is experiential or knowledge through experience. It can, for instance, understand 'sweetness' not from the words of others nor through readings, but by tasting it. It will understand love, not from the mouths of others nor from reading the theories on love, which sometimes are quite different from the experience, but by actually falling in love with someone. Our reason cannot fully understand the beauty of love, but the 'heart' understands it very well, although sometimes it cannot express it through words or sentences. For, to express it through words will mean to describe it through a language, which, due to its rational stance, cannot do justice to a profoundly emotional experience.

Finally, the knowledge of the 'heart' is called 'presential' since its objects are considered as present in one's self or soul. There is no more gap which separates someone from the object of investigation, since the object has been united and present within himself. Reason will probably get confused asking why it is that someone who is 'far away from the eyes' is 'so close in the heart.' Even, when the feeling of love has grown so huge, the lover cannot be separated any more from the beloved, for now the two souls become united. They have become one, hence, the expression 'two hearts that beat as one.'²⁷ It is probably from this we can understand why a well-known Sufi al-Ḥallāj (d. 922) feels so united with his Beloved God, that his name disappears and only the Creative Truth (*al-Ḥaqq*) remains.[]

²⁷ The expression 'two hearts that beats as one,' a passage from the song Endless Love, sung by Diana Ross and Lionel Richie, may represents the so-called existential experience which is comprehensible to the intuition but not to the intellect.

Chapter 1

Ontological Status of Objects

THE main goal of any epistemology, to me, is to show how knowledge is possible philosophically. If the knowledge (*ilm*) is defined as "the knowledge of something as it is," the task of philosophy of knowledge then will be how this "knowledge of something as it is," is philosophically possible? However, this knowledge of something as it is will not be possible unless we believe in the existence, or more precisely, the ontological reality of the object, we are to investigate. If we do not believe in the existence of the object, how will we investigate it, and more importantly, how will it be possible for us first to know it and then to know it as it is?

Hence, we realize the importance of talking about the ontological status of any objects of our investigation, before we talk anything about the classification of knowledge or its methods, since our discussion of it can serve as the bases of any epistemological inquiries.

Actually, discussing the ontological status of objects of knowledge will not be that crucial, if there was no 'deviation' conducted by Western philosophy against its medieval background. As a consequence of it, until now there have been developed two fundamentally different systems of epistemology: Modern-secular and Aristotelian-Islamic. The breach between the two derived from radically different views on the ontological status of objects of knowledge. After going through a long process (especially post-Renaissance period), Western epistemologies have eventually determined to reject the ontological status of metaphysical objects, and to focus more on physical, or in Comte term 'positivistic' objects. In

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contrast, Islamic epistemology still maintains the ontological status of not only physical but also mathematical and metaphysical objects. The differences in view and belief in this ontological status of objects, has brought about a very significant divergence between these two epistemologies in several issues especially in reference to the classification of knowledge and scientific methods.

While the issues of classification of knowledge and scientific methods will be dealt with consecutively in chapter five and six, let us now turn to the ontological theories developed by Muslim philosophers, which have exerted significant influence on both system of classification and scientific methods. As believers, Muslim philosophers (*al-falasifah*) believe in the existence of not only physical objects, but also metaphysical ones. In fact, they have composed various systems of the hierarchy of beings (*martabat al-mawjūdāt*). This hierarchy of beings usually begins with metaphysical entities, with God at its pinnacle, then goes down through the intermediary world (*barzakh*), where we can see the mixture of metaphysical and physical elements with its unique form, and finally goes to the physical world, where we live and flourish. In one of his works, al-Fārābī describes the hierarchy of beings as follows:

1. God, who is the cause of the existence of all other beings;
2. The angels which are completely immaterial beings.
3. The celestial bodies
4. The terrestrial bodies.¹

Actually there are other schemes of hierarchy put forward by Muslim thinkers or philosophers, such as the one presented by Ibn Sab'īn in his *Budd al-Ārif*, using a different term, *marātib al-mawjūdāt*.² However, I hope that what al-Fārābī has described may represent the ontological views of Muslim philosophers. Certainly, the *falāsifah* believe that all beings described in the above hierarchy are real, i.e. having solid reality and clear ontological status, and therefore, legitimate as scientific objects.

¹ See Osman Bakar, *Classification of Knowledge in Islam: A Study in Islamic Philosophies of Science* (Kuala Lumpur: ISTAC, IIUM, 2006), p. 96

² Ibn Sab'īn, *Budd al-Ārif* edited by Dr. George Kitturah (Beirūt: Dār al-Andalūsī&Dār al-Kindī, 1978), p. 112-118.

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In the following pages, we would like to discuss in detail the establishment by philosophers of the ontological status of all the entities, ranging from God in the peak of the hierarchy to the terrestrial bodies in the bottom, as their philosophical basis for making them the legitimate scientific objects.

1. God

Let us begin with God at the peak of hierarchy of beings. God has been viewed by Muslim philosophers, especially al-Kindī, as the First Cause (*al-'Illat al-Üllā*).³ As the First Cause, He is, as described by al-Fārābī, the Cause of any other beings, including this material world, as the effect. From the ontological point of view, the ontological status of God, as the First Cause is of course far more fundamental than that of material or physical world, for, while God is the cause, the source or principle, the material world is just the effect or derivative from the Cause.⁴ Of course, the status of a cause is higher than its effect, for while the cause can be conceived without referring to its effect, the effect cannot be conceived at all without its cause, such as the existence of derivative cannot be possible without the existence of its source. Therefore, we can understand why, although God is immaterial and unseen to the human eyes, in the views of Muslim philosophers, He is more real and fundamental than the seen material world. In contrast, for Western thinkers, it is the material world that is real, while the unseen-immaterial ones are but an illusion or delusion.

The excellence of God's ontological status can also be discerned from Ibn Sīnā's concept of God as the Necessary Being (*wājib al-wujūd*), contrasted conveniently to the ontological status of the world as the possible being (*mum-kin al-wujūd*). As a possible or potential being, the world is truly dependent for its existence on

³ See L. Ivry, *Al-Kindī's Metaphysics: A Translation of Ya'qūb ibn Ishāq al-Kindī's Treatise Fi al-Falsafat al-Ülā* (Albany: State University of New York 1974), p. 172.

⁴ The conclusion of the existence of the first cause is certainly not drawn by the philosophers simply as a dogma. In my book, *Menembus Batas Waktu*, especially in chapter 5, I have shown how Muslim philosophers, such as al-Kindī, Ibn Sīnā and Ibn Rushd have proven rationally the existence of 'the First Cause' or what we call God. For further information, see MulyadhiKartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam* (Bandung: Mizan, 2002) pp. 32-37.

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this Necessary Being, who is 'always in the state of actuality.' Without this ever-actual Being, the universe, as the possible being, will be forever in potentiality. Yes, the universe is a possible being, in the sense that it has possibility to exist, but it will not come into existence unless there is another being that had already existed to bring this possibility into actuality.⁵ Again it is clear that the ontological status of the Necessary Being, who is always in actuality, must be higher and more fundamental than that of nature. For if the ontological status of the physical world has been regarded so high by Western thinkers, while it is just an effect, the ontological status of God, as the Necessary Being, as well as the First Cause of everything in it, must logically be much higher and more essential!

God in relation to the universe has also been described by other Muslim philosophers as the Unmoved Mover. While Ibn Sīnā talked about the Necessary Being responsible for bringing the universe into existence, al-Kindī described God as the first mover,⁶ who initiated the first movement of the universe. Without God, the movement of the universe is simply inconceivable. Interestingly enough, as the first mover, God is also described as the Unmoved Mover, meaning that he does not move, nor was He moved, for had He been moved, He would have needed another mover before Him. But this is impossible since He is the first mover, and He will not be the first mover if there were a mover before Him. Of course, as you might know, the idea of God as the Unmoved Mover came from Aristotle, who, as the first teacher, had exerted great influence on the thoughts of many philosophers after him, including our philosopher al-Kindī. From here we understand why for al-Kindī and many other philosophers who shared the idea with him, God should be logically more real and fundamental than the physical world, for, while the first, i.e. God, is the agent (*al-fā'il*) the universe is the patient (*al-infi'āl*), which should receive all the effects of the former' acts. And it is commonly accepted that the agent should be

⁵ At least, this is the argument put forward by Ibn Sīnā to necessitate the existence of ever-actual agent as the condition for the existence of the world which in itself is just possible or potential being.

⁶ See Ian Richard Netton, *Allah Transcendent: Studies in the Structure and Semiotics of Islamic Philosophy, Theology and Cosmology* (Richmont: Curzon Press, 1989), p. 53.

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more real and fundamental than its patient, like the cause should be more real and fundamental than its effects. Like Ibn Sīnā, al-Kindī also conceives God as the source of all that exist in the universe, or using a more religious term 'the Creator' (*al-Badī'*) of heaven and earth and all that exist in the universe."⁷

2. Angel

Now, let us turn to the second row of the hierarchy of beings, the angels, which, as mentioned above, have been described by al-Fārābī as "completely immaterial beings" and see how our philosophers tried to establish their ontological status. Angels have been referred to by Muslim philosophers with different names and descriptions. Al-Fārābī and Ibn Sīnā for example called the angel an intellect (*'aql*), as indicated by the title of the Active Intellect (*al-'aql al-fa''āl*)⁸ for the archangel Gabriel, with whom prophets and philosophers could have contact (*ittiṣāl*) for acquiring information--revelation in the case of prophets and inspiration in that of sufis or philosophers. On the other hand, Suhrawardī called the angel "light," hence the term *al-nūr al-aqrab*⁹ (the Approximate Light) for the first angel who came forth directly from Almighty God, The Light of lights (*nūr al-anwār*).

Whatever names the angels might be referred to, one thing is clear that they are immaterial in nature, and by calling them immaterial (*mujarradāt*), it means that they (the angels), according to the philosophers, are impersonal.¹⁰ Since they are impersonal, so it is easy for Suhrawardī to exchange angels with lights or vice versa. Even, more interestingly, they can be easily identified with Platonic ideas, which are doubtless abstract and impersonal in their nature. While, a contemporary sufi of Naqshbandī order, Syaikh Hishām

⁷ *Ibid.*, p. 47

⁸ Ibn Sīnā, *Kitāb al-Najāt fī Hikmat al-Manṭiqiyyawa al-Tabī'iyyawa al-Ilāhiyya*, with an introduction by Majid Fakhry (Beirut: Dār al-Āfāq al-Jadidah, 1985), p. 314.

⁹ Suhrawardī, *Hikmat al-Ishraq (The Philosophy of Illumination)* edited & Translated by John Walbridge and Hossein Ziai (Provo, Utah: Brigham Young University Press, 1999), p. 92.

¹⁰ Of course, this will differ significantly from the sense we usually have of the term, where we describe angels personally as having a figure like a human being but with large feather.

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Kabbānī, in his book *Angel, Unveiled*,¹¹ identifies them with 'energy' which cannot be perceived by our senses, but whose effects can be discerned in many electrical devises.

As for the reality (or the ontological status) of angels, Muslim philosophers believe that angels are real, more real and fundamental than the physical world. Angels have occupied the second place in the hierarchy of beings directly after God, while the physical world occupies the last and lowest place in it. For them, angels who have borne different names and descriptions are more excellent and fundamental in their ontological status, due to their great influences on the formation of physical entities, such as planets, the moon and our earth. In the emanation theories of al-Fārābī and Ibn Sinā, Archangel Gabriel or the Active Intellect has been allotted a very crucial role and position as the decisive agent in the formation of the sub-lunar world, i.e. the earth, and whatever exists therein. Ibn Sinā, for instance, calls the agent as *wāhib al-ṣuwar* (the Forms Giver).¹²

The importance of her position as the forms giver over the physical world can be seen, for example, from the fact that the formation of the physical world is dependent on her activity, by giving a form to the physical entities. According to the philosophers, only when "form" (*ṣūrah*) is combined with 'primary matter' (*al-hayūlā*) that the physical entities will come into existence, a doctrine known in classical and medieval philosophy as Hylo-morphism. Therefore, I hope that the superiority of angels over the physical entities, in term of their ontological status will become evident for us, for without their acts upon it, this physical world will never exist.

The excellence of the ontological status of angels over that of physical entities can also be seen from the philosophy of Suhrawardī, the Master of Illumination (*shaykh al-ishrāq*). As mentioned previously, among the angels are Platonic ideas, and these ideas have been considered by Suhrawardī as the prototypes, or in his own term 'the Lords of Idols' (*arbāb al-aṣnāni*) i.e. the prototypes

¹¹ Syaikh Hishām Kabbānī, *Angels Unveiled: A Sufi Perspective* (Chicago: Kazi Publication, 1995). Pp. 8-9.

¹² See Ian Richard Netton, *Allah Transcendent*, p. 169.

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of all entities in this world.¹³ The term *arbābal-aṣnām* is a very strong term indicating ontologically their superiority over physical entities, for the word *arbāb* is commonly translated as Lords, while word *aṣnām* (plural of *ṣanām*), is commonly rendered as “idols” or in this context “slaves.” Since the Lord has a stronger position over slaves, therefore the ontological status of “ideas” (as one of angelic forms in Suhrawardī’s philosophy) is more real and fundamental than that of physical entities. It can be said that ‘ideas’ takes the form of cause, while the physical world, that of effect. Of course it is clear to everybody that the reality (or in our context the ontological status) of any cause will be superior, more real and fundamental than that of the effect.

3. Celestial Bodies

Now, let us go to discuss the third level of the hierarchy of being that has been pointed out by al-Fārābī which is “the heavenly or celestial bodies.” Different from immaterial angels, on one hand, and from purely physical entities, on the other, these celestial bodies called sometimes as spheres (*aflāk*), are the perfect mixture of immaterial and physical entities. However, it is for that very reason that they are not purely physical, but share the immateriality of angelic nature. By imparting the soul onto these celestial bodies, their ontological status is higher and more real than that of purely physical ones. The rank of these celestial entities has been very well described in Suhrawardī’s theory of emanation as having occupied the so-called Middle Occident, a unique world between the immaterial world, above it, called the Orient and the physical world, below it, called the Occident.¹⁴

The superiority of the ontological status of celestial entities over that of physical entities can be seen from the fact that, according to Ibn Sīnā and Ikhwān al-Ṣafā’, in addition to the Active

¹³ Suhrawardī, *Hikmat al-Ishrāq*, p. 180. For further explanation on the term *arbāb al-aṣnām*, see also my book, *Gerbang Kearifan: Sebuah Pengantar Filsafat Islam* (The Gate of Wisdom. An Introduction to Islamic Philosophy), (Jakarta: Lentera Hati, 2006, pp. 53-54.

¹⁴ See Henry Corbin, *History of Islamic Philosophy* (London & New York: Kegan Paul International, 1993), p. 214.

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Intellect, these celestial bodies (spheres) have great influence on the physical entities on earth, the sub-lunar world. According to Ibn Sinā, it is the powers of these celestial bodies that have been responsible for managing even the interaction or reaction between physical and chemical elements (or atoms or molecules in modern terminology) in the sub-lunar world.¹⁵ Beside, since it is impossible to find any movement in this earth without the influence of these celestial entities, therefore we can see quite clearly the importance of their roles in bringing about the dynamics, movement or even evolution of the sub-lunar world, where we all live. At last, as the one which has exerted great influence on the dynamics of the world, the ontological status of these celestial bodies is of course more fundamental and real—even if it is not as real and fundamental as that of the First Cause or of angels,—than those of material-physical entities.

The above discourse leads us now to the discussion on entities in the lowest level of the hierarchy of beings, i.e. “the earthly or terrestrial bodies.” In his exposition on these terrestrial bodies, al-Fārābī puts forward five sorts of bodies (from the most sophisticated to the simplest ones): Rational animals, non-rational animals, plants, mineral and the four elements.¹⁶ In Islamic philosophy, under the influence of Greek philosophers, especially Aristotle, the elements, being in the lowest part of the hierarchy, are usually divided into four: fire, earth, water, and air. These elements of course should be understood as the four main elements, or in the *falāsifah* term ‘al-arkān al-arba’ah.’¹⁷ Furthermore, these four elements are considered to be in conformity with, and correspond to, the four main characteristics of natural entities: hot, cold, wet and dry. They are the fundamental components for the formation of other natural entities: minerals, vegetables and animals.

4. Terrestrial Bodies

¹⁵ Ibn Sinā’s statement that the elements are influenced by celestial powers can be found in his *Kitāb al-Najāt*, p. 196.

¹⁶ See Osman Bakar, *Classification of Knowledge in Islam*. p. 99

¹⁷ Muslim scientists at the time of al-Fārābī have known tens of derivative chemical elements, as in the modern times.

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a. *Basic Four Elements*

As for the ontological status of terrestrial (earthly) entities in general, and elements in particular, Islamic philosophy has a diametrically different view from that of modern science. For, while in Islamic philosophy the ontological status of the so-called elementary particles occupies the lowest level of the hierarchy of being, in Modern sciences it occupies a very high place. The ontological status of physical entities has been elevated by modern scientists to the highest and most important position, while that of immaterial (metaphysical) entities has been dragged down to nearly non-existence, if not illusion or hallucination, by those who do not believe any more in their existences. It is these mutually different views among the two that tell us why modern science has given priority to 'matter' and neglected spirituality, while Islamic philosophy has given priority to 'spirituality' and sometimes neglected the material world.

b. *Mineral Substances*

The ontological status of mineral substance is considered little bit higher by Muslim philosophers than that of elementary particles. This mineral substance is usually divided into two main divisions: stones and metals. Of course, these metals and stones are composed of the same basic elements, but with different proportion and properties. Nevertheless, unlike basic elements whose ontological hierarchy, due to its simplicity, are not so apparent, mineral substances have shown their ranks in the hierarchy of their being more clearly: from regular stones (such as coral) to noble and precious ones (such as emerald and diamond), or from base metals (like iron) through the nobler ones (such as copper, silver) and finally to the noblest ones (such as gold). The finer or nobler a mineral substance is, the higher its ontological status becomes.

c. *Vegetables*

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Among other natural (terrestrial) entities is plant. Plant is believed to have grown gradually from the mineral world. This gradual or evolutionary change can be seen already in mineral world, when these mineral substances, be they stones or metals, undergo a very gradual change from base to noble ones. Now, when this mineral world has reached the highest point of its development, the natural vertical motion succeeded in creating a fundamental breaking through the border and bringing into existence a new type creature called plant. Compared to mineral substances, plant possesses power of life—and therefore it is called by Ibn Sinā a soul (*nafs*),¹⁸ which makes plant the first living (organic) creature on earth, leaving the 'dead' (inorganic) creatures behind. Three special faculties have been developed by God for it: growth, nutritive faculty and reproductive faculty.¹⁹ Growth is a transcendent power that makes a plant grow spectacularly to tens of inches wide-wise and tens or even hundreds of meters long-wise, and hence, it provides man with sufficient material for building houses, ships, furniture and so on.

In addition, with the same faculty of growth, plant can produce varieties of beautiful and fragrant flowers that can be used for certain kinds of perfumes and delicious fruits needed by human bodies. But, of course the growth of plant can be made possible only if it has another special faculty called nutritive faculty, enabling a plant to transport 'foods' to its various parts that need them. Beside these two, a plant also possesses another wonderful faculty, which never been possessed by any mineral substance, called reproductive faculty. With this faculty, a plant has ability to multiply greatly the number of its own to guarantee the survival and distribution of its own kind. The production of massive seeds by trees is in itself a priceless bounty of God, for, apart from their nutritive and medical benefits, it can also supply us with amply materials, as mentioned before, for building houses, office buildings, bridges, and various handicrafts, if worked out and cultivated wisely by taking into consideration ecological equilibrium. Due to these special faculties it possesses, of course the ontological status of a plant is more fundamental and real than that of mineral substances. In principle, the

¹⁸ Ibn Sinā, *Kitāb al-Najāt*, p. 196.

¹⁹ *Ibid.*

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ontological status of anything will become stronger in accordance with the vertical motion toward the higher world. The higher the position of these natural entities is in the hierarchy of being, the loftier and stronger their ontological status will become.

d. *Animals*

The last of the terrestrial entities is animal. Animal has been divided by our philosophers into two kinds: rational and non-rational. Rational animal is what we call human being, and non-rational is what we call simply animal.

Animals

As an entity with higher level and quality than both mineral and plant, animal has unique faculties that neither mineral nor plant can have. These faculties are 'sensation' (*al-iḥsās*) and 'locomotion' (*al-ḥarakah*).²⁰

The first faculty, called 'sensation,' is very sophisticated, much more sophisticated than vegetable faculties, which, in themselves, are already amazing. With five senses it possesses, an animal can surely have knowledge and awareness of its environment. With these senses, animal is able not only to know the existence of foods and drinks they need to survive but also to avoid various dangers threatening their lives. More importantly, through these senses, animals can also identify and apprehend five dimensions of any object they perceive, which cannot be possibly done by any plants however complex their structures are.

In addition, animals are also strongly supported by another unique faculty, called 'movement' or 'locomotion' (*al-ḥarakah*). This faculty is extremely needed by animals for both chasing the prey and running away from a predator or other vital functions brought about by this faculty, such as building a nest for themselves and for their children, to get rest, to clean their bodies, to fly away and come back, or just to lie down under the morning sun. With these two sophisticated faculties, animals possess extra-ordinary qualities that

²⁰ *Ibid.*

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make their ontological status stronger and higher than those of plants and mineral substances.

Human Beings

Another very special kind of animal is human being, whom Muslim philosophers named 'a rational animal' (*al-ḥaywān al-nāṭiq*). The most fundamental difference between animal and human being lies primarily on his/her reason ('*aql*').²¹ The abilities of the reason, as discussed in detail in previous chapter, are extremely remarkable. With this intellect, human being is able to get information unobtainable by any senses by posing several questions on space and time, quality and quantity, causality and so on. What is more outstanding is the ability of human intellect to grasp an abstract meaning both from a physical entity and from the utterance of other people as well as its ability to communicate one's ideas to others by oral or written symbols called language. Another thing that makes the ontological status of human being more real and fundamental than the others is the fact this reason is immaterial in nature and therefore can survive the physical death,²² and also the fact that although in terms of physical size, human being is not that impressive, human being has been considered by the philosophers as a microcosm that contains within himself the whole cosmic elements, such as mineral, vegetable, animal and even angelic elements which are immaterial.

To conclude, it is very important to know the way our philosophers think about causation. For them anything in this world cannot happen by and through itself. It needs a cause for its occurrence. And it is obvious to their minds that a cause is more fundamental in their ontological status or reality than that of an effect, since the effect cannot exist without a cause, while the cause itself does not in any way need any effect for its existence.

²¹ That the intellect is a special faculty of human beings can be found in the statement of a great philosopher of history, Ibn Khaldūn (d. 1405). See Muhsin Mahdi, *Ibn Khaldūn's Philosophy of History* (Chicago: The University of Chicago Press, 1971), p. 173.

²² Ibn Sina, *Kitāb al-Najāt*, p. 223.

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Now, if you believe so strongly in the reality of the physical object, while it is just an effect, then you should believe even more in the existence and reality of its causes, be they the first cause, God, or the secondary causes, angels and heavenly bodies. And it is why for the philosophers, God, angels, heavenly bodies and the physical worlds are all real, and therefore they are legitimate to be the objects of any scientific inquiries.[]

Chapter 5

Ontological Basis of Knowledge

A scientific discipline, whatever it is, will not have a legitimate scientific status unless the ontological status of its object is clear and approved. Therefore the ontological status of the objects is extremely important as the ontological basis of knowledge. For instance, those who do not believe in the reality of metaphysical objects will logically reject the scientific status of any discipline which makes metaphysical entities as its objects. For, if the ontological status of object under investigation is doubted how can we acquire certain knowledge of it? The knowledge of something as it is, as the definition of *'ilm*, can be achieved only if the ontological status of its object is affirmed. Otherwise, how can someone obtain knowledge of an object "as it is," if the existence of the object is negated?

A great number of Western scientists and philosophers have been sceptical about the reality or ontological status of non-physical or metaphysical objects. Therefore, it should not surprise us if they consider as legitimate only those physical or empirical sciences and reject the legitimacy of metaphysics as a science for they do not believe that metaphysical objects are real.¹ Yes, the scientific branches of modern science can be so diverse, but due to its restriction to the empirical fields, they still will not be as comprehensive and holistic as those found in the Islamic classifications of knowledge which include not only physical-empirical and ma-

¹ Sigmund Freud, for example, called God as an illusion, since the idea of God came from human wishes not from a reality. See Erich Fromm, *Psychoanalysis and Religion* (New haven, Yale University Press, 1950), p. 12.

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thematical disciplines, but also metaphysical ones. Why are these metaphysical sciences included in the Islamic classification of knowledge? The answer is because Muslim scientists and philosophers affirmed not only the ontological reality of physical objects but also mathematical and metaphysical ones.

In the following pages, we would like to discuss the main issue of this chapter: the ontological basis of knowledge by connecting various objects of knowledge, and its branches or classifications. In Islamic scientific tradition, the existents (*al-mawjūdāt*) are hierarchically arranged in accordance with their nature. Ibn Sīnā (d. 1037), for instance, has classified the existents into three categories: (1) those which are always in motion both in cognitive apprehension and subsistence, and related to materials of particular species. (2) those which are separate from materials of a particular species in cognitive apprehension and (3) those which are separate from motion and matter in substance and cognitive apprehension.²

The existents that belong to the first category become the objects of physics, and those belonging to the third category become the objects of metaphysics and those belonging to the second category become the objects of mathematics. Therefore, it is easily understood why in the Islamic scientific tradition, knowledge has been divided into three major divisions: metaphysical, mathematical and natural or physical sciences. The classification of knowledge into three major categories is not something bizarre but it is actually consistent with the ontological status and the nature of their objects. It will be bizarre for those who do not accept the ontological realities of other objects outside of the physical objects.

1. Metaphysical Sciences

Now, let us talk in detail about the ontological basis of these major divisions of knowledge. Serving as the ontological basis for metaphysical sciences are, according to Ibn Sīnā, the entities (*al-a'yān*)

² Osman Bakar, "Science," in S.H. Nasr & Oliver Leaman, *History of Islamic Philosophy*, Part 2, (New York, London: Routledge, 1996), p. 935.

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which are immaterial in nature and have no direct relation with matter and its movement, and these will include God, soul and, to certain extent, angels or intelligence (*'uqūl*). As for the ontological basis for metaphysical sciences (*al-'ulūm al-ilāhiyyah*), we can start with what Ibn Khaldūn has said. In his famous book *The Muqaddimah*, he classifies the metaphysical sciences into 5 divisions:

1. Metaphysics in general is a science that studies existence as such. It is further divided into specific areas which study:
2. general matters affecting corporeal and spiritual things, such as a quiddity, oneness, plurality, necessity, possibility, and so on.
3. the beginning of existing things and (finds) that they are spiritual things
4. the way existing things issue from (spiritual things) and also studies their order.
5. the conditions of the soul after its separation from the body and its return to its beginning.³

From what Ibn Khaldūn has stated, we understand that metaphysics includes the study of existence, called ontology (point 1 and 2), the origin of the world, called cosmogony and structure of the world, called cosmology (point 3 and 4) and eschatology (point 5).

a. *Ontology*

Ontology (philosophy of being) is of course a very important branch of metaphysics. It studies 'being qua being' or the existence as such (*al-wujūd min haythu huw al-wujūd*) including the essence (*al-māhiyyah*) or existence (*al-wujūd*). Moreover, it also, as mentioned previously, discusses seriously on quiddity, unity, plurality, possibility, necessity etc. The discourse on ontological issues such as being qua being and the principality of essence or existence are exceptionally important in Islamic philosophy and has produced the best concepts among Muslim philosophers and mystics (Sufis) which later were crystallized into two schools of thought: Existen-

³ See Ibn Khaldūn, *The Muqaddimah*, trans. Franz Rosenthal (New Jersey: Princeton University Press, 1981), p. 388.

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tialism and Essentialism. The Existentialism is represented by Ibn Sinā and Mullā Ṣadrā who believed that existence (*wujūd*) is more fundamental than the essence (*māhiyyah*), a doctrine which was later known as *aṣālat al-wujūd*⁴ (principality of existence). The second school, the Essentialists, is represented by Suhrawardī al-Maqtūl (d. 1191) and his followers, such as Shams al-Dīn Shahrāzūrī, Quṭb al-Dīn Shirāzī and Mir Damād, one of the prominent teachers of Mullā Ṣadrā. Their standpoint has been called *aṣālat al-māhiyyah*, which states that essence is more fundamental than existence.⁵ Of course, the philosophy of existence or ontology will include as its major theme a discourse on God as the principle of everything that exists. In this junction, Ibn Sinā, as discussed in my book *Menembus Batas Waktu*, has put forwards the so-called ontological argument of His existence.⁶

The ontological status of God as the First Cause (*al-'illat al-ūlā*) and the Necessary Being (*wājib al-wujūd*), in Islamic perspective cannot be doubted, for doubting His ontological reality can shake the very foundation and the ontological status of the universe as the effect. Likewise, due to His immateriality, God as the first cause will be eternal, while the universe as the effect will come to an end (*fanā'*), in the sense that it should subject to generation (*al-kawn*) and corruption (*al-fasād*). Due to His very strong, real and fundamental ontological status, the science which studies this subject, i.e. God, is not just scientifically valid, but also very noble and brings about happiness to whoever seeks it. Therefore, it can also serve as the ethical basis for knowledge, whose objective is to make people who seek it happy. According to philosophers' view, the higher ontological status of an object is the happier will its seekers become. Beside, since God is the highest object of all, metaphysical science which deals with Him will grant

⁴ For the discussion on the principality of existence over essence, see Fazlur Rahman, *The Philosophy of MullāṢadrā*(Ṣadr al-Dīn al-Shirāzī) (Albany: State University of New York, 1975), pp. 28, 33.

⁵ As for the discussion on the principality of essence over existence, see Fazlur Rahman, *The Philosophy of MullāṢadrā*, pp. 28, 33. See also Walbridge, *The Science of Mystic Light: Quṭb al-Dīn al-Shirāzī and the Illuminationist Tradition in Islamic Philosophy* (Cambridge, Ms.: Harvard University Press, 1992), p. 52.

⁶ See Mulyadhi Kartanegara, *Menembus Batas Waktu*, p. 34-36.

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a very great happiness,⁷ if not the greatest, to those who study, investigate, and reflect on Him, considering that He is not only the highest, but also most powerful, most beautiful and greatest of all objects of knowledge.

b. Theology

From the study of being qua being (ontology) comes another branch of metaphysics called 'theology.' But as a metaphysical branch, it differs from 'ilm al-kalām' or scholastic theology, and should be understood as "metaphysics in specific sense."⁸

c. Angelology, Cosmogony and Cosmology

The next object of metaphysics is what Ibn Sīnā calls as intellect (*'aql*). This intellect, according to him, in itself is an immaterial substance (*al-jawhar al-mujarrad*), and for this very reason it becomes the object of metaphysical enquiries.⁹ In fact, almost all Muslim philosophers agree that these celestial intellects, or angels in the Qur'ānic terminology, are immaterial entities who are able to live, think and act independently of material bodies and have no direct contact with the bodies nor with their movements. These intellects, called by Suhrawardī as 'lights' (*anwār*), are depicted, in his chart of existence, as "separated from the material world,"¹⁰ and so they are suitable to be an object of metaphysics. From this came forth another branch of metaphysics, called 'angelology' or science of angel. The discussion on intellects and angels are crucial in the context of investigating "the origin of existents (*mawjūdāt*)

⁷ Osman Bakar, points out that metaphysics is the most useful science because it deals with God, the Supreme Good, and with spiritual beings close to God. The knowledge of God is sought for its own sake since it constitutes man's true happiness. See Osman Bakar, *Classification of Knowledge*, pp.115.

⁸ Theology in Islamic Philosophy is usually understood as metaphysics in the specific sense (*al-'ilm al-ilāhī bima'nā khāṣṣ*), while 'ontology' is "metaphysics in general sense" (*al-'ilm al-ilāhī bima'nā 'amm*).

⁹ Ibn Sīnā, *Kitāb al-Najāt*, p. 319.

¹⁰ The term used by Suhrawardī is 'al-anwār al-mujarradah' or 'immaterial lights,' or 'pure lights.' See Suhrawardī, *Hikmat al-Ishrāq*, p.79.

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and their immateriality," for it led to another metaphysical branch called cosmogony, and in the context of studying "the way these physical entities came from spiritual entities and on their hierarchy and structure," it has created yet another metaphysical branch, called cosmology.

Muslim philosophers have given their best thoughts and concepts to their cosmological systems. Of course, we knew already the theories of emanation of al-Fārābī¹¹ and Ibn Sinā¹² and its critical reviews by Suhrawardī¹³ or Quṭb al-Dīn Shirāzī.¹⁴ In their cosmological works, they have demonstrated rationally that these physical entities have come forth from the Necessary Being, or God, after a long list of immaterial entities, such as angels, intellects and souls, and that these entities are arranged in a hierarchical order.

d. Eschatology

The last branch of metaphysical science in Ibn Khaldūn's classification of knowledge is the one which "studies the state of soul after its separation from the body and its return to the original place" and this particular science is called 'eschatology.' Eschatology usually begins with the definition and ontological status of soul, including the arguments for its existence and its independence of material world which will ensure its survival after death. Ibn Sinā has put forward his argument of the existence and immateriality of soul in the so-called 'floating man.'¹⁵ While in his *al-Najāt*, he discusses the survival and immortality of the soul after its separation from the body. Likewise, the immortality of soul is also discussed more elaborately by his predecessor (or even some

¹¹ Richard Walzer, *Al-Fārābī's On the Perfect State: Abū Naṣr al-Fārābī, Mabādī'Arā' Ahl al-Madīna al-Fāḍila*, especially chapter 6 (Oxford: Clarendon Press, 1985), pp. 114-119.

¹² Ibn Sinā, *Kitāb al-Najāt*, pp. 310-311.

¹³ Suhrawardī, *Ḥikmat al-Ishrāq*, pp. 90-114.

¹⁴ Walbridge, *The Science of Mystic Light*, p. 110.

¹⁵ See Goodman, *Avicenna* (London & New York: Routledge, 1992), p. 155, and Shams Inati, "Ibn Sinā." In S.H. Nasr and Oliver Leaman, *History of Islamic Philosophy*, p. 239.

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said his teacher) al-'Āmirī, Abū al-Ḥasan in his *Kitāb al-Amad 'alā al-Abad*.¹⁶

The ontological statuses of metaphysical objects have been discussed in the previous chapter. Therefore, there is no need to repeat them here. Suffice here to say that Muslim philosophers firmly believe in the ontological realities of these metaphysical objects, such as existence qua existence, God, angels, intellects and souls. For that reason, the knowledge of them is philosophically possible, provided that we use appropriate methods, which will be addressed separately in the next chapter.

2. Mathematical Sciences

Now, let us turn to the ontological basis of mathematical sciences, by familiarizing ourselves with the nature of its objects. While metaphysical objects, as discussed earlier are immaterial in nature and, as Ibn Sīnā puts it, "those that are necessarily unmixed with motion and matter," and physical objects are those that are necessarily mixed with motion and matter," what is then the nature of mathematical objects? For me, Ibn Sīnā's description on the third type of existence as "those that can mix with motion and matter but which can also have an existence separated from them,"¹⁷ is suitable to explain the nature of mathematical objects. Mathematical objects, such as numbers and geometrical shapes, of course immaterial and will not be found its essence in the physical world. Number 3, for instance, should be understood as the symbol of abstract essence of the three, like a triangle is the symbol of real 'abstract' triangle defined as a plane having three angles and 180 degrees). Even so, these essential 3 or triangle can still be associated or connected to physical entities, such as apples or chairs, so we say 3 apples, 4 chairs, 5 houses and so on. Therefore, mathematical objects are in themselves abstract, but they can still be connected to the physical objects. A proof that mathematical

¹⁶ Everett K. Rowson, *A Muslim Philosopher on the Soul and Its Fate: al-'Amirī's Kitāb al-Amad 'alā al-Abad* (New Haven, Conn.: American Oriental Society, 1988), pp. 264-266.

¹⁷ Osman Bakar, "Science" in S.H. Nasr & Oliver Leaman, *History of Islamic Philosophy*, p. 936.

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objects are immaterial is the fact, that in mathematics one can say that “something can be divided indefinitely, while in the physical world nothing can be divided indefinitely. The ‘infinity’ in mathematics is true and logical. Therefore, we can conclude that mathematical objects in themselves are immaterial but still are capable of having positive connection with the physical objects.

What is actually the ontological status of these mathematical objects? Paul Davies, in his book *The Mind of God* informs us that experts are divided in this matter. Some say that mathematical objects are real, in the sense having a positive ontological reality, while others reject them as unreal.¹⁸ What is the ontological status of mathematical objects, according to Muslim philosophers? If we return to Suhrawardī who says that Platonic ideas are angels,¹⁹ while mathematical objects belong to Platonic ideas, therefore, the ontological status of mathematical entities, such as triangle and rectangular are also real like that of angels. Even, on this consideration, it is possible that their ontological status is more real than that of physical objects in the same way the ontological status of angels is more real and higher than that of physical objects. Therefore, these very special objects can legitimately act as the ontological basis for the classification of mathematical sciences.

In his book, *Iḥṣā' al-'Ulūm* (The Classification of Knowledge), al-Fārābī divides mathematics into 7 divisions:

1. **Arithmetic** (*'ilm al-'adad*), comprised of
 - (a) The theoretical science of numbers.
 - (b) The practical science of numbers
2. **Geometry** (*'ilm al-handasah*) comprised of
 - (a) Theoretical geometry
 - (b) Practical geometry
3. **Optics** (*'ilm al-manāẓir*) which includes study of
 - (a) What is observed by means of straight rays
 - (b) What is observed by means of other rays
4. **Science of Heaven** (*'ilm al-nujūm*), which is divided into
 - (a) judicial astrology (*'ilm aḥkām al-nujūm*)

¹⁸ Paul Davies, *The Mind of God, the Scientific Basis for A Rational World* (New York: Touchstone, 1993), p. 138-139.

¹⁹ Suhrawardī, *Ḥikmat al-Ishrāq*, p. 108-109.

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- (b) astronomy (*'ilm al-nujūm al-ta'limī*), which includes the study of
 - i. Figures, masses and relative positions of the heavenly bodies,
 - ii. The motions of the heavenly bodies and their conjunctions
 - iii. The earth's climatic zones.
- 5. Music (*'ilm al-mūsīqā*), which is comprised of
 - (a) Practical music (*'ilm al-mūsīqā al-'amaliyah*)
 - (b) Theoretical music (*'ilm al-mūsīqā al-nazariyah*)
- 6. Science of Weights (*'ilm al-athqāl*), and
- 7. Engineering or science of ingenious devices (*'ilm al-hiyāl*), such as
 - (a) Arithmetical devices,
 - (b) Mechanical devices
 - (c) Devices for making astronomical, musical and other instruments for use in various practical arts, including weapons
 - (d) Optical devices.²⁰

These are all that I can present here pertaining to the ontological basis for the classification of mathematical sciences.

3. Physical Sciences

Now, let us discuss the ontological basis of physical or natural sciences. Perhaps we do not need to discuss in length the ontological status of the objects of natural sciences, not only because we have talked about it in the last chapter, but also because among all objects of science, the ontological status of physical objects is the most obvious and agreed upon even by those who raise doubt on metaphysical and mathematical objects. It is enough to say that the ontological status of objects of natural sciences is universally accepted by both Muslim and Western scientists. Therefore, we have no problem in establishing the ontological basis for these natural sciences.

These natural sciences are naturally sub-divided in accordance to the types of their objects. Al-Fārābī has told us (see

²⁰ Osman Bakar, *Classification of Knowledge in Islam*, pp. 122-123.

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previous chapter) that these natural objects are divided into 5 types: elements, minerals, plants, animals and human beings. Every one of them can legitimately serve as the ontological basis for any branch of natural sciences. Therefore, the elements need a specific discipline which studies them, such as chemistry and material physics. Mineral substances need a certain discipline investigating them, called mineralogy and its sub-branches, such as metallurgy which tells us how to make instruments from metals, like sword, knife, spears and so on. The same holds true with plants. Plants have become the ontological basis for botany and animals for zoology. Human being, as a rational being also needs to be studied not only by one particular discipline, but three: anatomy, which studies human beings as a physical entity, medicine which studies human beings from a health perspective, and finally psychology which studies human beings as a mental being.²¹

Or course, there are still many branches of natural sciences that have been developed by Muslim scientists and philosophers related to these physical objects, such as geology which studies the structure of the earth, also its layers and elements and geography which studies earth's surface, including its maps, cities, mountains, rives, the sea and so on. Geography also studies sociology, politics etc. pertaining to the existence of human beings as social creature, agents of change, and the administrator and rulers of the world.²² Even so, hopefully what we have presented in this chapter will suffice to illustrate how these scientific disciplines, developed and reconstructed by Muslim philosophers over centuries, are closely connected to, influenced by, and established on, the firm ontological bases taken from various levels of existence, ranging from the physical to the metaphysical.[]

²¹ For this scientific field called psychology, we can take a theory presented by Ibn Sinā in *Avicenna's Psychology*, translated by Fazlur Rahman from *Kitāb al-Najāt*. See Rahman, *Avicenna's Psychology: An English Translation of Kitāb al-Najāt*, Book II, Chapter IV, with Historico-philosophical Notes and Textual Improvement on the Cairo Edition (London: Oxford University Press, 1952).

²² For the studies of history and sociology, see my book *Nalar Religius: Memahami Hakikat Tuhan, Alam, dan Manusia* chapter 7 on "Sociology of Ibn Khaldūn." (Jakarta: Erlangga, 2007), pp.75-88.

Chapter 6

On Scientific Methods

WHILE the objects of knowledge deal with the question “what can we know?” scientific methods deal with the question “how can we know the objects?” The question of how can we know the objects as they are is of great significance for any epistemology, since to answer it, we must know what are the steps and scientific procedures a scientist should take in order to obtain “the knowledge of a thing as it is.” Nevertheless, as we might realize when we discussed about sense, intellect and heart (see chapter 3), to know a thing as it is, in reality, is not as easy as we may think. Just to know the colour of the sky, for instance, it is not very easy, because for that, we should know first what the sky is. To complicate the matter, we also know that the sky is indeed not very easy to define, for ‘the sky as it is’ is very different from that which we perceive through our senses. In addition, to know the size of a star, if we still want to use previous example, or even its existence, is also quite difficult to do, if we just use our naked eyes. Therefore, we need certain ways or methods to know the objects as they are, or at least to approach their realities. It is the ways or procedures to know a thing as it is that we mean by the ‘scientific method.’

Muslim philosophers and scientists have developed different kinds of methods. The differences in the methods are due to different nature of their objects. Since the objects, as mentioned in chapter 4, have different nature, character, and ontological status, so the scientific methods also, at least in the Islamic epistemology, vary depending on their objects. It is of no surprise, if we find in it not just one but several scientific methods, such as

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experimental method (*tajrībī*) or observation for physical objects, logical method (*burhānī*) for non-physical objects, and intuitive method (*irfānī*) for knowing non-physical objects in a more direct way. Now, with these three methods, Muslim scholars and philosophers can conduct various researches on the rational sciences, such as physics, mathematics and metaphysics, which, as mentioned in previous chapter, have formed three main groups in the classification of knowledge in Islamic philosophy.

However, it is important to note that these scientific methods should not be treated too tightly and exclusively, since it is possible for us to find the combination between these various methods. For instance, demonstrative method (*burhānī*) can be utilized also for an empirical research. Ibn Rushd, for example, says “demonstration is achieved primarily through physical or empirical inquiry,”¹ while al-Kindī states that “mathematics is the chief instrument of demonstration.”² Sometimes, we can still find yet another more complicated combination. Ibn Haytham, for example, points out that “both physical and mathematical inquiries play an equally important role in demonstrative and scientific method,” and in practice, he himself has used both of them in his research on optics.³ Whatever combination might be, it is clear that Muslim scientists and philosophers have recognized not just one scientific method, that is experimental method or observation, as believed by modern scientists, but also, as we will see in due course, a number of scientific methods which enabled them to do researches on different objects of sciences: physical, mathematical and metaphysical.

1. Experimental Method (*Tajrībī*)

Let us begin with the first, the experiment method or observation. This method, dealing with sense perception, is most suitable for investigating the physical objects. However, as indicated earlier, to obtain an objective knowledge on these objects is not so easy as

¹ Osman Bakar, “Science” in S.H. Nasr & Oliver Leaman, *History of Islamic Philosophy*, Vol. 2, p. 942.

² *Ibid.*

³ *Ibid.*

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we might think, and surely we need certain ways and supporting tools without which our sense perception will not be very accurate and therefore will fail to get information badly needed to know the physical objects as they are. According to Ibn Haytham, we need a specific method of observation (including experiments) and tools to support our senses due to the inherent weaknesses of sense perception. In his magnum opus, *Kitāb al-Manāẓir* (The Optics), Ibn Haytham points out several weaknesses of our direct vision, due to a number of factors, such as distance, position, transparency, opacity, duration of sight, and the condition of the eye.⁴ Therefore, we can understand why, according to Ibn Haytham, observation as a scientific method should be supported by mathematical method or 'calculation,'⁵ as Laplace puts it, to obtain accurate information. In Ibn Haytham's work, we find so many mathematical figures, like in the works of modern physics, which for him, are necessary to cope with sense's weaknesses and flaws.

In other place, observation method also has been perfected by a number of Muslim astronomers, by employing supporting tools, such as observatory (with various optical lenses or telescope), to obtain more accurate pictures of celestial bodies than those obtained by direct and naked eye's observation. By utilizing observatory, as a tool of observation, Muslim astronomers acquired better data in this field, as represented in the Ṭūsī's comprehensive astronomical calendar called *Zij-i Ikhkân*. In addition, he also created a very well-known theory in astronomy called Ṭūsī's Couple.⁶ This very important theory can give us a more accurate picture of the movement of planets than the chart presented by Ptolemy, and according to Toby Huff, in his book, *The Rise of Early Modern Science*, it has exerted a great influence on Copernicus' astronomical theory and calculation.⁷

⁴ Sabra (ed. & Trans.), *The Optics of Ibn Haytham* (London: The Wayburg Institute University of London, 1989), p. 277.

⁵ Antony Flew, *A Dictionary of Philosophy*, the revised edition (New York: St Martin's Press, 1979), p. 69.

⁶ Marshall Hodgson, *The Venture of Islam*, vol. I, Chicago: Chicago University Press, 1974), p. 137,

⁷ Toby Huff, *The Rise of Early Modern Science: Islam, China and The West* (Cambridge: Cambridge University Press, 1993), p. 137.

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The contributions of Muslim scientists and philosophers to development and progress in scientific fields and methods can be seen from the fact that it was in the hands of Muslim scientists and philosophers that philosophical theories have found their real scientific forms, while in the classical Greek works they were still very much speculative in nature. Through critical examinations and experiments conducted by Muslim scholars, both in laboratories and observatories, a number of theories developed earlier—both in Greece or Alexandria,—were proven to be incorrect and then revised. Muslim astronomers, for example, have found several anomalies in the Ptolemaic astronomical system, so that their works on astronomy became a crucial critic of Ptolemaic theory and paved the way for Copernican astronomical theory.

Moreover, through experiments on light, Ibn Haytham has disproved Aristotelian theory on direct vision and demonstrated that, different from what the Stagira philosopher had stated, we are able to see an object is not because our eyes emit a light onto an object, but another way around. It is the object that discharges the light into our eyes, or reflects it from other external object.⁸ He rejected this Aristotelian theory, for “if the condition to see an object is the emission of our eyes’ light into the object, how can we see a faraway object which will not be possibly reached out by the light of our eyes?” Therefore, through his careful experiments, Ibn Haytham has established the true theory of direct vision—and accepted till today. Surely, this is a great achievement of his scientific enterprise of his time.

Another example on how this observation or experimental method was carried out by Muslim scholars is what has been done by Abū Rayḥān al-Bīrūnī, a Muslim polymath of the eleventh century. “As the master of observation in the fields of geology and geography,” says S.H. Nasr, “al-Bīrūnī has attempted to measure the circumference of the earth.”⁹ But, since the sailing around the world was almost impossible to exercise at that time and would demand unbearable cost to do that, al-Bīrūnī took an initiative to

⁸ Sabra, *The Optics of Ibn Haytham*, p. 12.

⁹ S.H. Nasr, *Introduction to Islamic Cosmological Doctrines* (Boulder: Shambala, 1979), p. 129-130.

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do experiments by way of combining the observation method and mathematical theories especially trigonometry. How this observation was carried out? First, al-Bīrūnī assumed that the earth is perfectly circular (spherical).¹⁰ With this assumption, he used trigonometry principles to figure out the diameter of the earth. Next, to achieve that goal, al-Bīrūnī and his assistants stood up on the top of a mountain. Then he looked at the setting place of the sun in the west horizon and measured the angle between the horizontal line and the sun ray from the horizon when the sun sets in the west hemisphere. Later, al-Bīrūnī applied trigonometric theorems utilizing mathematical figures, circle, straight line, and triangle. By adding, dividing, and multiplying the angles, he finally found, after a number of fail experiments that the circumference of earth was 24,778.5 miles.¹¹ Of course, this was a remarkable discovery not only in his times but also in modern times, since compared to the modern measurement which is 24,901 miles it is just 122.5 mile difference. The diameter of the earth that he discovered was 7,878 miles, while the modern one is 7,902 miles.¹²

2. Demonstrative Method (*Burhānī*)

Now, let us turn to the second method: the demonstrative method (*burhānī*). When the objects of science move from the physical to non-physical, the experiment method (*tajrībī*) cannot play any important role any more, although it is still needed as auxiliary tool for the rational method. Of course, the demonstrative method (*burhānī*) is just one of rational or logical methods used by Muslim scientists and philosophers. Other methods are dialectics (*jadālī*),

¹⁰At that date, this assumption was very progressive if we remember in the tenth and eleventh centuries, the prevalent geographical and astronomical theory was Ptolemaic, while Vasco Da Gama (d. 1524) and Christopher Columbus (d. 1506) some five centuries afterward conducted their world famous voyages.

¹¹Hakim Said, Dr., Zahid Khan, *Al-Bīrūnī: His Times, Life and Works* (Karachi: Hamrad Academy, 1981), p. 170.

¹²This is the commonly accepted value of the diameter of earth of modern times.

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rhetorics (*khutābī*), sophistry (*mughālīṭī*) and poetry (*shī'rī*).¹³ However, according to the philosophers, among these logical methods, it is the demonstrative method that is the best and most accurate. That is why it has been used as the common and basic scientific method for not only logical and philosophical fields, but also empirical and mathematical ones.

In principle, the demonstrative method is logical or rational reasoning used by philosophers to examine the truth of a scientific or philosophical proposition by carefully conducting the correct procedure of drawing a valid conclusion. This is, for example, executed by checking carefully whether the major and minor premises are valid, and whether or not the middle term which connects the two premises does exist. This particular method (of drawing a conclusion from two premises through the middle term) is called in logic 'syllogism' (*al-qiyās*). As the best part of logic, the demonstrative method shares certain goals with logic, whose objectives have been described by al-Fārābī as follow:

- (1) To regulate (*tuqawwim*) and guide reason toward right thinking with regard to all intelligibles that admit of error;
- (2) To provide safeguards against error in regard to those intelligibles;
- (3) To provide means of testing the intelligibles that admit of error.¹⁴

The 'means' here refers to the rules (*taqāwīm*) whose connection to the intellect (*al-'aql*) and the intelligibles (*al-ma'qūlāt*) is like that of grammatical rules to language and expressions. The demonstrative method has a special place in logic as a whole, for, as al-Fārābī puts it, "the primary purpose of the student of logic is to study demonstrative art because this art best fulfils the goal of attaining certain knowledge in the philosophical sciences."¹⁵

¹³ See Majid Fakhry, *A History of Islamic Philosophy* (New York: Columbia University Press, 1983), p. 113.

¹⁴ Osman Bakar, *Classification of Knowledge in Islam*, p.129.

¹⁵ Osman Bakar, *Classification of Knowledge*, p. 130, and Osman Bakar, "Science," in Nasr & Leaman, *History of Islamic Philosophy*, p. 942.

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The formal form of demonstrative method (and actually other methods) is 'syllogism,' that is the method of drawing a conclusion from major and minor premises, sharing the same element called the middle term (*al-ḥadd al-awsaṭ*). A syllogism is called demonstrative only if its premises are based on a well-founded or primary truth,¹⁶ not on an opinion. This is important to bear in mind, for only if the premises are true, the conclusion drawn will also be true. Otherwise, the conclusion will be very much doubtful or even erroneous. The classical example of a demonstrative syllogism is as follows:

All human beings are mortal,
Socrates is a human being,
Therefore, Socrates is mortal.

The statement "all human beings are mortal," is called the major premise, while "Socrates is a human being," is the minor premise. The word "human being" appearing in both statements is called the middle term (*al-ḥadd al-awsaṭ*). If the first and second premises are absolutely right, we can surely say that the conclusion – that Socrates is mortal,--must also be right. This is an ideal example of a demonstrative method.

Nevertheless, in reality the truths of premises are not at all clear-cut like that. We need certain rigorous criteria for establishing the truth. Therefore, like the experimental method, the demonstrative method also needs what we may call verification and falsification. Verification is carried out by establishing certain conditions for a correct syllogism. For instance, whether the major premise is comprehensive (*jāmi'*) or not (*māni'*), and whether the middle term can be found in the two premises. As for the falsification, it is carried out by studying other logical methods fallen below the demonstrative method: dialectic, rhetoric, sophistic, and poetic. It is why al-Fārābī says, "even though the main purpose of study of logic is demonstrative method, but we also need to study other methods, such as dialectic, rhetoric, sophistic and poetic, to avoid error and doubt."

¹⁶ Osman Bakar, *Classification of Knowledge in Islam*, p. 130.

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Why the study of these other methods is so important in logic? The answer is that "Logic as science must embrace all forms of reasoning. Although demonstrative reasoning constitutes the primary aim of logical study, the study of the non-demonstrative syllogistic arts is also necessary. This latter study helps one to know what the art of demonstration is not, which in turn helps him to guard against falling into the use of methods that lead to error, mere opinion or an image of the truth."¹⁷ For al-Fārābī, "to know what leads one to truth and certainty is to know at the same time what leads to error and doubt. One does not begin with error and gradually discover the truth. One should first learn what lead to the truth and then seek to know all possible avenues to error."¹⁸ Actually, other great Muslim philosophers have talked in length in their works the so-called 'logical fallacies' or logical errors that might be found during a syllogistic working out. By knowing the various logical fallacies, one is expected to be able to avoid himself from falling into errors and doubt.

Before we turn to the third method, the intuitive method (*irfānī*), there exist some other important things pertaining to the scientific status of logic that I want to talk about. For sure, logic is a rational method, like observation is an empirical or sensory method. The question now is "is logic, as a rational method, a branch of philosophical sciences, or an instrument (*organon*) of thinking?" Al-Fārābī, following Aristotle, holds that logic is an instrument of thinking.¹⁹ As an instrument, logic, including the demonstrative method, can be utilised not only in philosophical field, but also, as we have mentioned, in the empirical fields. Therefore, Muslim scientists and philosophers have used the demonstrative method both in analysing sense data and in examining some philosophical premises and propositions.

Another important question on this demonstrative method—as the best sort of rational method—is how does this method acquire its object? Compared to the method of observation, the demonstrative method is significantly different from it, in that it does not actually acquire its object directly.

¹⁷*Ibid.*

¹⁸*Ibid.*

¹⁹*Ibid.*, p. 131.

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Aristotle points out that in logical procedure, we know the unknown object from the known one.²⁰ This means that rational method is not a kind of method that knows the object directly, such as the case of sensible knowledge through observation. We have seen that the conclusion of a syllogism is drawn from premises, whose truth has already been known and established very well. Without knowing these premises, a conclusion and new knowledge will never be achieved. Hence, we can understand how Muslim philosophers such as al-Kindī, al-Fārābī and Ibn Sīnā, proved logically the existence of God after having investigated the physical world in terms of its nature and characteristics. With *dalīl al-ḥudūth* (the novelty of the world), al-Kindī has succeeded in proving the existence of God as the Creator (*al-badī'*), as also carried out by Ibn Sīnā with his ontological proof and Ibn Rushd with his teleological one.²¹ To conclude, with a demonstrative method, human being can know not only the physical objects but also the non-physical ones, such as God and other immaterial entities like angels, souls or even ideas.

3. Intuitive Method ('*Irfānī*)

Let us now turn to the intuitive method ('*irfānī*), as the third scientific method. While the experimental method is based on sense perception, and the demonstrative method on the intellect (reason), what is the intuitive method based on? The answer is on heart (*qalb*) or intuition. The further question is "what are exactly the peculiarities of intuitive method compared to the experimental and demonstrative methods?" To know the peculiarities of intuitive method, maybe we should compare it with the other two. The similarity of intuitive method with experimental one is that both of them acquire their objects directly. Eye, for example, can perceive directly any objects it sees, or ear can perceive directly the sound it hears. So also intuition can perceive its object directly,

²⁰ T.H. Irwin, "Aristotle (384-322 BC), in Edward Craig (ed.), *Routledge Encyclopaedia of Philosophy* (New York & London: Routledge, 1988).

²¹ I have demonstrated in my book in one of my books, the philosophers have proven through a rational reasoning or in my terminology 'capturing God through intellect.' See Mulyadhi Kartanegara, *Menembus Batas Waktu*, pp. 32-37.

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except that the nature of its object is different from that of empirical ones. Senses deal with the physical objects, while intuition deals with more abstract objects such as love, hatred, regret and happiness. So in this particular case, the intuitive method is quite similar with the rational method. However, unlike the intuitive method, the rational method, as mentioned previously, does not capture its object directly, but indirectly by way of drawing a conclusion from previously known premises. It is, therefore, in opposition with intuitive method which is more direct or immediate.

Therefore, it is clear that the distinction of intuitive method lies in its immediate capture of its objects. This immediacy of the intuitive method can be discerned in several points. First of all, an intuitive knowledge is attained through experience, i.e. by feeling or tasting its object, and hence the term *dhawqī*, or experiential, and not through logical reasoning as carried out by intellect. For example, we will never know or apprehend 'love' simply by reading love stories or literature, however numerous they may be, but by experiencing it, that is, by falling in love with someone. Without this direct experience, we will never understand the essence or reality of love. Love cannot be understood through intellect but through heart or intuition. Don't be surprised then if we cannot express our intense feeling of love through words or discuss it discursively, since it does not belong to the realm of reason. Heart can understand love not through words or definition, but through experience. Therefore, in principle, we cannot understand what the state of love of a Sufi, like Rābi'ah al-'Adawiyyah for God, unless we ourselves fall in love with Him.

Second, the immediacy of intuitive method can also be seen in the so-called knowledge by presence (*'ilm al-ḥudūrī*). An intuitive knowledge is marked by the presence of its object in the subject. That is why it has been called 'presential knowledge.' Unlike rational mode of apprehension which understands its objects through various symbols—words, sentences, or formulas—intuitive knowledge transcends all symbols and representations and pierces into the heart of its objects. This has been signalled clearly in one of Mawlānā Rūmī's poems: "Can you pluck a rose from R.O.S.E? No, of course not! You just mention a

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name, seek after the named!"²² The mode of rational knowledge, due to its dependence on a symbol, will never, according to Bergson, touch the heart of its object. It will only revolve around it.

Third, the immediacy of the intuitive method can also be seen from what I call 'the existential' experience. Reason with its rational mode, according to Muhammad Iqbal and Bergson, tends to 'spatialize' its objects and measure them with a homogeneous unit of measurement.²³ The tendency of reason to homogenise its objects has caused it to frequently make a generalization of the objects, and neglect their particularizations. Moreover, as we have known from chapter 3 on the intuition, the rational apprehension is conducted through several categories, such as time, space, and causality, and for this very reason it tends to generalize – by way of categorizations – its objects. Meanwhile, we know that any categorization or classification will neglect the peculiarity and uniqueness of an individual object.

Unlike the rational tendency, intuition does not apprehend its objects through categorization, but know them intimately case per case. The intuitive mode of apprehension like this makes intuitive knowledge more accurate, for it touches directly the particular objects with all their peculiar and unique characteristics. Let us take an example. According to rational category, one hour anywhere will be all the same not only in quantity but also in its quality. So also one meter here will be the same as everywhere else. Rational category will ignore the fact that one hour for the one who is waited will not the same in quality as for the one who is waiting, since for the waited person an hour will seem passes very fast, while for the waiting, it moves very slowly. Again, reason often neglects the fact that for people who fall in love a 'bus halt' where they stand has a special meaning, while for others it means almost nothing. For the lovers the place is very beautiful and meaningful, while for others it is just a regular thing. Contrary to this, intuition which operates directly on its particular objects will understand the uniqueness of every

²² Mulyadhi Kartanegara, *Renungan Mistik Jalāl al-Dīn Rūmī* (Jakarta: Pustaka Jaya, 1986), h. 74.

²³ Mulyadhi Kartanegara, *Menembus Batas Waktu*, p. p. 14.

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space and event in what I have termed 'existential experience.' With the same method, intuition understands why for certain people (especially the religious ones) there are places which are sacred, while other places are profane. Also there are certain moments (day, month, and year) which are considered sacred, while others are profane.

These are three peculiar traits of the immediate apprehension of intuitive method that distinguish it from the sensory and rational ones. The question now is how can we acquire, cultivate, and develop this method? We have pointed out that intuitive apprehension is not acquired through intellectual reasoning, but through direct experiences. Hence, to develop intuitive capability, as practiced in various *ṭarīqahs*, the adept (*murīd*) is not requested to engage in discussion or to read a bunch of books, since *tasawwuf* cannot be understood through books. Instead, the master will take him to the *dhikr* session to taste directly the sweetness of mystical experience. Rūmī once says, "If you want to know fire intuitively, burn yourself on the fire."²⁴ So it is not by reading many books that we know water, but by plunging ourselves into it. In the same fashion, if we want to know what 'sweetness' is, we do not seek the information from books, but by tasting the sweetened tea, for example. Only then will we understand fully what sweetness is without words or definitions. It is common practice in the *ṭarīqahs* that an adept will usually be asked to join the *dhikr* session, wherein a group of people recite over and again the beautiful names of God. The *dhikr* is performed in attempt to be close to God (*taqarrub ilā Allāhī*), since by performing an intensive and sincere *dhikr*, it will create a mutual relationship between a slave ('*abd*') and the Master. For, according to sufis, every recitation of God's name, will incur a more intense response from Him. The outcome expected from this relation is a mutual love between the two. Rūmī points out, in one of his poems, "There will be no sound of hand clap from only one hand.

²⁴ Jalāl al-Dīn Rūmī, *The Mathnawī of Jalāl al-Dīn Rūmī*, vol. II, translated by R.A Nicholson, (London: Luzac & Co. Ltd, 1968), p. 266. See also Mulyadhi Kartanegara, *Jalāl al-Dīn Rūmī, Guru Sufi, Penyair Agung* (Jakarta: Teraju, 2004), p.75.

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If there is love for God in their heart, certainly there will also be love for them in His."²⁵

In addition to direct practice in *dhikr* session, the intuitive power or sensitivity will be enhanced through the so-called 'purification of soul' (*tazkiyyat al-nafs*). Rūmī states, "If you want to transcend the symbols and letters, cleanse up yourself from the dust of ego (*nafs*). You might acquire the knowledge of the Prophets, without book, without tutor." The task of human beings, according to the sufis, is to clean up the window glass of their hearts. Then, they wait a proper moment for the sun rays of the truth to spark upon their hearts, and hopefully cast them immediately onto their hearts. With this, they will acquire the true and convincing knowledge (*ma'rifah*). It is through this way, among the others, that a sufi or saint (*ṭwalī*), or especially the prophet at its pinnacle, obtain their direct knowledge from the Truth (*al-ḥaqq*) Himself, without any mediator. For this very reason, this mode of apprehension is called 'ilm al-ladunnī,' meaning direct or immediate knowledge.

This intuitive method has actually been developed not only by the sufis, but to certain extent also by Muslim philosophers, such as Suhrawardī and Mullā Ṣadrā. A profound study has been made on this issue by a contemporary Iranian philosopher, Mehdī Hā'irī Yazdī in his excellent book, *The Principle of Epistemology in Islamic Philosophy: Knowledge by Presence*.²⁶ In this work, Professor Yazdī has tried quite successfully to demonstrate that the mystical knowledge, rejected by most of Western philosophers, is philosophically possible, and in principle has been developed comprehensively by both sufis and philosophers alike throughout the history of Islamic thought and civilization,[]

²⁵ *Ibid.*, 78.

²⁶ Mehdī Hā'irī Yazdī, *The Principle of Epistemology in Islamic Philosophy: Knowledge by Presence* (Albany: State University of New York Press, 1992).

Chapter 7

Problem of Objectivity

1. What is Objectivity?

QUITE often we hear the expression “If you want something scientifically right, it should be objective!” or “science should be objective and universal!” We usually take the word ‘objective’ for granted, and find no problem at all in it. The question is what do we really mean by the term ‘objective’? In everyday parlance, the term ‘objective’ means “to correspond to the object” or “the ability of something to be confronted with an object.” And by the ‘object’ here it is usually understood to be ‘the physical object.’ A statement will not be considered correct, if we cannot find its physical counterpart. Therefore, all statements which do not deal with observable and verifiable objects are doomed to be rejected as not objective. This is exactly the spirit of logical positivism which holds very strongly that any statements dealing with non-physical objects—such as ethical or metaphysical statements—are meaningless or worthless.¹ In my view, objective should mean ‘to correspond to reality.’ Nevertheless, the term ‘reality’ here does not necessarily mean the physical entities only, but, in views of Muslim philosophers, the non-physical as well. Therefore, the objectivity cannot be measured just by a physical criterion, but should be based on, or adjusted to, the nature of its objects, be it physical or non-physical.

¹ John Passmore points out that the positivists reject the transcendental metaphysics on the ground that its statements are meaningless. See John Passmore, “Logical Positivism,” in Paul Edward (ed.), *The Encyclopaedia of Philosophy*, vol. 5 (New York: Macmillan Publishing Co. & The Free Press, 1972), p. 53.

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2. Objectivity in the Physical Realm

Actually, even if we talk about the physical objects, objectivity is not as easy as we might think, especially when we talk about the objectivity of sense observation. For example, let us talk about the objectivity of the pen I am using to write this work. At glance, we can say that the colour of the pen is grey. But, is grey as a colour objective, in the sense that it can exist separately from its substratum? In fact, if a small part of this pen is enlarged hundred or thousand times in the microscope, the grey colour, or any colour, will suddenly disappear. Certainly, this will instigate us to seriously ask ourselves is the greyness of my pen objective or subjective? When we see the sea in a sunny day, it looks blue. Is the colour of the sea really blue as it appears to our eyes? I do not think so, for when the sky changes its colour into grey, due to the rain for example, suddenly the blue sea changes its colour into grey. This incites me to again ask whether the sea is blue, or even whether what we call colour really exist as it is reported by our eyes.

Moreover, if we are allowed to repeat an example I have previously used, is the star really small? From a scientific research, we know that the star is not small as it appears to our eyes, since there are many stars in our galaxy which, according to the astronomers, a hundred or even thousand times as wide as our sun, such as Arcturus and Betelgeuse, while our sun is about 3000 times bigger than our earth.² Therefore, our eyes' perception is totally wrong about this. Even a more interesting fact is that the star we saw yesterday night was, according to modern astronomy, probably no longer there in the sky, since what we saw that night was just a very old star which needed millions of years for its light to reach our eyes. Therefore, an unaided sensory perception is not sufficient to measure the objectivity of a physical object.

Still around the problem of objectivity (particularly of sensory perception), we may take another example which I have pre-

² According to Google sources, *Arcturus* is about 100 times as wide as our sun, while *Betelgeuse* is about 900 - 1000 times bigger than it. As for the size of the sun, it is 1.300.000 times as wide as our earth.

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viously mentioned in another place in this work, but it is still needed in our present context. We might feel that we can see all things as long as they are physical, or that we can hear any sound as long as it is not the unseen (*ghayb*) one. But scientific research tells us that we can perceive light wave with certain frequencies only. Beyond that, our eyes can no longer see or perceive it. That is why our eyes cannot see ultraviolet, x-ray, gamma ray, red-infra or cosmic ray. So also our ears can only hear the sound wave with the frequencies of 15-20.000 Hz per second, so that the sound with a lower frequency than this or higher will not be heard by our hearing organ.³ Even so, it does not mean that the waves of light or sound outside of normal frequencies do not exist. All of these do exist despite of their physical nature. The problem is that our perceiving organs, such as eyes and ears cannot detect them so that it seems that they do not exist. Moreover, even our everyday experience shows how our eyes cannot perceive the air, even when the air is saturated in a transparent tube.

3. The Role of Instruments

It is probably triggered by these basic weaknesses of our senses in perceiving the physical objects that some scientists and philosophers—Muslim and non-Muslim alike—have tried hard to invent certain measuring devices that were codified and agreed upon so that the subjectivity of sensory perception can be reduced as much as possible to produce a more objective information. This measurement unit or system is very important and needed in our daily life, such as for scaling the foods or measuring the cloth. However, the measuring systems utilized in scientific research activities will certainly go beyond this practical objective, for it is used to measure more accurately and more objectively the physical objects. Various types of devices have been invented and developed for this purpose, so that today we know a 'metric system' with its ramifications—km, hm, dam, m, cm, mm, and so on—to measure the length of a physical entity and a 'gram system,'--with its subdivisions--to measure the weight of a thing. Some scientists have

³ For a fuller information on this, please see note 5, chapter 3 of this work.

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also created a 'watch' to measure the duration of a physical body. However, scientific activities demand some finer and more sophisticated instruments, when these basic measurement systems were no longer sufficient. For instance, to measure the temperature of the air or our body, the conventional measurements can no longer function. Therefore the scientists invented a suitable instrument for it called 'thermometer.'

Likewise, to measure the air pressure, a scientist needs a special instrument for it, hence a 'barometer' was created. To know the speed of a moving thing, the scientists need a proper instrument, so that they have created a speedometer. All these instruments are used to reduce the subjectivity of sense perception. By using a speedometer, for example, one can settle which one of the two cars racing in a rally is faster in a more objective fashion, and not simply based on one's feeling which can be very subjective. Later on, the scientists developed yet some increasingly more sophisticated instruments to reduce this subjectivity as much as possible or even if it is possible to eradicate it altogether. Once the optimism of Western scientists for the objectivity and accuracy of the scientific measurements went so high to the point where they really believed that scientific measurement could be carried out truly objectively and no longer needs the involvement of the subject.

4. Relativity and Distortion of the Instrument

a. *Relativity*

Nevertheless, in the beginning of the twentieth century, the discovery of theory of relativity by Einstein has significantly changed this optimism. According to him, however accurate our measurement may be, it cannot be detached completely from the subject.⁴ More importantly the subject has become the inseparable part of even the physical reality. For example, we will never be able to

⁴Brian Hines, for example, mentions that it is impossible for us to separate what one is measuring from whoever is measuring, since both have formed a unit. See, Brian Hines, *God's Whisper, Creation's Thunder: Echoes of Ultimate Reality in the New Physics* (Brattleboro, Vermont: Threshold Books, 1996), p. 203.

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conclude whether a moving motor cycle is really 'fast' or 'slow' until we first determine the position of the subject, from which the speed of the motor cycle is measured. It is very likely, that for a subject who walks on the sidewalk the motor cycle is fast, but for another subject riding a racing car or an express train, the motor cycle seems to be very slow. The measurement can still be carried out, but the decision of its speed can be achieved only after we had determined the position of subject, from where the measurement is initiated. Similarly, it holds true in the case of measuring a marble rolled on a running train. It cannot be measured without establishing the position of subject. The position can be anywhere, for example, from the position of the one who rolls the marble on the train, in whose case the measurement does not need to involve the train's speed, or from the subject standing at the train station, in which case we should add the speed of train to that of the marble.

The sample can be added further, for instance by assuming that the subject is at the outer space, in which case we should take into consideration the speed of earth. But, the most important thing to bear in mind is that in principle the measurement of speed of any object cannot be done without assigning the subject's position. Otherwise, no measurement can ever be carried out. The relativity of this measurement has remained me of a passage by Bertrand Russell in his book, *Philosophical Essays*, stating "Fortunately the size of our eyes is this big, so that we can find some solid things such as the earth to build our houses and cities and we can also measure a relative distance between the cities. However, if the size of our eyes is as small as an electron, we will certainly have a radically different view on this physical world. At least, the impression that this earth is solid and stable will suddenly disperse. Conversely, if the size of our eyes is as big as the sun, the impression of solidity and stability of the world will never occur to our mind."⁵ Of course this is only a conjecture. But, to me, it is certainly a precaution on how relative our sense perception is, for

⁵See Bertrand Russell, *The Philosophical Essays* (New York: A Touchstone Book, 1966), p. 150.

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it is very much influenced by the subject who perceives it, the instrument being used, and the size of the instrument.

b. *Distortion*

Beside, actually not only does the measurement need a subject to initiate it, but in certain cases, the instrument itself can distort the reality. A research in the field of quantum physics, for example, shows us that whenever we want to know the nature of the tiniest component of the physical body (say, for example, an electron), whether it is wave or particle, the very instrument we use can change its fundamental nature. Bohr points out that after we carry out the measurement, an electron always has a value of certain momentum. However, according to him it is wrong to imagine from this that before measurement the electron has possessed certain momentum. The physicists believe that before measurement, it does not have any dynamic character at all.⁶ From this we can learn that the measurement itself can change the original nature of the electron and distort its reality. In the end, we realize that the measurement, originally intended to acquire a more objective picture of the reality of thing, becomes a tool that distorts the reality. Therefore, the measurement we carry out cannot yield us the objective knowledge of a physical object in an absolute sense.

Of course we can learn a lot from this fact. First, if in this physical world the objectivity—even after being supported by various sophisticated instrument—cannot be achieved decisively—you cannot imagine how could it be with the objectivity in other non-physical fields such as psychology, sociology, or purely immaterial fields like metaphysics or eschatology. Another lesson from this is whatever science we might have, it will not be able to escape from subjective element,⁷ and therefore, in essence there

⁶Brian Hines, *God's Whisper, Creation's Thunder*, p. 150.

⁷Holmes Rolston III, for instance, says that any research will more or less be influenced by a theory possessed by a researcher to the point, even in the fields of physics, astronomy and chemistry he cannot escape from his subjectivity. See Holmes Rolston III, *Science and Religion: A Critical Survey* (Philadelphia: The Temple University Press, 1987), pp. 33-34.

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will never be any science which is absolutely objective as have been probably claimed by many modern scientists or by commoners. If the reality is like this, we cannot in principle reject the scientific status of non-empirical fields, like philosophy and meta-physics, simply because it is not easy to achieve the objectivity in these fields, for if we mean by it the absolute objectivity, it will never be positively achieved, even in natural sciences.

If someone can accept the subjective aspect of science, as we discussed earlier, then he will accept the possibility of non-empirical disciplines such as mathematics and metaphysics, to occupy a firm scientific position at least at the same level as those of the natural sciences. Moreover, he can also acknowledge their scientific status, for even if measurement and verification in these fields are not as evident as those in the natural sciences, it does not mean that they are arbitrary. No, it is not, because, as we already discussed at length in chapter 6 on the scientific methods, all philosophical or logical statements or propositions from a philosopher will not be accepted simply on authority. Their statements will be accepted or rejected only after passing through logical examinations and verifications, and after being confirmed that they are free from any logical fallacies that may cause them to fall into error or doubt. So it is clear that like in the natural sciences, where the empirical facts or data are accepted as valid only after a careful and systematic measurement, so also in the metaphysical fields, the philosophical truths should be put under a rigorous procedure and examination. That is why the philosophers have developed a rational method called logic—that is the way of correct thinking—with demonstrative method (*al-burhān*) as its best method.

5. Verification and Falsification

It is through these rigorous logical rules that the philosophical statements or proposition of the philosophers are verified and falsified. A classical example of the execution of philosophical verification and falsification can be observed *inter alia* from al-Ghazālī's famous work of, *Tahāfut al-Falāsifah*. In this work, al-Ghazālī demonstrates comprehensively the incoherence (*tahāfut*)

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of the philosophers' statements in accordance to logical rules.⁸ Therefore, we can say that al-Ghazālī has done the process of falsification against the philosophers' statements. However, his falsification might not entirely be accepted by some other philosophers. For example, in his *Tahāfut al-Tahāfut*, which defends the *falāsifalī's* position, Ibn Rushd found some incoherence in al-Ghazālī's criticism of the philosophers. Therefore we can say that Ibn Rushd has 'verified' the Muslim philosophers' views and 'falsified' al-Ghazālī's. Of course these are executed according to the logical rules considered by the philosophers as the method and procedure for examining philosophical statements or propositions.

What matters here is not "which statement between the two is more correct or coherent" (for it falls outside of our main objective and perhaps it can be an object of specific discussion), but, in the context of the problem of subjectivity, it should be "to realize how scientific investigation in number of non-empirical fields, such as philosophy and metaphysics, have been carried out by the Muslim philosophers through highly rigorous procedures and methods," which are perhaps no less sophisticated than those employed in the fields of natural sciences. Therefore, we can understand why in the Islamic theory of knowledge, the scientific status of philosophy, metaphysics, ontology and so on are considered to be as legitimate and valid as the scientific status of physical sciences. Even some of these philosophers have viewed the former as 'higher and nobler' than the latter in their scientific status, since their subject-matters are higher and more fundamental in their ontological status than those of the physical objects.

6. Objectivity of Mystical Experience

Of course, the discourse of the problem of objectivity will not be complete without mentioning the mystical experiences which become the foundation of mysticism--called in Islamic tradition as

⁸See AbūḤamid al-Ghazālī, *The Incoherencies of the Philosophers: A Parallel English Arabic Text*, translated and introduced by Michael Marmura (Provo, Utah: Brigham Young University Press, 2000).

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Sufism or *taṣawwuf*. We have heard quite often that the mystical experience cannot become the basis for science like *taṣawwuf*, because of its subjectivity. Yes I agree that the mystical experience is subjective, but the problem is "is there any human experience which is not subjective?" Even, the sensory experience is also subjective. For example, the experience of each visitor of a huge electronic exhibition must be different from the others. The fact that "the experience of each visitor is different from the others" is something natural and normal. It should be like that. Even so the differences of the visitors' experiences cannot in any way eliminate the objectivity of the exhibition itself, in terms of venue and time of its organization. It is very important to note, because the statement that "mystical experience is subjective" often implies that it (the mystical experience) is not real, since it is not based on, and experienced in, the real world. But these various subjective experiences, as in the case of above exhibition, do not actually indicate that the exhibition is not real, or does not exist.

With this analogy, we can conveniently demonstrate that although a mystical experience (like other human experiences) is subjective, it does not necessarily mean that it does not have any real or ontological foundation. The so-called Imaginal World (*'ālam al-mithāl*), where the mystical experience is believed to take place, cannot be considered as an illusion simply because it is based on the varieties of the mystics' experiences. For if it is the case, it is possible for us, by using the similar line of argument, to also reject our experience of the physical world. But it is of course very unlikely. The impressive affinities and uniformities that we can find in the doctrines of the great saints or mystics, who lived separately in a great distance both temporally and geographically, especially the resemblance of the world structures they described, as the results of their mystical experience, have led William James, in his very well-known work *The Varieties of Religious Experiences*, to conclude that the mystical world is objective and real, even though it is not physical, for he found the orderliness and uniformity in them. It is inconceivable, according to him, that these mystics or saints, who were highly venerated and respected by the people for their moral and spirituality, would agree to forge a story about their religious and mystical experiences, while their

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temporal and geographical distances were so great. It was just impossible for them to know each other or that they would have agreed to make up the story or to tell a lie.

Therefore, it is now clear to us that a mystical experience, however subjective it may be, still has its ontological basis and objectivity in the real world, even if it is not physical (since not all the real things should be physical). It is probably important to compare here, for the sake of illustration, the mystical experiences with our dream experiences. Like mystical experience, the experience of our dream is of course subjective. For example, I never share my dream with any friend or student. Nevertheless, if we observe carefully the nature of 'the world' of our dream, suddenly we realize that the structure of our dream world is exceedingly the same for everybody. For instance, in a dream, anyone can see various objects in it, although we know that our physical eyes while we are dreaming are closed. Hence, even if we never share our dream with other, but in our dream we use the same 'inner eye' for seeing the objects appearing in it. Likewise, although we never tell our dream to anyone, but everybody will tell the same description on the nature of the world of dream, that is, that the objects we find in our dream have some physical images but they are not in themselves physical nor do they have any physical substances. If they were physical, the one who is dreaming of being crashed by a truck or train would surely have been found death horribly on his bed, but in reality it did not happen. He may have a dream like this a hundred times, but he will not suffer from any physical injury. For me, it proves that the world of dream is imaginal in nature, like what has been in Sufi literature termed 'the imaginal world' (*'alam al-mithal* or *imago mundi*). And the fact that although we never share a dream with each other and yet every dreamer experiences the same sort of world, for me, is a clear indication that the dream world is objective despite the fact that it is not physical.

From this very interesting exploration, let me say this, that objectivity should not become the only criterion for the validity of a particular science due to our impossibility to acquire an absolute objectivity totally independent of our subjectivity. We realize that the absolute objectivity, however the scientists might try their best

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to achieve it, is a sheer illusion. In knowledge, regardless of its field, we should humbly recognize the presence of human subjectivity, as an inseparable part of any scientific enterprise. Conversely, however great our subjectivity in these non-empirical fields may be, it should not permit us to ignore easily the objective measurements of the scientific methods and also its ontological basis, upon which the scientists and philosophers have built and cultivated their sciences, in their own complicated, and yet unique, fashions.[]

Chapter 8

Approaching the Truth

1. Between Mind and Reality

EVER since I knew Kant's criticism of the pure reason saying that, due to the use of certain mental categories implanted in human mind, the pure reason will not be able to know a thing as it is (*das Ding an sich*),¹ I have constantly questioned how did the philosophers or sufis feel confident that knowledge they acquired through, and exist in, their minds (*al-adhhān*) could correspond to the external realities outside of the mind (*al-a'yān*).² This question is important to raise considering the difficulties we have confronted, as mentioned in the previous chapter, to achieve the objectivity (or more precisely the objective knowledge) of an object. This very fact and Kant's criticism have made me really curious to know whether Muslim scientists and philosophers still firmly believe in the possibility of knowledge or fall into relativity which rejects any certainty. From what I knew, their answer to the question is affirmative, meaning yes they do believe in its possibility. Now, our question will be "what kinds of attempt did they make to maintain the possibility of knowledge and to avoid an absolute relativity?" It is the attempts of Muslim scientists and philosophers to approach

¹ See W. H. Walsh, "Immanuel Kant," in Paul Edward (ed.), *The Encyclopedia of Philosophy*, Vol. 4, p. 308.

² The relation between *adhhān* and *a'yān* is actually an interesting issue to discuss to the extent that I wanted to write it as my dissertation when I was in The University of Chicago. But Professor Fazlur Rahman passed away before I wrote the proposal, so I wrote other topic. But until know I still consider to write it some days.

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the truth and certainty that is going to be the main topic of present chapter.

2. Role of Scepticism

If we return to the definition of *'ilm* maintained by Muslim scientists and philosophers as "knowledge of something as it is," there we can see their optimism for the possibility of knowledge. Although al-Ghazālī, for instance, has suffered from a severe skepticism (*shakk*), this skepticism³ (or in this case relativism) has never become an ideology or a philosophical school of thought in Islam. The majority of Muslim philosophers hold a positive attitude towards the possibility of knowledge. This positive attitude is probably caused by their view that knowledge comes from God, either by means of reason or a revelation (*wahy*). Based on this conviction and on an emphatic religious order to seek knowledge, Muslim philosophers have tried resolutely to build the construction of knowledge with its various branches and methods suitable to the subject-matters of each branch. Hence, the hope to acquire the objects of knowledge as they are can be achieved (or at least approached).

1. Two Approaches: Empirical and Logical

a. Empirical Approach

To achieve this goal, here we are going to discuss two ways (methods) to approach (or if possible to achieve) the truth and certainty: the empirical and logical. Let us begin with the first. The empirical way surely refers to the sensory method, for it relies on external sense perception, especially the sense of sight so that it is often called 'observation' which literally means 'to see.' Observation is of course extremely important in scientific activities, although for sure it has some fundamental shortcomings we should be well aware of. Ibn Haytham, as mentioned earlier, was the one who was profoundly aware of the weaknesses of our sight. He devotes the

³ As for how al-Ghazālī was attacked by this scepticism and how he finally overcame it, see Mulyadhi Kartanegara, *Mozaik Khazanah Islam: Bunga Rampai dari Chicago* (Jakarta: Paramadina, 2000), pp. 166-172.

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entire volume three of his magnum opus, *Kitāb al-Manāẓir* (The Optics) to meticulously analyze the errors of our direct vision. In this volume he explains why, when, and how these errors could occur. Ibn Haytham mentions at least eight factors which are responsible for the errors in our sight to take place. (1) the distance of an object which is too far or too close from the moderate distance. (2) the position of an object which is too far or too close from the moderate distance. (3) an extreme lighting to an object which are too bright or too dim from the moderate lighting. (4) the size of an object which is too large or too small from the moderate size. (5) an error taking place due to the opacity which is too thick. (6) the transparency which is too intense from the moderate one. (7) the duration of sight which falls outside the moderate limit. (8) the condition of our eyes which suffers from a severe damage beyond the moderate limit.⁴

The purpose of this comprehensive analysis of the errors of our sight by Ibn Haytham is to make us realize the fact that in its attempts to perceive 'an object as it is,' our sight faces so many obstacles that may cause its failure to perceive the object. By knowing the errors that our sight may suffer from in perceiving the object – and their causes--it is hoped that we will act very carefully, for example, in assessing the results of our sense observation, so that we are protected from any possible error. It is by putting aside all possible errors our senses may suffer from that the scientists justifiably hope that senses can provide us with more accurate information about the observed objects. Eight factors capable of causing the errors of our sight are just like traffic signs we have to carefully observe to reach its destination safely. These are the methods the Muslim philosophers have carried out to draw a correct conclusion. Therefore, knowing the wrong and misleading ways is, as Al-Fārābī puts it, among the conditions to reach the true goal of observation, that is, to acquire the knowledge or information of an object as it is.

⁴ See Sabra (trans. Ed.), *The Optics of Ibn Haytham*, book 3, pp. 227-267. Unexpectedly, al-Ghazālī discussed 7 weaknesses of our sight in his last work, *Mishkāt al-Anwār*. See al-Ghazālī, *The Niche of Light*, Arabic Text and Translation by David Buchman (Provo, Utah: Brigham Young University Press, 1998), pp. 6-9.

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After knowing 'the wrong and misleading ways' of our sight, Ibn Haytham then sought to build his theory of direct vision by fulfilling certain conditions to make the eyes' perception reach its goal, that is, to perceive its objects as they are. To materialize it, he needed to conduct several experiments. In the first volume, section 2 of his *Kitāb al-Manāzir*, he puts forwards certain conditions for our eyes to see an object correctly. He says, for example, "The sight can see no object, unless there is a distance between it and our eyes. For, if the object is attached to the surface of our eyes, we cannot see it, even if the object is visible. Also, we cannot see an object through a mirror, except that the object is placed opposite to the eyes. Moreover, between points on the surface of the observed object and that of our eyes, there should be an imaginable straight line. There should not be any opaque substance between the object and our eyes that may obstruct all the imaginable straight lines between the eyes' surface and the object."⁵

This theory was later supported by an experiment which will be too long to relate here, but whose conclusion, according to Ibn Haytham, is certain and far from doubt, that our sight cannot see any object on the same atmosphere – provided that it is not through a mirror – except through imaginable straight lines themselves that exist between the surface of the object and that of our eyes. Through the experiment, he also found beyond any doubt that the eyes cannot see an object except there is light in it, either of its own light or light that illuminates it from outside. If the object is absolutely dark, in the sense that there is no light whatsoever in it, it cannot be perceived by our sense of sight.

These are more or less the illustration of how the scientific procedures have been carried out by a physicist, like Ibn Haytham, in establishing and ascertaining the accuracy of his observation. The results are very remarkable, since through his experiments and theories, Ibn Haytham could convincingly demonstrate the error of theories of Aristotle and his followers, including al-Kindi,⁶ on direct vision saying that vision takes place because our eyes discharge light to the observed object. Henceforth, Ibn Haytham

⁵ Sabra (ed.), *The Optics of Ibn Haytham*, pp. 6-7.

⁶ *Ibid.*, p. 8

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established the ‘correct and certain’ theory which has been accepted for more than a thousand years until now. According to this theory, “we can observe an object only if there is an imaginable straight line – with no opaque or dark object – between our eyes and the object. Also, we can see any object, if only there is light in it, either of its own light or borrowed from the other.”⁷

b. Logical Approach

Let us now turn to another way (method) to the truth at higher level – the level of non-empirical objects – a method which we call the ‘logic.’ Like in the case of the empirical way, here too we will deal with the most accurate logical method, i.e. demonstration (*al-burhān*), followed immediately by a discussion on other methods below it which we should take a precaution of being misled. According to the proponents of this way, the certainty and truth of a logical proposition can only be attained through logical way, especially the demonstrative method. This can be achieved, however, by following the established logical rules (*al-qawā'id al-manṭiqiyyah*) carefully and by avoiding wrong or less perfect ways lest we are entrenched into error upon drawing a conclusion.

Syllogism (Qiyās)

In logic, we will find important methods of drawing a conclusion through a syllogism (*al-qiyās*). But not all methods can with certainty lead (guarantee) us to the truth of conclusions we draw. According to them, only the demonstrative method is capable of bringing us to the correct result or conclusion. We have discussed in length on this demonstrative method in chapter six, so that we do not need to repeat it here. It is sufficient here to put forward its principles only, and hopefully it can illustrate how the philosophers have managed to achieve or at least to approach the truth and certainty. Professor Osman Bakar once said, “Demonstrative method or proof is a method of proof used by someone to acquire a correct and

⁷ As for al-Kindī’s theory of direct vision, see Mulyadhi Kartanegara, *Mozaiik Khazanah Islam*, p. 29.

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certain knowledge which necessarily lead the demonstrative proof to a rational or intellectual certainty.” This method is distinguished from other methods by basing its premises on the ‘primary and necessary’ truths. The certainty of these premises—which can be supplied by senses or intuition, revelation, logical reasoning or even spiritual experience—would mean that the drawn conclusions should be necessarily correct and certain, and, therefore, according Bakar, has made demonstrative proof the most scientific of all proofs and methods.⁸

Nevertheless, to reach the correct and certain know-ledge, we need, as in the case of Ibn Haytham researches and observations, to know the shortcomings of logical ways by first identifying other less certain methods that can mislead us. According to philosophers’ belief, “One does not begin with error and then gradually discover the truth. One should first learn what leads to the truth and then seeks to know all the possible avenues to error.”⁹ Therefore, according to their conclusion, to possess a perfect or demonstrative art, one should also know what the art of demonstra-tion is not.¹⁰

Types of Logical Method

From this we can understand why, although demonstrative method is the main purpose of the study of logic, other methods are also introduced in their books of logic. The purpose of introducing other less certain methods is to make sure that demonstrative method—capable of bringing us to the truth--does not fall into error by following unknowingly these less perfects ways. The four non-demonstrative methods, as Majid Fakhry puts them, are:

1. **Dialectics (*Topica*)** dealing with dialectical questions and answers
2. **Sophistry or Fake Wisdom**, dealing with sophistic arguments and the way of avoiding them

⁸ See Sabra, *The Optics of Ibn Haytham*, p. 8.

⁹ Osman Bakar, *The Classification of Knowledge*, p. 130.

¹⁰ *Ibid.*, p. 129.

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3. Rhetoric, dealing with different kinds of persuasions and its influences upon the listeners in public oration.
4. Poetics, dealing with rules of writing poetry and various kinds of poetic statement and their excellences.¹¹

I have not found complete information on the characteristics of each above method that differentiate each other method. Even so, I hope al-Fārābī's brief explanation of in his *Ilḥā' al-'Ulūm* can throw a light on this issue. He says: "while demonstrative syllogism as we have known expresses a certainty, dialectical method expresses a presumptiveness, sophistic method expresses a delusion, rhetoric expresses a persuasion, and poetic expresses an imaginative-ness."¹² It is important to note that these four non-demonstrative methods had employed the similar syllogism. Nevertheless, since their premises are not based on truth and certainty, they cannot guarantee us nor bring us to the truth and certainty. They are studied in logic in order for us not to follow these false methodological procedures.

Logical Fallacies

The false procedure can result in an error in reasoning, usually called by the philosophers the 'logical fallacies.' These logical fallacies can easily occur in the non-demonstrative methods which make their rational reasoning not valid, and therefore we should be very careful when use them and be cautious of their dangers. In his famous work, *Ḥikmat al-Ishrāq* (especially the first part dealing with logic), Suhrawardī puts forwards several examples of these logical fallacies which should be known by philosophers and for them to avoid, so that they can prevent us from error, and help us to come to a correct and certain conclusion. There are so many examples of logical fallacy which Suhrawardī gave (especially those which occur in the sophistic method). But here, it suffices to take only few examples. Suhrawardī stipulates that a syllogistic error can take place because its arrangement is not from one of legitimate moods:

¹¹ Majid Fakhry, *A History of Islamic Philosophy*, p. 113.

¹² For further discussion of this issue, see Ibn Khaldūn, *The Muqaddimah*, trans. Franz Rosenthal (New Jersey: Princeton University Press, 1981), pp. 384-385.

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when its middle term is not fully possessed by the second premise since it is not the predicate of both premises. For example, someone says: "All human beings are animal, and animals are universal, therefore all human beings are universal."¹³ This is an error caused by the indefiniteness of the second premise, since 'animal' in the second premise cannot be the predicate of all its premises.

Other possible errors may happen when someone thinks that the expression of "not necessarily" and "necessarily not" is the same. It is wrong since the first can be applied to the possible things, while the second is not (the opposite).¹⁴ The error can also take place from a wrong conversion, for example, when someone concludes that all colours are black, because all blacks are colour. Another may happen, when someone combines what are supposed to be separate, like the expression: "Zaid is a doctor and good," which is understood as indicating that Zaid is a good doctor."¹⁵

Of course, there are still many examples of logical fallacies that Suhrawardī gives in his work, but hope-fully the examples I have given in here will suffice us to realize that in their philosophical investigation, the philosophers have developed some rather complicated and sophisticated methods in their endeavour to acquire the knowledge of both physical and non-physical objects as they are. It can be discerned for example from the fact that to draw a correct conclusion, first they should know the demonstrative method and its application. Later, they are to know very well other non-demonstrative methods with its false and misleading procedures to be avoided. In this way, they can follow scientific procedure (that is the demonstrative method correctly and consistently and achieve a true conclusion. This in turn will become a condition for arriving at the correct information of the objects they are investigating with no error or doubt.

5. Beyond the Two Approaches

Even so, the Muslim philosophers have some peculiar views that distinguish them from other secular philosophers, since for them

¹³ Suhrawardī, *Hikmat al-Ishrāq* (The Philosophy of Illumination), p. 31.

¹⁴ *Ibid.*, p. 32.

¹⁵ *Ibid.*

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the ultimate truth cannot be achieved in certain by only relying on two sources of knowledge, sense and intellect. *There* is yet another important source to be taken into consideration that will, to certain extent, guarantee you the truth and certainty which transcends a merely human enterprise. We are here talking about a transcendent factor believed by philosophers as the true source of knowledge: 'the Active Intellect.' This intellect has been identified as the Tenth Intellect by al-Fārābī and Ibn Sīnā,¹⁶ or Archangel Gabriel (*Jibrīl*) in a more religious term, and has been significantly justified in the Aristotelian teachings. According to the Muslim philosophers, this is the real source of knowledge, from which both the philosophers and prophets acquire knowledge, with slightly different modes. The philosophers acquire it from the active intellect through the 'acquired intellect' (*al-'aql al-mustafād*), after having a contact (*iṭṭisāl*) with it, through a long and arduous effort, while the prophets acquire it through the power of imagination (*al-mutakhayyal*), according to al-Fārābī, or the Sacred Intellect (*al-'aql al-qudsī*), according to Ibn Sīnā, which requires no effort.¹⁷ It is through this direct contact with the Active Intellect, either through effort in the case of the philosophers, or without effort in the case of prophets, and, to certain extents, of the saints (*awliyā'*), that Muslim philosophers and scientists find rational supports for their belief in the possibility of knowledge, and even for some of them, it has become a kind of 'guarantee' for the truth they acquired.[]

¹⁶ For al-Fārābī's and Ibn Sīnā's theories of emanation (*al-fayḍ*) in conjunction with the active intellect, see Ian Richard Netton, *Allah Transcendent*, pp. 114-116, 165.

¹⁷ Fazlur Rahman (ed. & trans.), *Avicenna's Psychology*, pp. 35-37.

Chapter 9

Reality of Mystical Experience

1. A Philosophical Approach

THE mystical experience is usually discussed in the context of *taṣawwuf*, but this time, in accordance with the nature of our work, we would like to address it from a philosophical perspective: the reality of mystical experience as human experience. The topic of this chapter is important to deal with, since there are some people who claim that mystical experience is not real, because, according to them, "it is highly subjective." And we know that by this statement, they actually intend to reject the reality of mystical experience as having no objective ontological basis.

In this chapter, I want to argue that the mystical experience, like all other human experiences, physical or mental, has not only a subjective element in it but also objective one. A mystical experience (including religious experience) is a real human experience like other human experiences: the sensory, mental or rational. Actually, in my view, any human experience has within it subjective and objective aspects. For example, if we send 10 students to a faraway city, they have never visited before, and we want them to report what they have seen in the city, we are pretty sure that they will give us different reports from one another. However, we cannot take these existing differences in their reports to mean that they did not go to the city or that they invented the stories out of their imagination. Instead, the differences happened, because of subjective factors in their perceiving and experiencing it. There is possibility that they visited a particular place together, and yet its impressions upon their minds could vary from one another. Therefore, even the sensory perceptions can be subjective as well. How-

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ever, the differences in their reports cannot be taken as evidence that the students did not actually go to, or see, the city, or that the city itself did not exist. With this, I just want to say that even if the experience is subjective, it does not necessarily mean that it does not have any ontological basis. We have stated that the real does not always refer to the physical entities only, but it can be also non-physical. The world that some Sufis have witnessed in their mystical experiences is real, just like our physical world, even though it is not physical.

2. Dream: Gate of Mystical World

Before we deal any further with our main topic, however, it will be useful to discuss 'dream' as one of our daily non-physical experiences. To my best knowledge, not so many people who have seriously paid attention to this mental phenomenon we call dream, despite of the fact that we experience it almost every day, and that a careful investigation to it (with the nature of its objects and the characteristic of its world) will, I believe, help us to understand more about the mystical experience itself. As one of human experiences, dream, as we have known, is certainly subjective. Even we can say that the subjectivity of dream experience is more obvious than that of the physical one. Nevertheless, as we will demonstrate later, it is actually not entirely subjective, since it does have its objective basis in the dream world itself. The dream is indeed subjective, in the sense that you have never shared it with me, and *vice versa*. Your dream is fully yours, even if in your dream you met someone. There no way from this to conclude that the person who appeared in your dream did share it with you in reality. Even so, neither can we conclude that the dream does not have its objective-ontological basis, for, even when we never share it with any one, the world of dream which each of us have witnessed has certain universal and objective characteristics. For example, whoever dreams, he or she sees its objects not with the physical eye but with a non-physical one. Why? Because, when we are dreaming our physical eyes are closed and therefore they cannot have any activities.

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In addition, the nature of dream object is also the same and universal for everyone who experiences it. For instance, the object takes a physical form or, more precisely, physical image, without having any physicality. The proof that it is only a physical image, and not a physical substance, can be seen, for example, from the fact that we did not suffer from any physical harm, after having been hit by a truck or a train in our dream. The fact that our body is still sound after having fallen from a very high place in our dream tells us that the dream world is not physical in nature, even if it takes up some physical forms. The fact that the dream world is not physical, but it was experienced in the same manner by every dreamer shows very significantly that it is objective. However dreams, the world of dream has the same and constant basic traits: that it has a physical image but it is not itself physical. In addition, although we never share our dream with others, we know for sure that whoever dreams he or she can go back to his or her childhood times, as a distinctive phenomenon, which can never take place in the physical world. Hence, it is obvious that the world of dream is different from the physical world in terms of time and space. But, it does not mean that, because this, it is not real. The fact that the world of dream can be experienced in the same way by everyone shows us that, although not physical, it is objective, in the sense that it has a strong, clear and real ontological reality.

Another phenomenon of dream which is more relevant to our main topic is our ability to communicate in principle with any people and any language. A Javanese, who cannot speak Indonesian language fluently, for instance, can still communicate in his or her dream with a foreigner be it a movie star or a political leader. How it is possible? It is so, since in a dream we basically communicate with the language of heart, not with any verbal language. When one of my students said that she could communicate with a jinni, I asked her about the language she spoke. Then she said that she did not use any verbal language, and yet they could perfectly understand each other. For me, it shows that the language they used is the language of heart or intuition, and not any regular verbal language.

Another yet interesting aspect of dream, and probably closer to the mystical experience, is the fact that we can meet people whom

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we knew to have passed away. Although we do not share our dream with anyone, the fact that everyone can meet the deceased persons in his or her dream show another proof that the world of dream is objective or at least inter subjective. Even so, the dream world cannot be physical, for if it is physical, the dead people appearing in our dream will become alive once again and had their bodies back to them. But this will be very unlikely. Therefore it is clear to us that the world of dream, despite its objectivity, is by no means physical, nor it is purely spiritual. It stands in between the physical and non-physical or spiritual worlds which make possible the exchange of the objects of these two worlds. This world can present not only the physical objects, in forms of image, but also non-physical objects, such as spirits of the deceased, jinni, or for certain people, angels. Even so, all the objects presented in it take the imaginal forms (*al-ṣuwar al-mithāliyyah*) with no physicality.

3. The Imaginal World

A dream can help us understand the mystical experience claimed sometimes by both Sufis and philosophers to have. For me, dream is like a gate for the mystical world. Therefore, let us now turn our discussion from this to the mystical experience itself and its ontological basis, in the form of mystical world, commonly called *'ālam al-mithāl* by Sufis and has been termed by professor, William Chittick as the Imaginal World.¹ For me, the mystical experience is an extra-sensory experience. Therefore, to certain extent, the dream can be considered as a mystical experience, in its lowest level, since it takes place when one is sleeping. In fact, a real mystical experience may also occur in a dream. Even our prophet himself pointed out that "the dream is one fortieth of revelation."² Even so, the mystical experiences often happen when we are awake.

Let us take the example of a real mystical experience as reported by a sufi for us to analyse later. In his famous work, *al-*

¹ Professor Chittick even composed a special work on this Imaginal world. See William Chittick, *Imaginal Worlds: Ibn 'Arabi and the Problems of Religious Diversity* (Albany: State University of New York Press, 1994).

² This *hadith* is quoted by Ibn Khaldūn in his *Muqaddimah*. See Franz Rosenthal, *The Muqaddimah* p. 367.

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Futūḥāt al-Makkiyyah, vol. 8, Ibn 'Arabī describes the mystical experience of a sufi (without mentioning his or her name), when he entered the Imaginal Earth or World (*'ālam al-mithāl*) as follows:

Whenever one of us is searching for the way to access to that Earth the first condition to be fulfilled is the practice of mystical gnosis (*ma'rifaḥ*) and withdrawal from the material body. Then he meets those Forms who stand and keep watching at the entrance to the ways of approach, God having a specially assigned them this task. One of them hastens towards the new comer clothes him in a robe suitable to his rank, takes him by the hand and walks with him over that Earth and they do in it as they will. He lingers to look at the divine works of art; every stone, every tree, every village, and every single thing he comes across, he may speak with, if he wishes, as a man converses with a companion. Certainly they speak different languages, but this earth has the gift, peculiar to it, of conferring on whomsoever enters the ability to understand all the tongues that are spoken there.³

Let us now analyse briefly the passage we quoted above. The first condition to fulfil is *ma'rifaḥ* and self-retreat from the material body. Why *ma'rifaḥ*? It is because in the mystical experience we do not need an intellectual reasoning. A cognition through a mystical experience, called *ma'rifaḥ*, is acquired not through rational reasoning, but through heart or intuition. Hence, only those who have practiced *ma'rifaḥ* will understand it. For instance, how can we talk to a stone, tree, or village and to whatever we saw there? All of these are, of course, beyond our reason to comprehend. Only the heart can understand their language, as in the case of my student who could converse with a jinni, using no verbal language, but the language of heart. In the same work, *al-Futūḥāt al-Makkiyyah*, Ibn 'Arabī describes for us the peculiarity of this world or earth, that is, 'the imaginal world: "In that Earth," says he, "there are gardens, paradises, animals, minerals—God alone can know how many. Now everything that is to be found on that Earth," he says, "absolutely everything, is alive and speaks, has a life analogous to that of every living being endowed with thought and speech."⁴ The

³ See Henry Corbin, *Spiritual Body and Celestial Earth* (New Jersey: Princeton University Press, 1977), p. 139.

⁴ *Ibid.*, p. 138.

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statement that "this earth has the gift, peculiar to it, of conferring on whomsoever enters the ability to understand all the tongues that are spoken there" is very important to bear in mind, since it shows the objectivity or, more properly, inter-subjectivity of mystical world under discussion, which is called the imaginal world (*'ālam al-mithāl*).

The imaginal world is an important concept as far as the reality of mystical experience and world is concerned. What does the imaginal world look like? From what we understand from Henry Corbin's great work, *Celestial Earth and Spiritual Body*, we can say that *ālam al-mithāl* (*imago mundo*) is a world situated between the physical and spiritual worlds. From this vantage, it is called *'ālam al-barzakh* (the Isthmus). But the nature of this world very much resembles the world that we experience in our dream. Here we can see the physical images, but they are not really physical. This is so because "in this world what is originally physical will be spiritualized, while the spiritual will be materialized."⁵ It is why the second condition to enter this world, after *ma'rifaḥ*, is self-withdrawal from the material body since no material body is allowed to enter it. Ibn 'Arabī says, "Whoever enters this world he or she should forsake the body, and should enter it with a fine body suitable to the nature of this world."⁶ The difference between it and the world of dream is that not all the things we see in our dream can speak (since they were given the intelligence) with us, like what taking place in the imaginal world. In addition, not all people entering the world of dream can clearly understand what have happened there, while those who enter the imaginal world will understand all very clearly. However, like in the world of dream, in the imaginal world we will see things not through our physical eyes, but through the inner eye, called sometimes as the creative imagination (*al-mutkhayyilah*). Finally, the mystical experience happening in the world of dream should take place when we are sleeping, while that which is happening in the imaginal world takes place when we are awake and conscious.

⁵ *Ibid.*, p. 192.

⁶ *Ibid.*, p. 139.

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4. Ontological Status of Mystical World

Now, our question will be “what is exactly the ontological status of the imaginal world (*‘ālam al-mithāl*)?” Like the dream world (and also the material world), the imaginal world, according to Muslim philo-sophers and Sufis, also has a firm and real ontological status. In the hierarchy of beings, the imaginal world, sometimes also called *‘ālam al-malakūt*, is situated between the material world, called *‘ālam al-mulūk*, and the spiritual world, *‘ālam al-jabarūt*.⁷ And like the dream world, it is also experienced by someone subjectively, meaning that when we enter this world, no one shares it with us. However, like in the world of dream, it is also real and objective. Although it is not physical in nature, the imaginal world is also objective and has real ontological status. Remember Ibn ‘Arabī’s statement, “whoever is allowed to enter this world, he or she will be granted the capability of understanding of whatever language spoken there.” In means, among others, that, although it is experienced by particular individual, the nature and peculiarity of this world remains the same to all people who experience it.

By establishing the ontological status of this imaginal world, we can conclude that a mystical experience, like other human experiences, is real, since, despite its subjectivity, it is experienced in a real and objective world. Actually the reality of mystical experience has indeed been comprehensively studied by a famous American philosopher and psychologist William James in his famous work *The Varieties of Religious Experiences*. Mehdi Hā’irī Yazdī, in his book, *The Principle of Epistemology in Islamic Philosophy: Knowledge by Presence*, says that when William James talks about ‘hallucination,’ in this work, he concludes that religious (including mystical) experience, as experienced by famous mystics of different places and times, is not a hallucination, since in their religious experiences we found what he termed as the orderliness and uniform-

⁷ The literal meaning of *‘ālam al-mulūk* is actually the domain of the kings and that of *‘ālam al-jabarūt* is the world of power or domination and that of *‘ālam al-malakūt* is the world of dominion. For further information of the terms, see William Chittick, *The Sufi Path of Knowledge* (Albany: State University of New York, 1989), p. 282.

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mity.⁸ It is of great significance for our discussion, since if the mystical experience and world are not real, from where then did these orderliness and uniformity come? It was probably from these, that William James came to conclusion that religious (and in our context mystical) experience is by no means a hallucination (a false belief). It is real and objective like other human experiences.

Therefore, in my view, the mystical experience is real, and even though it is subjective in certain respects, it does have, as mentioned earlier, a firm and objective ontological basis. The mystical world, be it imaginal or spiritual, as experienced by philosophers or mystics is as real as the physical world. Therefore, we cannot think of it as merely an illusion or hallucination. Like other experiences, sensory or mental, the mystical experience is real for it is experienced in, and based on, an objective world. The difference being that the mystical experience takes place in a higher level of experience than the sensory or intellectual ones.

The mystical experiences have contributed a great deal especially to the fields of spirituality and religions. The history of Islam, for example, has been filled with a great number of Muslim mystics, called Sufis, such as al-Bisṭāmī, Junayd al-Baghdādī, Ḥakīm Ṣanā'ī, Farīd al-Dīn 'Aṭṭār, Jalāl al-Dīn Rūmī, 'Irāqī, Fakhr al-Dīn and others. Their mystical insights have contributed greatly to our understanding of many essential concepts on God, human beings and nature, also a number of mystico-philosophical theories such as *waḥdat al-wujūd* (the Unity of Beings), *waḥdat al-shuhūd* (the Unity of Witnesses) *ittiḥād* (the Mystical Union), *maḥabbah* (the Divine Love) and *ma'rifah* (the True Knowledge).

It is important to notice, however, that the mystical experience does not belong exclusively to the Sufis. We can easily find such mystical or religious experiences had happened to certain Muslim philosophers. Suhrawardī, for example, in his work, *al-Talwihāt*, tells us his own mystical experience,⁹ which is very interesting and influential to his philosophical thought. As for his main

⁸ Mehdi Ha'iri Yazdi, *The Principle of Epistemology in Islamic Philosophy*, p. 104, and William James, *The Varieties of Religious Experiences* (New York: Penguin American Library, 1986), p. 398.

⁹ Suhrawardī, *Kitāb al-Talwihāt*, edit. Henry Corbin (Tehran: Academie Imperiale Iranienne de Philosophie, 1976), p. 70.

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work, *Ḥikmat al-Ishrāq*, he describes it as a philosophical work but based on mystical experiences. In this work, he also analyses the seekers of truth or wisdom (*ahl al-ḥikmah*) into three classes, which demonstrates the importance of mystical experience in building up a comprehensive-holistic philosophy. First, are those who possessed some profound mystical experiences, but did not have the capability of expressing them in a discursive language (like the case of many Sufis). Second, are those who possessed a sophisticated mastery of discursive language (like in the cases of philosophers) but they lacked of profound mystical experience, and the third, are those who had profound mystical experiences and at the same time they also possessed the ability to express them in a discursive and logical way. These are, according to him, the highest level of the seeker whom he calls *al-muta'allihūn* or the Theosophists.¹⁰ He included to this class, Plato in the past, and he himself in his times. What is important here is not so much about the claim of himself as *al-muta'allih*, but his concession that mystical experience is an essential and, for sure, legitimate part of philosophical enquiries. Thus, the mystical experience has been recognized and to certain extent experienced by Muslim philosophers as one of real human experiences like other experiences: sensory or rational.[]

¹⁰ Suhrawardī, *Ḥikmat al-Ishrāq*, p. 3.

Chapter 10

The Transcosmic Voyage

OUR discussion on the imaginal world (*'ālam al-mithāl*) in the previous chapter has given us a clear indication to the existence of the hierarchy of beings which in turn will provide us with a more comprehensive picture of Islamic mystico-philosophical cosmological doctrines.

1. *Mi'raj al-Nabi* as A Model

As one type of mystical experiences, the transcosmic voyage or 'visionary recital' in Corbin's terminology, as illustrated in several narrative works of Muslim philosophers, has been based on the extraordinary nocturnal journey, called *mi'rāj* (ascension) of our prophet, Muḥammad pbuh, from the mosque of *Aqṣā* in Palestine to the seventh (highest) heaven, where he reached his ultimate destination, *ṣidrat al-muntahā'*, the Loth Tree. Despite of popular belief that *mi'rāj* was a physical journey it has been interpreted by the Sufis and philosophers as a spiritual journey of our prophet across different layers of spiritual worlds. Of course, this extraordinary event has been taken by Sufis and philosophers as the basis and also the justification of their cosmological doctrines. For them, the *mi'rāj*, understood as a spiritual event, is the affirmation for the cosmological structure, which comprises of both the physical and non-physical worlds, and at the same time it also disproves the belief that the physical world is the only real world we have.

The event of *mi'rāj* has become a favourite theme for many Sufis, who in turn related their own 'mi'rāj' in the form of spiritual (transcosmic) voyages in their works. Among these, Farid al-Din

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(transcosmic) voyages in their works. Among these, Farid al-Dīn 'Aṭṭār's *Manṭiq al-Ṭayr* is probably the most appealing one. In this work, 'Aṭṭār tells us a story of the long journey of birds, symbolizing human souls, towards their king called 'Sīmurgh,' symbolizing God. To reach the King, however, the birds should pass through seven extremely long and tiring valleys. Consequently, not all the birds could reach the goal. Some of them died, some others decided to return home with various pretexts. These seven valleys—valleys of searching, love, gnosis, separation and union, bewilderment, poverty and annihilation—are the symbols of spiritual worlds, ranging from the earthly world to God.¹ These are like the counterparts of the seven heavens our prophet passed through during his *mi'rāj*. The Sufis may have different names for them or even different number thereof. Al-Kashshānī, for example, called them with various names borrowed mostly from the Qur'ān: *ṭabī'ah*, *kursī*, *'arsh*, *al-lawḥ al-mahfūz*, *qalam*, *ṣifāh* and finally *dhāt Allāh*.² But the differences in name and number of these non-physical worlds will not harm the existence of their hierarchical levels. The hierarchy of spiritual worlds in turn has been used by the Sufis and philosophers as the philosophical foundation for their cosmological doctrines. The descriptions of their transcosmic voyages do not arise from their imaginations, as might be alleged by some. They borrow their 'empirical' basis from the mystical experiences.

2. Ibn Sina's *Risālat al-Ṭayr*

Although the theme of transcosmic journey is one of the most favourite themes among the Sufis, it does not mean that the philosophers have no interest in them. To me, Ibn Sīnā was probably a philosopher who understood very well the philosophical significance of our prophet's *mi'rāj*. In one of his Persian works entitled *Mi'rāj Nāmāh*, he specifically interpreted the *mi'rāj* from the philoso-

¹ Farid al-Dīn 'Aṭṭār, *The Conference of the Birds*, translated by Afkhan Darbandi & Dics Davis (New York: Pinguin Books, 1986).

² See Sachiko Murata, *The Tao of Islam* (Albany: State University of New York Press, 1992), pp. 153-154.

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phical perspective.³ More importantly, in his book, *Risālat al-Ṭayr*, which was said to be the inspiration for 'Aṭṭār's just mentioned work *Manṭiq al-Ṭayr*, Ibn Sīnā beautifully describes his own 'mystical experience,' in form of transcosmic voyage. Like *Manṭiq al-Ṭayr* of 'Aṭṭār, *Risālat al-Ṭayr* was composed by Ibn Sīnā in form of a narrative or visionary recital, as Henry Corbin puts it. The following are the selected passages of Ibn Sīnā's *Risālat al-Ṭayr*, as translated by Henry Corbin:

Know, o brother of Truth that a party of hunters went into the desert. They spread their net, set out their lures, and hid in the thickets. For my part, I was one of the troops of bird. When the hunters saw us, they tried to attract us by whistling so delightfully that they put us in doubt. We look; we saw an agreeable and pleasant place; we knew that our companions were beside us. We felt no uneasiness and no suspicion kept us from setting out. So we hastened to the place, and suddenly we fell into the snares. The meshes closed on our necks, the string entangled our wings, the cords hobbled our feet. Every movement that we tried to make only tightened our bonds the more and made our situation more desperate.

Finally, we gave ourselves up for lost, each of us thought only of his own pain and no longer considered that of his brother. We tried only to discover a ruse to free ourselves. And in the end we forgot what a fall our condition had undergone. In the end we ceased to be conscious of our bonds and the narrowness of our cage, and there sank to rest.

But one day it happened that I was looking out through the meshes of the nets. I saw a company of birds who had freed their heads and wings from the cage and were ready to fly away. Lengths of cord could still be seen tied to their feet, neither too tight to prevent them from flying nor loose enough to allow them a serene and untroubled life. Seeing them, I remember my earlier state. Would that I might die, I thought, from the excess of my grief, would that at the mere sight of their departure my soul might noiselessly slip from its body!

I called and cried to them from the depths of my cage: "Come! Approach! Teach me by what sleight seek deliverance; sympathize with my suffering, for truly I am at the end of my strength," But they

³ The full translation of *Mi'rāj Nāmāh* is in Peter Heath, *Allegories and Philosophy in Avicenna* (Philadelphia: University of Pennsylvania Press, 1992), pp. 111-143.

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remembered the ruses and the impostures of the hunters, my cries only frightened them, and they hastened from me. Then I besought them in the name of the eternal brotherhood, of the stainless fellowship, on the unviolated pact, to trust my words and banish doubt from their hearts. Then they came to me.

When I questioned them concerning their state, they reminded me thus: "We were prisoners of the same suffering as thine, we too have known despair; we too have been made familiar with sorrow, anguish and pain." Then they applied their treatment to me. The cord fell from my neck, my wings were freed from their bonds; the door of the cage was opened to me. They said: "Profit by thy deliverance!" But again I prayed to them: "Free me also from this hobble that still clings to my foot." They answered: "Were it in our power, we should have begun by removing those that encumbered our feet. How should the sick cure the sick?" I rose from the cage and flew away with them.

They said: "Far on, straight before thee, is a certain country, thou wilt not be safe from every danger until thou hast crossed all the distance that separates thee from it. Therefore, follow in our track, that we may save thee and lead thee by the night way to the goal thou desirest."

Our flight led us between the two flanks of a mountain, through a green and fertile valley. We flew pleasantly on, until we had passed all the snares, paying no heed to the whistling of any hunter. Finally, we reached the summit of the first mountain, whence we saw eight other summits, so high that the eye could not reach them. We said to one another: "let us hasten! We shall not be out of danger until we have passed those mountains safe and sound, for in each there is a company that is interested in us. If we heed them, and linger in the charm of those pleasures and the quiet of those places, we shall never arrive."

With great labour we passed six mountains one after another. [After passing through the seventh mountain] we told [the companions] of the suffering we had endured. They sympathized in them with the utmost solitude. Then they said to us: "Beyond this mountain is a city in which the supreme King resides. If any who are oppressed come to implore his protection and trust themselves wholly to him, the King by his strength and his aid frees them from all injustice and sufferings."

Relying on what they told us, we determined to reach the city of the King. We came to his court and awaited audience with him. Finally, the order came that the new arrivals were to be brought before him, and we enter his castle. We found ourselves in an

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enclosure whose vastness no description could compass. When we had crossed it, a curtain was drawn up before us, disclosing a hall so spacious and radiant that it made us forget the first court, or, rather, compared with this, the other seemed of little account. Finally, we reached the King's oratory. When the last curtain had been drawn and all the King's beauty shone before our eyes, our hearts were seized with a stupor so great that it prevented us from giving words to our complaints. But he, perceiving our weakness, restored our assurance by his affability, so that we were emboldened to speak and to recite our story to him. Then he said to us: "None can unbind the bond that fetters your feet save those who tied it. Now will I send them a Messenger to lay it upon them to satisfy you and remove your fetters. Depart, then, happy and satisfied."

And now, lo! We are on the road, we are journeying in company with the Kings's messenger.⁴

This is a shorter version of Ibn Sinā's *Risālat al-Ṭayr* which tells a very interesting transcosmic journey of the birds, which symbolizes human souls, from this terrestrial world through the celestial ones to meet their King, symbolizing God. If we study it carefully, we will find some important lessons of in Ibn Sinā's cosmological doctrines, especially pertaining to the position of man in the universe. First, the birds are used to symbolize the human souls, so that the fettered bird in the cage tells us about the condition of our souls trapped in the cage of the physical world. Therefore it is clear from Ibn Sinā's work that human being is not simply a physical being but also a spiritual one. And it reveals to us, among others, Islamic as well as Plato's influences on him. Second, the view that the physical world is the only world we have is wrong, since Ibn Sinā tells us in this work about other non-physical worlds, 'the eight cosmic mountains' above us. The fact, that the bird was asked to follow the lead of others to the city of the King, tells us clearly that we have other more real and perfect worlds than this world. This can become a serious criticism from Ibn Sinā against the secular worldview, which believes only in the physical world. Third, the statement that the bird can fly despite the fetters on its feet, tells about Ibn Sinā's conviction that 'it is possible for us to make a

⁴ See Henry Corbin, *Avicenna and the Visionary Recitals* (Irving, Texas: Spring Publication, Inc., 1980), p. 186-192.

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transcosmic journey during our lifetime although not completely free from the physical bondage.’ Fourth, that the bird must fly over the heavens teaches us that ‘this world where we live now is not real origin and abode for us.’ It is God, attributed in the Qur’ān as ‘the First’ and ‘the Last,’ who is actually our real origin and returning place. Fifth, the fact that the bird and his companions have travelled across eight metacosmic mountains spanning between him and the King clearly indicates that our terrestrial world is just one of several worlds composed hierarchically, with God at its summit and the physical world at its base. That the physical world is at the base, for me, indicates that the upper non-physical worlds are more real and beautiful than our world, although they are not physical. Therefore, it points out the position of our world in the whole cosmic structure. The Last, or sixth, that in the summit of the hierarchy stood the almighty King, whose beauty is all “that thou beholdest in thy heart, without any alloy of ugliness – whatever perfection thou imaginest, untroubled by any defect.” He is the King in whom “all beauty, in the true sense, is realized, and from whom all imperfection, even in the sense of a metaphor, is banished.” He is the truest object of love and the final haven within which every soul longs to harbour.

3. Suhrawardī’s *Ocidental Exile*

Nevertheless, *Risālat al-Ṭayr* is by no means the only philosophical work ever existed of this kind, for we have known, for example, other works, such as *Ḥayy ibn Yaḳzān* and *Salāman wa Abṣāl*.⁵ Hence, Ibn Sinā was only one of the many other great Muslim philosophers who composed such works. Suhrawardī (d. 1191), the master of Illumination, for example, wrote several works of the kind, of which *al-Ghurfaḥ al-Gharbiyyah* (The Occidental Exile) is the most interesting and relevant to our discussion, and for this very reason I am going to present it here. Compared to *Risālat al-Ṭayr*, *The Occidental Exile* has a different narrative and plot, but its message and doctrine in principle are the same. This fact strengthens our

⁵ For more information on these two works, see Corbin, *Avicenna and the Visionary Recitals*, pp. 137-150 and 224-226.

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thesis that not only Sufis who are interested in the narratives, but also the philosophers. Based on the mystical experiences, the narrative works of philosophers significantly tell us that the mystical experience is very important both for the Sufis and the philosophers in the construction of their epistemologies.

Unfortunately, since *The Occident Exile* is too long to translate here, so it would be better if I summarize it followed by its commentary and lessons taken from this story. The story itself is as follows:

The story... begins with the fall into captivity. The narrator has fallen in the city of Qayrawān, "the city whose people are oppressors" (Qur'an 4:77). He is tossed into the shadows; yet from there, he can discern a high castle, fortified by many towers – this is the mountain of *Qaf*, and the system of the nine Heavens, which must be traversed. Then, on the full-moon night, the hoopoe (Solomon's bird) brings him a message, corresponding to that received by the young Parthian prince. It is from his father, and says: "In the name of God, the Compassionate, the Merciful. We languish in missing you, yet you have forgotten us. We call you, yet you never set forth. We send you signs, yet you do not understand... if you want to be free, delay no longer your resolve to set forth on the voyage." And the message goes on to explain the itinerary he must follow, with the vicissitudes to be expected during the course of the voyage.⁶

The voyage culminates at the Source of Life, at the foot of a high mountain which we learn is Sinai – but a visionary, mystical Sinai which is not to be found in geography. Henceforth, he is free of the cosmic crypt. The voyager climbs the mountain, and finds himself in the presence of a magnificent being of light and splendour. He knows that his own spiritual being emanates from this being, whom he greets as his 'Father.'⁷

This is a synopsis of *The Occidental Exile*. The city of Qayrawān (Kairouan), Tunisia, has been a part of world called *Maghrīb* (The West/Occident). But in Suhrawardian system, the term 'West' symbolizes the material world, while the original city of the

⁶ This itinerary corresponds to the classical pattern of cosmology of philosophers, yet this is no lesson in cosmology.

⁷ Henry Corbin, *The Voyage and the Messenger: Iran and Philosophy* (Berkeley: North Atlantic Books, 1996), pp. 160-161.

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narrator, 'Yaman,' the 'East' (*al-Mashriq, the Orient*), symbolizes the spiritual world. When it was said in his work that people of the West were evildoers, it probably means that people in this material world are unjust, oppressive and corrupt. The fact that from the dark well the narrator can see the towers, and from the towers he can see "Yamani lighting which flashed on the right, Eastern side," tells us about his vision of the cosmic order, just like Ibn Sinā's bird when it, from the peak of highest mountain in this earth, saw other eight meta-cosmic peaks.

The statement "We summoned you but you did not set forth" tells us that God has given us clear signs and guidance in His holy book, but most of us pay no heed to them, as if they are of no use. For those with sensitive and pure hearts, religion is a strong calling or summon from God almighty for us to go back to straight path, the only path which will prevent us, the human beings, from falling down into "the dark cosmic hole," i.e. the material world. It may not be an easy way to travel, since there are many hind-rances and challenges will encounter us, but this divine guidance is the only path, regardless of its condition, which can usher us to our true ultimate goal.

As for the roadmap given by his father, according to Corbin, it resembles the classical cosmological pattern of the philosophers, although it is not a cosmological lesson. Likewise, the climbing step which brought him out of the dark cosmic hole to the towers described in the chaotic-turbulent images and transfigured the ascension of all the cosmological and cosmographical levels into symbols in the Qur'ānic verses. The visionary figure has made himself a hero which acted wholly from the Qur'ānic verses. This, according to Corbin, is a good illustration of how a hermeneutic expert, by transfiguring the material from the revealed text into symbols, becomes itself a voyage of the soul. Here, the *exegesis* of the text is itself the exodus of the soul from the world of the exile.⁸

Furthermore, from the above narrative we can take a lesson that this physical world is the starting point whence the transc cosmic voyage starts, not the final place or goal, and for sure it is not the only real world as claimed by atheists or positivists. From this

⁸ *Ibid.*, p. 160.

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starting point, a man, who wants to free himself in seeking his real self should pass through all stages of his transcosmic journey until he reaches 'the King,' 'the Father' or God, the true origin and returning abode of all that exist in this world, including human beings. The journey is described as uneasy and tumultuous, but it is, as mentioned earlier, the only way in which we acquire our real freedom. Finally, from this narrative, we can also learn on the importance of the cosmological and cosmographical doctrines of the philosophers in giving the right direction or orientation, also the meaning and purpose of our life, since cosmology essentially is the roadmap we should follow to reach our grand ideals, to free our soul from the material bondages, to search for our real self and finally to liberate ourselves from the conventional souls, formed by certain ideas developed in our societies, such as ethnicity, nationality, *mazhhāb*, and ideology, so that we may realize fully our realself or the universal man (*al-insān al-kāmil*).

Hopefully with this I have given you a clearer illustration of the importance of mystical experience and transcosmic voyage, as one of example thereof, for both the Sufis and the philosophers. For it is actually not only Ibn Sīnā and Suhrawardī, who have written the narrative works, but also many other philosophers, such as Mullā Ṣadrā who has given us a comprehensive account in his magnum opus *al-Asfār al-Arba'ah*⁹ on his own spiritual and intellectual journey.[]

⁹ For MullāṢadrā's spiritual journey, see Henry Corbin, *The Voyage*, p. 120.

Chapter 11

Philosophy of Prophecy

1. A Philosophical Approach

THE *falāsifah* (Muslim philosophers) recognize, not only intellectual reasoning and mystical experience as the source of knowledge, but also prophecy (*al-nubuwwah*) or revelation (*al-wahy*). In his celebrated work, *al-Asfār al-Arba'ah*, MullāṢadrā mentions the three sources as *burhān* (demonstrative proof), *'irfān* (gnosis, *ma'rifah*) and *Qur'ān* (revelation/prophecy).¹

It is doubtless that prophecy is related to mystical experience, but in its most perfect mode. The comparison between mystical experience (*walāyah*) and prophecy (*nubuwwah*) has been made by Farid al-Dīn 'Aṭṭār in his famous work *Tadhkirat al-Awliyā'*. He states that the highest experience of sainthood (*al-walāyah*) is just the beginning of prophecy (*al-nubuwwah*).² This demonstrates the relation and *continuum* between the mystical experience and prophecy, provided that prophecy is the highest and most perfect form of mystical experience, or it may be of different kind thereof. That is why, while the prophet most likely to have a mystical experience, no mystic (saint or *ṣūfī*) would have a prophecy (*al-nubuwwah*) in its real sense. For, if it is the case, he will be no more a saint but a prophet.

Many theories have been formulated by Muslim scholars (*'ulamā'*) with various arguments. But, in this chapter, and in accor-

¹ See Nasr, "MullāṢadrā: His Teachings" in Nasr & Leaman, *History of Islamic Philosophy*, Vo. 1, p. 644.

² Farid al-Dīn 'Aṭṭār, *Muslim Saints and Mystics: Episodes from the Tadhkirat al-Awliyā'* ("Memorial of the Saints"), trans. A.J. Arberry (London: Routledge & Kegan Paul, 1966), p. 59.

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dance with our topic, we just want to demonstrate how this prophecy or revelation is possible philosophically, so that it will be one of the legitimate sources of knowledge. To achieve this, we will discuss the theories of prophecy as put forward by Muslim philosophers, especially al-Fārābī and Ibn Sīnā. These theories, to me, are like their confirmation of the possibility and legitimacy of the prophecy as one of essential sources of knowledge.

Nonetheless, before we talk immediately on the philosophers' concepts of prophecy, we should first understand what the philosophers' motives in formulating their concepts of prophecy were, who the audience they addressed was, what their objectives were, and what methods they employed. As rationalist thinkers, Muslim philosophers of course wrote their philosophical theories, including that of prophecy, for their contemporary intellectuals, philosophers, scientists or theologians, who, due to their philosophical orientation, were probably doubtful or unsatisfied with religious doctrine on the prophecy, presented too dogmatically by a number of religious scholars. Therefore it is clear that the philosophers' addresses were the philosophers or scientists who were critical or even skeptical of certain religious doctrines. Consequently, the philosophers have employed a rational method, known as demonstration (*al-burhān*), as the best rational method available to them in their days, in view to showing how prophecy is possible 'scientifically' and philosophically. By so doing, the dogmatic tone is softened as much as possible, while the rational appeal is enhanced. It is probably for this reason that their theories did not so much, at least outwardly, rely on scriptural arguments, but substantiated by scientific and philosophical arguments and reasoning.

2. The *Falāsifah's* Theories of Prophecy

At the times of al-Fārābī and Ibn Sīnā, the theory of prophecy was a new philosophical phenomenon since it did not seem to exist, for example, in Greek philosophical works. Therefore, the theories of prophecy were invented by Muslim philosophers as the realization or *manifesto* of their moral responsibility to rationally elucidate the Islamic doctrines they professed. And it is actually here that we can

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see the philosophers' significant contributions to both Islamic and the world civilizations.

Of course, as mentioned earlier, the *falāsifah* have built the theories of prophecy on the scientific sources written by their predecessors, especially the Greek philosophers and scientists. However, the most important contributions of Muslim philosopher in this field were their findings and reformulation of the so-called 'inner senses' which were added to the 'external ones.'³ One of these senses, which is most relevant to the theories of prophecy is the imagination (*al-mutkhayyilah*). *Mutakhayyilah*, described as the compositive imaginative faculty, is a mental faculty that can combine various physical forms, perceived by our senses, into certain unique forms which do not have their counterparts in the physical world.⁴ According to al-Fārābī this faculty has a mimetic power extremely useful for transfiguring abstract concepts into some physical images.

In addition to this, another theory supporting the theory of prophecy is that of emanation (*al-fayḍ*) which discusses, among others, the possibility of having the apocalyptic contact (*al-itṭiṣāl*) with the Active Intellect, who 'resides' in the moon. This Active Intellect has also been identified, in a more religious term, as Archangel Gabriel (*Jibrīl*).⁵ With this doctrine of *itṭiṣāl*, the philosophers tried to demonstrate that a contact with the spiritual agent, the Active Intellect or Angel, which is very essential for the prophecy, is something possible philosophically. It has been, to certain extent, substantiated by previous scientific and philosophical theories available to them. Now, if the contact with the spiritual agent is possible for the philosophers, so surely it will be more possible for the prophets, whose spiritual positions are higher than those of the philosophers.

a. Al-Fārābī (d. 950)

³ The explanations on these internal senses have been dealt with in chapter three of this work.

⁴ See Fazlur Rahman (ed.), *Avicenna's Psychology*. pp. 39-40.

⁵ For further information on the theory of emanation, see Ian Richard Netton, *Allah Transcendent*, pp. 114 and 116.

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After having established philosophically the argument for the possibility of prophecy, the philosophers could go on to analyze their theories of prophecy more elaborately. Let us begin with al-Fārābī. According to him, the prophecy is a natural effect of the light-like emanation of the Active Intellect upon the faculty of receptive imagination.⁶ Here al-Fārābī divides the prophecy into two kinds, lesser and greater, depending on the development of intellect which receives it. In the lesser prophecy, the Active Intellect's emanation moves through the rational faculty before entering the imaginative faculty of those whose intellects have not yet fully developed. At this level, the prophecy can produce the knowledge of individual events far outside of the sensory perceptions, or the future events and give the figurative description of theoretical truth. In the greater prophecy, and this is the real sense of prophecy or revelation (*al-wahy*), the emanation of the Active Intellect moves through a fully developed intellect, so that it can have a direct contact with the Active Intellect. The emanation enters the faculty of human imagination. Here too human beings can receive the knowledge of individual events occurring in the remote places, or the future events. Yet, it should be noted that although in these two cases the emanation of the Active Intellect has moved through the intellectual faculty before finally it reaches the imaginative faculty, the human intellect in these two sorts of prophecy does not participate in prophetic experience.⁷

Still according to al-Fārābī, prophecy in its various manifestations is the results of interaction between intellect and mimetic power of imaginative faculty. What makes a prophetic knowledge unique, according to him, is not the intellectual contents, since, as mentioned previously, both the prophets and philosophers have acquired their knowledge from the same source, the Active Intellect. What makes it unique is that the fact that the true prophecy is symbolization or imitation of the same and one truth known demonstratively and intellectually by philosophers.⁸

⁶ Herbert A. Davidson, *Alfarabi, Avicenna & Averroes* (New York & Oxford: Oxford University Press, 1992), p. 116.

⁷ *Ibid.*

⁸ See Fazlur Rahman, *Prophecy in Islam* (Chicago: The University of Chicago Press, 1958), p. 26.

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However, unlike the philosophers, the prophets, according to al-Farabi, have a sensitive imaginative faculty, in addition to their intellectual capacity, which enables their imagination to receive the flow or emanation of abstract entities (*al-ma'qūlāt*) from the Active Intellect, an emanation usually reserved exclusively for the intellectual faculty.⁹ Even so, it should be borne in mind, since the imagination, in accordance with its nature cannot receive the abstract intelligibles (*al-ma'qūlāt*) in abstract forms, the prophets make use of the mimetic power of his imagination to transform these intelligibles into certain pictorial symbols (like a dream which must represent the idea of greatness of God into a more concrete image, such as the sea). In this way, what is usually acquired by only a few elects, namely the philosophers, through the acquired intellect (*al-'aql al-mustafād*), can be communicated by the prophet, using some allusive sensory images, to a wider non-philosophical public.

Of course, as a whole al-Fārābī's theory of prophecy supports our belief in prophecy or revelation--as one of the pillars of faith (*al-īmān*), since it has at least proven the possibility of prophecy philosophically. But we should remember that al-Fārābī wrote this theory for the philosophers or scientists, not for the common people, so that in his analysis he was not so much attached to the orthodoxy, as some people may have expected. In this case, his thought focuses on how to present scientifically the philosophical arguments for the prophecy, so it would be acceptable to the intellectuals. Therefore, Ibn Taymiyyah's statement that al-Fārābī's theory was too humanistic as to not give a unique or special position to the prophet is probably correct. However, as a philosophical theory, al-Fārābī's concept of prophecy should be 'humanistic,' meaning that in a philosophical discourse, 'prophecy' or 'revelation' should be addressed in a humanistic context. Here, I think, the prophet should be considered as a normal human being, and not as a superhuman or even a different species thereof, as stated by Ibn Taymiyyah and his predecessor, al-Ghazālī.¹⁰ Otherwise, a prophecy will never be achieved or carried out by a human being,

⁹ *Ibid.*, p. 105.

¹⁰ *Ibid.*, pp. 96, 104.

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and this, in the end, will spoil the main purpose of the philosophers to demonstrate the possibility of prophecy philosophically. And by possibility he means human capacity or capability.

Moreover, al-Fārābī's controversial statement that religion is the imitation of philosophy, for me, is still in line with his other philosophical theory called emanation. For if the superiority of the prophet over philosophers lies in his imaginative faculty, the prophecy he receives will become the symbol or 'imitation' of the same truth received by the philosophers demonstratively. By this, however, he did not mean to denigrate religion under philosophy. It is simply that, due to its symbolic and figurative nature, the revelation, acquired through the imaginative faculty, is the symbol of the non-symbolic truth received demonstratively by the philosophers. Furthermore, as a symbol, it can be interpreted allegorically in various relevant meanings.

b. *Ibn Sīnā (d. 1037)*

This is more or less the essence of al-Fārābī's theory of prophecy. Now, let us turn to Ibn Sīnā. Ibn Sīnā's theory of prophecy is probably more refined and more 'orthodox' than al-Fārābī's. It is true that, like al-Fārābī, Ibn Sīnā also believes that prophecy is the result of an emanation from the Active Intellect, or other spiritual entities, upon the compositive imaginative faculty (*al-mutakhayyilāh*). However, prophecy at its higher level, according to him, also possesses a special faculty called the sacred intellect (*al-'aql al-qudsī*), which is the highest faculty a man can achieve.¹¹ With this faculty, certain people, especially the prophets, can have a direct contact (*ittiṣāl*) with the Active Intellect without effort or a special training for his intellectual faculty. Like al-Fārābī, Ibn Sīnā also divides the prophecy into two different levels. The lower (common) level which focuses on the imagination, which he categorizes into two: *khayāl* (Retentive Faculty) and *mutakhayyilāh* (Compositive Imaginative Faculty). The presentation of images by the compositive faculty, referred to sometimes as the Cognitive Faculty (*al-mufakkirāh*), plays an important role in the entire effort to acquire knowledge. "The

¹¹ Herbert A. Davidson, *Alfarabi, Avicenna & Averroes*, p. 117.

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images formed by this compositive faculty, when left wild, usually do not give any meaning."¹² Nevertheless, this compositive imaginative faculty can make a 'contact' with the supernal entities (*al-malakūt*), i.e. the souls of the celestial bodies, immaterial intellects, including the Active Intellect or even the First Cause. This contact with the Active Intellect lasts usually in a very short time, but in certain cases it lasts longer, in the states of sleeping or of awake. As the contact of human intellect with the Active intellect results in the soul reception of the Active Intellect's emanation, so also the contact of the compositive imagination with the supernal entities will produce an emanation upon the human soul. If the event lasts any longer than a short period, the soul will perceive the hidden entities exactly as they are, or in the form of figurative images. These hidden things are sometimes manifested in the forms of intelligible entities (*al-ma'qūlāt*) or predictions of the future.

Even so, it seems that Ibn Sīnā was particularly interested in the case where the contact of the compositive imagination with this supernal realm takes place in the conscious state, not in a dream. "Usually," Ibn Sīnā says, "the compositive imaginative faculty has a free control in the awakening state only when someone is under an abnormal state: sick, fear, or having unbalanced bile hormones, which will make his ability to discriminate does not work properly or his soul pays no heed to the demonstrative faculty of his intellect. However, in some people the power of imaginative faculty and memory reach a certain point, so that, even in their normal condition, these faculties will not let the external senses deviate them from their real intention to frame new images and preserve their notes. The com-positive imagination of these people is in a position to make a contact with the supernal world. When they do it, they will experience the particular prophecy of the compositive imagination."

Above all, the prophecy also possesses a higher and more perfect level thereof, and this takes place, according to Ibn Sīnā, when a special compositive imaginative prophecy is captured by a more excellent prophecy, in which case, it takes place in the rational faculty. When the prophet's compositive imagination receives the

¹² *Ibid.*, pp. 118-119.

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influences of the Holy Spirit (*rūḥ al-quds*), he will be able to “describe them in the images visible and audible to the senses.”¹³ It means that someone granted with a ‘sacred faculty’ and a strong compositive imagination will form, due to its excellences, figurative descriptions of scientific and philosophical truths.¹⁴ The excellent imaginative prophecy will enable him to present in figurative images what are usually learned by the soul through the intellectual prophecy.

The question now is “what are the rational proofs for the existence of this sacred intellect possessed by the prophet?” The argument for it has been presented by Ibn Sinā in the so-called ‘ontological’ method. Ibn Sinā argues that the degrees of human intuitive power are different. There are those whose intuitive power is very low, even at the lowest end of spectrum so they have almost nothing. But this, according to Ibn Sinā, will necessarily lead us to find, on the other side, those whose intuitive faculty is at the highest end of spectrum, i.e. those who possess the insight in all (or most of) matters and can utilize it “in the shortest period of time.”¹⁵

In addition to his belief that the prophetic faculty is not the imagination (*al-mutakhayyilah*) or its mimetic power but the sacred intellect (*al-'aql al-qudsī*), Ibn Sinā also says that the imaginative faculty of the prophet which symbolizes the intellectual knowledge will cause him to see in his own soul the psychic (imamterial) forms and hear the unseen voices.¹⁶ Unlike al-Fārābī, Ibn Sinā believes that the prophecy is not the imitation of philosophy. To this category of prophecy belongs the true theoretical knowledge acquired by the prophet’s intellect from the Active Intellect without following the standard scientific procedures.

It is clear by now how Ibn Sinā has proven the prophecy and its various levels philosophically. He tells us in his work that certain people, namely the prophets, have acquired not just ordinary prophecy attainable by the compositive imaginative faculty, but a more excellent one, since God has given him a special faculty, the sacred intellect. With this plus the compositive imaginative faculty,

¹³ *Ibid.*, p. 119.

¹⁴ *Ibid.*, p. 120.

¹⁵ *Ibid.*

¹⁶ *Ibid.*

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he is able to receive in very short period the scientific and philosophical truths either in intelligible forms (*al-ma'qūlāt*) or figurative images without following regular scientific procedures. Furthermore, Ibn Sīnā also says that the prophet has an extraordinary mental power which enables him to influence some physical things and produce incredible events which are considered as 'miracles' (*al-mu'jizāt*).¹⁷

3. Conclusion

To conclude, of course, Ibn Sīnā's belief in miracle as an extraordinary event has been welcome more positively by some conservative scholars ('*ulamā'*). Even Ibn Taymiyyah, who did not accept the philosophers' concepts of prophecy, still considered Ibn Sīnā's theory to be better and more 'orthodox' than those of al-Farabi and Ibn Rushd, who did not concede the miracle in its common sense as something that deviates from the natural laws (*khāriq al-'adah*). Even so, I am sure Ibn Sīnā will not change his humanistic view in his theory of prophecy, as might be expected by al-Ghazālī or Ibn Taymiyyah, for the sake of orthodoxy. Because, as a philosopher, he, like al-Fārābī, should continue to hold that the prophecy is within human possibility, meaning that the prophet should always be considered as a true human being, yes of course with certain special gifts, but not above human species as held by al-Ghazālī and Ibn Taymiyyah.¹⁸ Otherwise, all his efforts to demonstrate to intellectual colleagues that the prophecy is possible philosophically will go in vain.[]

¹⁷ Rahman, *Prophecy in Islam*, p. 104. These extraordinary powers are described by Ibn Sīnā as healing the sick persons, causing the bad ones get sick, or causing the rain to come down, etc. See, Davidson, *Alfarabi, Avicenna & Averroes*, p. 122.

¹⁸ See Fazlur Rahman, *Prophecy in Islam*, p. 96, 104.

Chapter 12

Naturalization of Knowledge

THE term 'naturalization of knowledge' has been used by Professor Sabra to refer to "the process of acculturation of foreign sciences to a culture prevalent in a new area or country." It is through this process that this science became fully assimilated to the requirements of its culture, including its religion. Therefore, the naturalization refers to "the domestication of foreign sciences, thereby it incorporates them into an indigenous cultural and philosophical system." From my preliminary readings, we can see that the naturalization of science (or culture) did happen everywhere throughout the history of science development.

1. Hellenization of Knowledge

For example, after having absorbed various branches of sciences from the surrounding areas or countries, Mesopotamian people adapted and assimilated them into the cultural and religious values there, thus created a peculiar form of Mesopotamian culture or civilization.

The similar process of the naturalization of knowledge also took place, when early Greek philosophers took various scientific-philosophical information from neighbouring countries – especially Egypt and Syria. Later, they cultivated the foreign knowledge and gradually adapted and assimilated them¹ to their specifically Greek rationalistic mould of thought.

¹ See Ismā'il R. Al-Farūqī & Lois Lamyā Al-Farūqī, *Atlas Budaya Islam*, translated by Ilyas Hasan, Ed. III (Bandung: Mizān, 2001), pp. 82-84.

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Abū al-Ḥasan al-ʿĀmirī, a tenth century Muslim philosopher, in his *Kitāb al-Amad ʿAlā al-Abad* tells us that Pythagoras had learned geometry and other mathematical sciences from Egyptians, and meta-physics (*al-ʿilm al-ilāhī*) from the companions of Solomon (*aṣḥāb al-Sulaymān*).² Likewise, Empedocles, according to him, had learned philosophy (*al-ḥikmah*) for several years with Luqmān al-Ḥakīm, a famous philosopher (*ḥakīm*) mentioned in the Qurʿan and lived in Syria during the lifetime of prophet and king David a.s. But later when Empedocles returned to his county, he developed his teacher's doctrines into his own thought. No wonder, then, if some of his ideas were different from, or even contradictory with, his teacher's.³ From this observation, we can safely say that the great founders of Greek philosophy, such as Pythagoras, Empedocles and so also I believe Plato and Aristotle had adapted or 'naturalized,' in different style and intensity, all the scientific information and theories obtained from earlier sources, usually mixed with mythical elements, into their 'more rationalistic' frameworks. This naturalization of science by Greek thinkers and scientists has resulted in what we call 'the Hellenized sciences.'⁴

2. Christianization of Knowledge

Again, when the Roman 'Christian' emperors took control over the post-Alexandrian Greek areas, they gradually adapted and assimilated Greek sciences and cultures into Christian belief and values. In the introduction to al-Anṣārī's *Ādāb al-Falāsifah*, an abridgement written by al-Anṣārī of Hunayn b. Iṣḥāq's *Nawādir al-Falāsifah*, 'Abd al-Raḥmān Badawī wondered why these wise sayings of Greek philosophers, preserved in Christian scholarship in the pre-Islamic period, were so 'Oriental' in tone, that they suited well the cultural and religious values prevalent in there? The reason seems to be, according to Badawī's own observation, because these wise sayings

² See Everett Rowston, *A Muslim Philosopher on the Soul and Its Fate: al-ʿĀmirī's Kitāb al-Amad ʿalā al-Abad* (New Haven, Conn.: American Oriental Society, 1988), p. 71.

³*Ibid.*

⁴ For further discussion on the Hellenistic sciences see Francis Henry Sanback, "Hellenistic Thought" in Paul Edward (ed.), *The Encyclopaedia of Philosophy*, vol. 3 (New York: Mac Millan Publishing Co. Inc. & The Free Press, 1977), pp. 467-469.

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had been adapted, assimilated or naturalized by Christian scholars, who lived in the Middle Eastern areas, to their own culture and religion.⁵ Of course, here we can see clearly the process of ‘Christianization’ of these sayings. Or they had been, using Van der Berg’s expression, ‘baptized’ by Christian scholars⁶ who studied Greek material (including sciences and philosophy) to support their theology.⁷ On this case, Mehdi Golshani tells us that sciences encountered by Muslim in their new territories had already been made ‘sacred,’ so that they found no difficulty in adapting them into Islamic values.⁸

3. Islamization of Knowledge

a. *Phases of Islamization of Knowledge*

The process of the naturalization of knowledge continued far after Greco-Roman times, and especially became more ‘prominent’ in the Islamic periods, when Islam rose as a great political and civilizational force. Pertaining to this issue, Professor Sabra of Harvard discusses three stages of ‘naturalization’ (or ‘Islamization’)⁹ of Greek sciences by Muslim scholars, saying:

...in the first stage we witness the acquisition of ancient, particularly Greek, science and philosophy through the effort of translation from Greek and Syriac into Arabic. Greek science entered the world of Islam, not as invading force setting off from a powerful stronghold in Alexandria, Antioch or Harran, but rather as an invited guest. The Individuals who brought him in kept their reserve and aloofness with regard to the important matter of religion.¹⁰

⁵ See ‘Abd al-Rahmān’s introduction to al-Anṣārī’s book *Ādāb al-Falāsifah*, being an adaptation and abridgement of *Hunayn b. Ishāq’s Nawādir al-Falāsifah* (Kuwayt: al-Munazzamah al-‘abiyah li al-Tarbiyyah wa al-Thaqāfah wa al-‘Ulūm, 1985), p. 26.

⁶ See Simon Van den Berg’s Introduction to his translation of Averroes’ *Tahāfut al-Tahāfut* (London: Luzac & Co., 1954), p. lx.

⁷ Majid Fakhry, *A History of Islamic Philosophy*, p. 2.

⁸ See Mehdi Golshani. “Science and the Sacred: Sacred Science vs. Secular Science,” presented at the International Conference of Science and Religion in the Post-Colonial Era, in Yogyakarta, January 2, 20003.

⁹ Toby Huff, *The Rise of Early Modern Science*, p. 63.

¹⁰ *Ibid.*, p. 85

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However during the second phase, this reserve and aloofness was replaced with heightened curiosity and intellectual experimentation.¹¹ About this, Sabra states:

The guest quickly proved to hold an attraction for his hosts far beyond the promise of his practical abilities. His powers of persuasion can be seen in the unexpected but almost immediate and almost unreserved adoption of Hellenism by Muslim members of the household, like al-Kindī. But the real measure of his spectacular success is shown in the emergence, during the second phase, of a large number of powerful Muslim thinkers whose allegiance to a comprehensive Hellenistic view of the world of matter and thought and values can be described only as a thoroughgoing commitment. Those were the Fārābis, the Avicennas, the Ibn al-Haythams, the Bīrūnis, and the Averroeses. I describe them as Muslim because they thought of themselves as such, and because they were attentive to problems generated by the collision between their religious belief and Hellenistic doctrines.¹²

After this, we entered to the third phase, in which we find the assimilation of philosophical inquiry within the bounds of religious prescription: the practice of the *falāsifah*, "the type of thought and discourse found in the writings of philosophers like Fārābī and Avicenna, began to be practiced in the context of *kalām*; and those philosopher-physicians (represented by Rāzī) were replaced by the jurist-physician (represented by Ibn al-Nafis), the mathematician (*ta'limī*) by the *farādī*, and the astronomer-astrologer by the *mu-waqqit*." In this last phase

...the carriers of scientific and medical knowledge and techniques now largely consisted of men who were not only Muslims by birth and faith, but also were imbued with Muslim learning and tradition, and whose conceptual framework had been produced in the process of creating a consciously Muslim outlook. Scholars were no longer committed to the presuppositions of earlier philosophers. Sometimes a scholar of this later breed distinguished themselves equally in the religious and the rational sciences—such as Kamāl al-Dīn ibn Yūnus of Mawṣil, and sometimes he held an office in a religious institution (like

¹¹ *Ibid.*

¹² *Ibid.*

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Ibn Shāṭir). In many cases he was also an expert on fiqh, or grammar, or Qur'ānic sciences, or all of these. In almost every case he had undergone a thorough Muslim education.¹³

b. Forms of Islamization of Knowledge

Naturalization, or in our case, the Islamization of Greek sciences could take various forms: justification, adaptation or criticism.

Justification

By justification I mean the attempt of the philosophers to justify the adoption of Greek philosophy with different reasons. Al-Āmirī, for example, states that we have no objection to adopt Greek philosophy and science for, different from what many religious scholars (*'ulamā'*) tried to impress us, Greek philosophy had some prophetic sources and traditions shared by Muslim people. In his book, *al-Amad 'alā al-Abad*, especially chapters two and three, al-Āmirī shows us that Greek philosophy took as its sources, directly or indirectly, from the prophetic traditions very well-known in the holy books. For example, he points out that the great Hermes, very well respected by Aristotle, was but prophet Idrīs, who was described as the third prophet after Adam and Shith, the son of Adam and Eva, and whom in the Jewish tradition was called Enoch.¹⁴ So also Empedocles, as already mentioned, had studied for years with Luqmān the philosopher (*al-ḥakīm*) who lived in Syria during the lifetime of King David. Nevertheless, al-Āmirī tells us that after he returned to his country, Greece, Empedocles developed his own ideas, which seems, at least outwardly, contradictory with his teacher's teachings.

So also was what happened to Pythagoras. Al-Āmirī tells us that when he was in Egypt, Pythagoras befriended with the companions of Solomon father of David, after they moved to Egypt from Syria. After learning geometry from the Egyptians, Pytha-

¹³*Ibid.*, p. 86.

¹⁴ See Everett Rowston, *A Muslim Philosopher on the Soul and Its Fate: al-Āmirī's Kitāb al-Amad 'alā al-Abad*, p. 67, 198.

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goras learned physics and metaphysics (*'ilm al-ilāhī*) from the companions of Solomon (*aṣḥāb Sulaymān*).¹⁵ The three sciences--geometry, physics and metaphysics--were taken later by him to Greece. With his own intelligence, he came to invent the science of melody (music) and to which the ratios and numbers were added. He claims that he has acquired these sciences from the bottom of prophecy.

Al-Āmirī felt constraint to discuss at length the source of this prophetic tradition of the Greek philosophy and sciences to expel the wrong impression from a number of religious scholars who put the Greek philosophy and sciences as something thoroughly alien from the prophetic tradition. While in reality, the Greek philosophical tradition, as previously shown, has been closely related with it.

Adaptation

The second form of the naturalization of the Greek science in the Muslim world is a careful adaptation and selection by Muslim thinkers from the Greek material available to them to make sure that their teachings would not collide with the Islamic teachings. The Muslim philosophers would surely welcome any Greek thoughts deemed to support the *tawḥīdic* view of Islam. The Greek philosophers' arguments for the existence and unity of God, for instance, were considered to be very supportive and crucial to strengthen Muslim belief in His existence and unity.¹⁶ And yet, when they found in the philosophers' teachings some doctrines or ideas contradicting the fundamental teachings of Islam, the Muslim philosophers would immediately reject them.¹⁷ Iḥsān 'Abbās, in his *Malāmih al-Yūnāniyyīn* puts forwards the reason why in the Muslim world, whose philosophers and scientists had intensively studied the Greek heritage, we could not find so easily the material related

¹⁵*Ibid.*, p. 71.

¹⁶ The discussion on the views of the Greek philosophers on God and the proofs of His existence has been presented by al-Āmirī in chapter 4. See Rowston, *A Muslim Philosopher on the Soul and Its Fate: al-Āmirī's Kitāb al-Amad 'alā al-Abad*, pp. 79-89.

¹⁷ This, for example, can be seen from al-Āmirī's criticism of Empedocles' view of the hereafter. See Rowston, *A Muslim Philosopher on the Soul and Its Fate: al-Āmirī's Kitāb al-Amad 'alā al-Abad*, p. 80.

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to the very well-known Greek mythology? It was so, according to him, due to their careful and critical attitude to those doctrines that “were diametrically contradicted the principal doctrines of Islam: *tawḥīd* or monotheism.”¹⁸

So also is al-Āmirī’s statement on Empedocles – that when he returned to Greece, after having studied for long time with his teacher Luqṣmān al-Ḥakīm, he talked with his authority on the nature of this physical world which, if understood literally, could contradict the belief in the hereafter – showed us the similar selective and critical attitude of the Muslim scholars. The same attitude was also found even more clearly when al-Āmirī criticized severely a view of his contemporary friend, Abū Bakr al-Rāzī, when the latter put forwards the five eternal principles (*al-quḍamā al-khamsah*), which were considered by the former as offensive to the Islamic principle, especially that of the unity of God (*tawḥīd*).¹⁹

Criticism

In addition to the justification and careful adaptation by Muslim scholars of those sciences coming from outside to their own culture, the naturalization of knowledge can also take the form of criticism against Greek philosophical and scientific doctrines. A number of Muslim thinkers, for example, have levelled some criticisms in their scientific writings to the Greek philosophers’ doctrines which were considered to contradict the principal doctrines of Islam. Great Muslim philosophers, such as Ibn Sinā and Ibn Rusḥd, after having conducted serious and careful investigations on Greek philosophers’ doctrines, they found quite often anomalies and incoherence in their philosophical systems. It is why they felt necessary to revise and criticize them so they will be more suitable to their outlooks as Muslim philosophers. Ibn Sinā was indeed, according to Goodman, a great critic of Aristotle. He was put by Goodman in the same par as other Western Aristotelian critics, such as Liebniz or Spinoza, and not Thomas Aquinas.²⁰

¹⁸ See Iḥsān ‘Abbās, *Malāmih al-Yūnāniyyah fī al-Adab al-‘Arabī* (Beirut: al-Muassasah al-‘Arabiyyah li al-Dirāsāt wal-Naṣr, 1977), p. 18.

¹⁹ For al-Āmirī’s criticism of al-Rāzī, see Rowston’s *al-Āmirī’s Kitāb al-Amad ‘alī al-Abad*, p. 75.

²⁰ L.E. Goodman, *Avicenna* (London: Routledge, 1992), p. 69.

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One of Ibn Sīnā's famous criticisms is his critic on Aristotle's argument for God's existence. After having studied Aristotelian cosmological argument, Ibn Sīnā found some weaknesses or even mistakes in the argument for God's existence given by Aristotle and his commentators. In one of his works, Ibn Sīnā says:

It is useless to arrive at the First Truth through movement and through the fact that He is a principle of movement and then try from this to make it a principle of essences, for these people did not offer anything except establishing Him as a mover, and not as the principle of all that exist. What an incompetent to say that a movement should be an instrument for establishing The One, The Truth, who is Himself is the principle of all existents (*mawjūdāt*).²¹

Ibn Sīnā continues to say, "The fact that they have made the first principle as the principle of movement of the heavenly bodies does not necessarily mean that they can also make it the principle of the substance of these things."²²

Now, after figuring out the weakness in the above-mentioned Aristotelian argument, Ibn Sīnā, as I discuss at length in my work, *Menembus Batas Waktu* (especially chapter 5), puts forwards an alternative argument, known as the ontological argument, which is for him not only more coherent for proving the existence of God but also a more substantive and appropriate to Islamic view than simply as the Unmoved Mover. In his alternative argument, Ibn Sīnā, instead of calling God as a mover, calls Him the Necessary Being (*Wājib al-Wujūd*). This Necessary Being is needed as the condition for bringing the universe into existence, for as a possible being the universe cannot exist by itself without the intervention of the ever actual Being who could change its potentiality into actuality. The fact that the universe has existed indicates the existence of the Necessary Being, who became the cause or principle of all that exist.²³

²¹ Dimitri Gutas, *Avicenna and the Aristotelian Tradition* (Leiden: E.J. Brill, 1988), p. 264.

²²*Ibid.*

²³ Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam*, pp. 34-36.

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Meanwhile, Ibn Rushd (Averroes), the greatest Muslim supporter of Aristotle, according to Professor Phillip Clayton, has created the greatest alliance between Greek philosophical tradition and the belief in the One.²⁴ Here too we clearly see an adaptation of Greek philosophical doctrine to the principles of religious doctrines. Rushdian doctrine on the universe (as an immediate creation of higher intellects by God) which shows us how God could be the immediate cause of the universe and therefore becomes its Creator, according to Clayton, is closer to the Qur'anic picture of creation than any other Neo-platonists.²⁵ In addition, since Ibn Rushd made the essence more fundamental than existence, he could then draw a sharper line between God and everything else created by Him. God, in principle, is good, eternal, powerful and all-knowing, while created things are basically dependent on God and they do not have the essential qualities of God.

4. Final Remark

These are three forms of the naturalization of knowledge carried out by Muslims of Greek philosophical and scientific heritage. They illustrate succinctly the process of the naturalization of knowledge taking place in the Islamic world. We need to discuss this historical sketch on the naturalization of knowledge to demonstrate that knowledge or science cannot develop independently from religious, ideological or cultural values as well as political and economic ones. This also can show us that knowledge or science cannot be neutral or free from the values professed and cherished by its proponents of certain locality. More or less, as we have shown in this chapter, the orientation, emphasis, forms and even the development of knowledge were very much influenced by the personal conviction of the scientists or temporal "spirit" as well as by general values of the region and time. And, to my understanding, the process of the naturalization of knowledge has taken place from the classical to the post-colonial periods, even to the era of globali-

²⁴ See Philip Clayton, "Piercing God in the Lawfulness of Nature" presented at the International Conference of Science and Religion in the Post-Colonial Era, in Yogyakarta, January 3, 2003, p.5.

²⁵ *Ibid.*, p. 6.

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zation, where the geographical demarcation can be very easily trespassed. []

Chapter 13

Secularization of Knowledge

JOKINGLY one of my friends asked me, "How can we secularize knowledge, when there is no sacred knowledge." Although it was stated jokingly, we saw in it his hidden belief in the neutrality of knowledge (science), which we would like to prove otherwise. Even so, we fully realize that this task (i.e. to prove otherwise) is not so easy to undertake and it will significantly depend on one's understanding of the nature of knowledge and also the notion of the word 'secular' itself. According to me, science is different from fact. Fact can be, and should be neutral, but science cannot be, for according to my understanding, science is not merely fact. To be a science the fact needs an explanation from the scientists. But, for the very fact that science needs an explanation, science cannot be in any way neutral or objective in the real sense of the word. The dilemma is that science cannot be science unless it involves an explanation on the fact under investigation.

1. Definition

My friend's question implies that the term 'secular' is the opposite of the sacred. It is not wrong, but the word secular, taken from Latin word 'seculum' can also mean 'worldly' as against 'spiritual' or 'religious.' In this con-text, we would like to use the term secular in the sense of "a worldview that concerns only with this worldly life and neglects the hereafter altogether." From the ontological point of view, it focuses only on the material world and ignores the spiritual worlds. Therefore, by the secularization of knowledge, I mean "the process of putting aside all the spiritual aspects from knowledge, including its theories and activities,

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knowledge, I mean "the process of putting aside all the spiritual aspects from knowledge, including its theories and activities, which, in the classical periods, became the integral parts of scientific view."

2. Historical Sketch

The secularization of science, as a peculiar form of the naturalization of knowledge, had taken place in the West after the age of renaissance, when Western society became secular as the consequence of thought development there. Few centuries before this (around the twelfth and thirteenth centuries), Western scholarship was very much influenced by Islamic scholarship, especially after the translation of Islamic scientific and philosophical works into Latin and Hebrew.¹ Therefore, the knowledge developed there was still pretty much religious in nature, or at least highly motivated by religion. However, after the renaissance era (from the fourteenth century on ward), there took place the so-called 'revolution in scientific fields' in a peculiar way, so knowledge tended increasingly towards secular view, and gradually put religious view aside. In the end, this new scientific view did not get along with religion, and even, in certain cases, contradicted religious doctrines.

In scientific and philosophical fields, there existed what Professor Nasr called 'a philosophical doubt,' that is, a doubt toward the validity and authority of philosophy as the conveyer of truth. Philosophy was suspected and metaphysics was gradually discarded, just to be replaced by William Ockham and his followers with the nominalist theology.² Secularization of knowledge, thus, ran against the traditional cosmologies, especially that of Ibn Sinā. In Ibn Sinā's outlook, cosmology is closely connected to angelology. "The Universe," as Professor Nasr puts it, "was populated by angelic forces, a view which accorded perfectly well with

¹ For the translation of the Islamic works into Latin and Hebrew by Western scholars, please see Montgomery Whatt, *Islam dan Peradaban Dunia, Pengaruh Islam atas Eropa Abad Pertengahan* (Jakarta: Gramedia dan Missi, 1979), pp.88-92.

² See Nasr, *Man and Nature: The Spiritual Crisis of Modern Man* (London: Mandala Book, 1976), p. 63.

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the religious conception of the world. The spiritual agent in the form of angel was an integral and real aspect of cosmic reality."³ As it spread in the West, however, Ibn Sinā's cosmology, although accepted in outline, was criticized by men like William of Auvergne who wanted to banish the angels from the universe. By neglecting the souls of heavenly bodies (spheres), firmly believed by Ibn Sinā, these scholars had, to some significant extent, participated in secularizing the universe and in paving the way for the Copernican revolution. This revolution, according to Nasr, "could, in fact, only had occurred in a cosmos from which the symbolic and spiritual meaning had been removed; a cosmos which had become sheer fact drawn away from the bosom of metaphysics and made the subject of a purely physical science."⁴

Generally speaking, the Copernican Revolution exerted a very significant impact on secularization, or more accurately, the profanation of the previous classical world view. The idea that the sun was in the centre of the universe was not actually utterly a new idea, for it had been known by certain Greek, Muslim, and Hindu thinkers. But the proposal of this idea in the Renaissance era, without being followed by a spiritual world view, will only mean the dislocation of human position in the cosmos, since this new astronomical system had removed human position as 'the Divine image' from the centre of the universe. It is, by removing human position from the centre of everything, that this new astronomy removed from man his transcendent nature. Instead, it affirmed the lost of his theomorphic qualities, for the sake of which he was put in the centre of the universe.⁵ As a result, with the Renaissance, Europeans had lost what Nasr calls the heaven of the faith era to get, as its replacement, the newly shaped earth and the natural forms. But this is a nature which becomes less as a reflection of a celestial Reality. The people of Renaissance became a fully human, not half-human and half-angel, but completely bound up to the earth.⁶

³ *Ibid.*, p. 62

⁴ *Ibid.*

⁵ *Ibid.*, p. 66

⁶ *Ibid.*, p. 64

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This is the general picture of what had taken place, as result of the naturalization of science by European people in the form of secularization. This of course went along with their current world view which increasingly tended towards secularism.

3. Secularization of Scientific Method

a. Aristotelian-Islamic Paradigm

Al-Kindī (d. 866)

With this general picture, I would like to discuss more specifically the process of secularization, both in methods and theories. Let us begin with the first: the secularization of scientific methods. Since the Hellenistic or post-Aristotelian times up to the Golden Age of Islam and Christian scholasticism, a scientific explanation has always included the four Aristotelian causes. According to Aristotle, as G. B. Kerford puts it, "to know is to know by means of causes, and it is clear that the four Aristotelian causes are necessary elements in things, which must be known or understood if full understanding is to be reached."⁷

This model of scientific explanation seems to be fully accepted and practiced by the Muslim philosophers and scientists from al-Kindī in the ninth century to Ibn Khaldūn in the fifteenth century. The four causes are 'the material cause,' connected with matter, 'the formal cause,' related with the forms, 'the efficient cause,' related with the initiative of movement process, and 'the final cause,' related to the purpose for the sake of which something is formed. We firmly believe that this Aristotelian model of scientific explanation had been pretty well practiced since Hellenistic times, through the Golden Age of Islam and Christian scholastics of the twelfth and thirteenth centuries, a few centuries before Renaissance. This standard model started to shake in the modern times, when Western scientists and philosophers threw away the

⁷ See G.B. Kerford, "Aristotle" in Paul Edward (ed.), *The Encyclopaedia of Philosophy*, Vol. 1, p. 157.

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formal and final causes and focused only on the efficient and material causes in their scientific explanation.

To show the process of the methodological transformation, first, I would like to discuss how the Aristotelian method of explanation – which include four causes--had been studied, developed and practiced by Muslim philosophers and scientists. Here we will pick up two great Muslim philosophers to represent them: al-Kindī (±866), who marked the beginning of the philosophical tradition, and Ibn Khaldūn (d. 1405), who marked the phase of decline of Islam. It will be followed by a discussion which will show us how the Aristotelian method of explanation has been transfigured in the West. Let us begin with al-Kindī. In his book, *Fī al-Falsafah al-Ūllā*, al-Kindī formulates the scientific method or explanation as follows:

The noblest part of philosophy and the highest in rank is the First Philosophy, i.e., knowledge of the First Truth who is the cause of all truth. Therefore it is necessary that the perfect and most noble philosopher will be the man who fully understands this most noble knowledge; for the knowledge of the cause is more noble than knowledge of the effect, since we have complete knowledge of every knowable only when we have obtained full knowledge of its cause.

Every cause will be either matter or form or agent, i.e., that from which motion begins; or final, i.e., that for the sake of which the thing is. Scientific inquiries are four, as we have determined elsewhere in our philosophical treatises; either 'whether', 'what', 'which', or 'why'. 'Whether' is an investigation only of the existence (of something); 'what' investigates the genus of every existent which has a genus; 'which' investigates its specific difference; 'what' and 'which' together investigates its species; and 'why' its final cause, since it is an investigation of the absolute cause. It is evident that when we obtain full knowledge of its matter we thereby obtain full knowledge of its genus. And when we obtain full knowledge of its form we thereby obtain full knowledge of its species, knowledge of specific difference being subsumed within knowledge of its species. When therefore we obtain full knowledge of its matter, form and final cause, we thereby

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obtain full knowledge of its definition, and the real nature of every defined object is in its definition.⁸

We may want to ask where we can find the efficient cause in the above statement. The efficient or 'agency' cause is the first cause that initiates the movement. In al-Kind's philosophical system, the investigation on the efficient cause is similar to the investigation on the first cause or God, who for him the noblest cause, the first genus, the highest in rank and who first existed in time, since He is cause and also time.⁹

Ibn Khaldūn (d. 1406)

The Kindian tradition which then became the pattern or criteria of scientific investigation was followed almost universally by great Muslim philosophers-scientists, such as al-Fārābī, Ibn Sīnā, Ibn Rushd etc. So was it also followed consistently and applied creatively by Ibn Khaldūn in his concept of 'ulūm al-'umrān' or 'the science of culture.' Ibn Khaldūn once says: "In order to know the nature of culture, as with other matters related to all new happenings (*hawādith*), we should know its formative causes or principles of it. Now, it is the combination of these forms that gives the culture and its various traits an identity and individual reality which can be defined and distinguished from the others, and it is through the definition of the particular reality by way of knowing its causes that our reason can know culture and its characteristics demonstratively, for knowledge of anything new, derives only from the knowledge of its causes: efficient, material, formal and final."¹⁰

⁸Alfred L. Ivry, *Al-Kindī's Metaphysics: A Translation of Ya'qūb Ibn Ishāq al-Kindī's Treatise "On The First Philosophy (Fī al-Falsafah al-Ūlā)* (Albany: State University of New York Press, 1974), h. 56.

⁹*Ibid.*

¹⁰Muhsin Mahdi, *Ibn Khaldūn's Philosophy of History*, p. 233. It is very important in this occasion to know that Ibn Khaldūn, in line of the tradition of divine philosophers (*ilāhiyyūn*), but not that of the literalists (*zahriyyūn*) and naturalists (*dahriyyūn*), rejects the possibility of infinite number of causes. He points out clearly that these causes should end in a first cause.

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According to him, to know the nature of culture, we should know at least two causes thereof: the material and formal, which in this case of culture are state and culture.¹¹ In order to undergo its causality, the material and formal causes should be united, and to unite both of them we need an efficient cause (*fā'ilah*) which in the case of culture is solidarity (*'aṣabiyyah*).¹² The final cause, as in the case of efficient cause, is not actually part of the cause, and it is usually described as the external. "However, if we observe more profoundly and carefully, the final cause," says Ibn Khaldūn, "is more linked with the existence of something than other causes since the final cause is but 'the purpose' for the sake of which something exists."¹³ Therefore, the actual existence of the final cause is concomitant with the achievement of its effect. The final cause, in the case of culture, according to Ibn Khaldūn, is 'common good.'¹⁴

b. Modern Secular Paradigm

This paradigm or model of scientific explanation has been continually preserved and cherished by Muslim philosophers-scientists, even until the modern times, like Mullā Ṣadrā (d. 1641) and contemporary philosophers, such as 'Allamah Ṭabāṭabā'i. Meanwhile, in the West, this Aristotelian paradigm had been fundamentally transformed. Holmes Rolston III calls this fundamental transformation in method of scientific explanation as 'a revolution in explanations.' It took place when the four-fold Aristotelian scientific explanation was confined by the Western philosophers-scientists, including Newton, Hume and Jacques Loeb only into two causes: material and efficient causes. Meanwhile the formal and final causes were rejected, because these two causes incline more to the 'meaning' than 'facts.'¹⁵ Therefore, they are more suit-able to religion than science. "This scientific revolution," Rolston continues, "programmatically repudiated the for-

¹¹ *Ibid.*, p. 234.

¹² *Ibid.*, p. 253.

¹³ *Ibid.*, p. 270.

¹⁴ *Ibid.*

¹⁵ See Holmes Rolston III, *Science and Religion: A Critical Survey*, pp. 34-35.

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mal and final categories for understanding and expanded material and efficient categories to do the whole work of explanation.”¹⁶ I would like to call the change in this methodological field a fundamental reform, or even revolution, as Roslton calls it, for its impacts on further development of theoretical field, especially on the process of secularization of science, were of great significance.

4. Secularization of Scientific Theories

Now we should move to our second inquiry: the secularization in the scientific theories. Here we will discuss only briefly the impact of this secularization of scientific theories in various fields: physics, biology, psychology and sociology. Let us begin with the influence of mechanical theory of Newton on the development of modern sciences, not only in physics but also in biology, psychology and sociology.

a. Astrophysics

The great success of the Newtonian mechanical theory had caused a French astronomer, Pierre de Laplace, feel unnecessary to mention God's name in his great work on astrophysics, *The Celestial Mechanics*. According to him, in the theory of creation, God was nothing but a hypothesis, and more importantly, a hypothesis that was no longer needed by the theory of modern astronomy.¹⁷ Of course, this was the consequence of the restricting scientific explanation only to the efficient cause, understood here as a movement and material cause, which are nothing but matter. The revolution in scientific explanation has finally put aside God from any scientific explanation.

b. Biology

¹⁶ Rolston, *Science and Religion: A Critical Survey*, p.

¹⁷ See Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam*, p. 88.

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The same case holds true in the field of biology, especially as developed in the hands of Darwin. Like in Laplace's work, which had discarded God from the theory of astrophysics and replaced His roles as Creator and Sustainer of the world with the mechanical law, so also in Darwin works the origin of species was no longer referred to God, the external agent, but was simply considered as the mechanical products of a 'natural selection.'¹⁸ Like the mechanical law in physical world, this natural selection was an exact and unchangeable law in the level of organic world. Here too, God was removed, as in Laplace's astronomy, far away from scientific scene and His role as the creator of species (plants or animals) was replaced by a firm unchangeable natural law, called natural selection.

c. Psychology

Beside these two disciplines (astronomy and bio-logy), the impact of the revolution in explanations, can also be found in psychology. Like Laplace and Darwin, Sigmund Freud, the father of psychoanalysis, had removed God from scientific explanation in the field of psychology. Not only that, he too said that the belief in God was an illusion, for it did not come from reality but from the unconscious human wishes.¹⁹ The belief in God, as many other human activities and thoughts, was not a conscious and profound act, but it derived from uncon-scious motives or drives which very profoundly influenced human actions.

d. Sociology

Actually the similar impact can be found in other fields as well, for example, in sociology, as developed for example by August Comte and Emile Durkheim or in the field of economics, as demonstrated in Marxist theory. But perhaps it will be too long to address here as the purpose of its description was just as an

¹⁸ *Ibid.*, p. 88

¹⁹ *Ibid.*, p. 89

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illustration of how great the impacts of this change had on both methods and theories.

5. Concluding Remark

It is enough for me to say in conclusion that this paradigm shift or revolution in scientific explanation from the Aristotelian model to the Newtonian one had brought about very significant impacts, not only on the development of modern science, but, in our context, on the acceleration of the process of secularization and profanation of knowledge. When science chose only the efficient and material causes in the scientific explanation, the modern scientists did not confer the other two causes, as it is expected, to religion, but erased them altogether. As a consequence, science became more and more secular and profane and, in the end, it challenged religion, criticized it severely, or even opposed it in a very significant manner. According to 'Abd al-Ḥaqq' Guiderdoni, a French astrophysicist, actually between science which grapples with the efficient cause and religion which tries to explain the final cause should not be a conflict or opposition, provided that the one confers the authority to the other. "Unfortunately," he says, "the general trend in scientific development is that the efficient cause tended to push the final causes to background, even finally abolished them altogether."²⁰ As the result, the conflict between science and religion is still going on up to now.[]

²⁰ See Bruno Guiderdoni's paper, "How did the Universe begin?" presented at the International Conference of Science and Religion in the Post-Colonial Era, in Yogyakarta, January 3, 2003, pp. 1, 6-8.

Chapter 1.1

Islamization of Knowledge

1. Prologue

FROM the previous chapter, we can learn that the process of the naturalization of knowledge is still going on up to the modern time in the form of secularization of knowledge. Nevertheless, will this process come to an end in here? I do not think so. The naturalization of knowledge will continue in line with the paradigm shift employed by its scientists. In recent development, we begin to hear quite often a number of severe self-criticisms by Western scientists of scientific theories which had been so far considered to be firmly established. Not only at the theoretical plane did they level their criticism, but also at the planes of its method and paradigm, as carried out, for instance, by Thomas Kuhn in his *The Structure of Scientific Revolution*.¹ The objectivity of science has been questioned seriously, as also its universality, especially in the post-colonial era. Steve Fuller, a sociology professor at Warwick University, UK, says that "in the post-colonial period, when many states gradually draw their financial supports and sell the research activities to anyone who is able to buy them, it is the right time to properly issue a sort of license to adapt sciences to particular groups. Therefore, the birth of 'science of creation' and 'Islamic science' should be viewed as something normal and natural."²

¹ See Thomas Kuhn, *Peran Paradigma dalam Revolusi Sains*, translated from the *Structure of Scientific Revolution* (Bandung: Rosdakarya, 1993), especially pp. 43-51.

² See Steve Fuller, "Humanity as An Endangered Species in Science and Religion," presented in the International Conference on Religion and Science in Yogyakarta, Indonesia, January 4, 2003, p. 6.

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2. Definition

The term “Islamization of knowledge” has been to many people a confusing, and to certain extent, unpopular term. It is confusing, since its proponents have different versions, understandings and methods about it, and unpopular, since it implies the relativity of science which has so long been considered universal and neutral, although this assumption is not fully right. According to Steve Fuller, this assumption is wrong, since it derives from a confusion to differentiate between media and message. “The message is still universal, but its media requires a more personal appeal.”³

In this work, I will still use the term ‘Islamization of knowledge’ with certain qualifications. Firstly, the word Islam in ‘Islamization’ should not necessarily be understood strictly as a doctrine whose references should be found literally in the Qur’an and Hadith. It should rather be considered more broadly in term of its spirit and principle. This science should not contradict the fundamental beliefs of Islam, such as belief in God, angel, the hereafter, and revelation (*wahy*). As for its sources, after the Qur’an and *hadith*, they can come from different fountains – classical Greek, Persia, India in the past, or even the West itself in the present. According to me, Islam (or any religion) today cannot anymore confine itself exclusively only to its own original sources, but it should be open to other ‘external’ sources of the truth and wisdoms as long as they do not contradict its (Islamic) fundamental doctrines. Secondly, the Islamization of knowledge I offer here, is not merely ‘labialization’ of science with the Qur’anic verses or *hadith* to justify a scientific discoveries or theories, but more importantly it should operate on the epistemological level. It may be accomplished by trying first to carefully ‘deconstruct’ the modern Western epistemology and then to ‘reconstruct’ an ‘Islamic’ one by seriously cultivating and critically examining the materials found in ‘Islamic scientific tradition,’ built and developed for more than a millennium by Muslim philosophers and scientists. This epistemological reconstruction should include the ontological status of the objects of knowledge, its classification

³*Ibid.*

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and scientific methods, which hopefully will answer the most fundamental questions in any epistemology: "what can we, human beings, know?" and "how do we know it?" Finally, the Islamization of knowledge bases itself on the assumption that science is not, and will never be, neutral and value-free.⁴

Our discussion on the naturalization of science has shown us that science has never been neutral. When a science developed in certain area, it was always formed in accordance with the cultural, ideological or religious values professed by local thinkers or scientists, hence the Hellenization of knowledge and the Christianization of knowledge in the pre-Islamic era, and Islamization of knowledge in the classic period of Islam, and then the Westernization, in the form of the secularization of knowledge by Western society. Therefore, it is not really strange, for me, that when from the western countries sciences were transferred to the Islamic countries, Muslims tried to naturalize or adapt sciences to their religious and cultural values. It is this process of the naturalization of science by Muslims in their own particular places that I mean by 'the Islamization of knowledge.' At least, this is what I understand by it. For even when the geographical barriers can be easily transcended in the so-called era of globalization, the spiritual geography, however, cannot be traversed as easy as that, since there is a sacred area that cannot be transgressed forcefully from outside.

3. The Necessity of Islamization of Knowledge

Is Islamization of knowledge necessary? Probably it will never be necessary if there were no secularization, in the hands of great modern scientists, of knowledge in the modern world. Again, the Islamization of knowledge would not be so urgent, if this secularization did not create great challenges or even quite destructive attacks on the pillars of faith in God and the hereafter. But all these things did happen, and we as the believers feel greatly concerned with the emergence and development of these secular sciences, whose influences have been so global.

⁴See Holmes Rolston III, *Science and Religion*, pp. 33-34.

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As a Muslim or religious intellectual and scholar, I have been called to answer these challenges brought about by the modern science to religion.⁵ Therefore, I think the Islamization of knowledge, as a form of naturalization of science, should be carried out to our capacity to minimize the negative impacts of secular science on religious system and thus protect it from its deterioration or even destruction.

As a religion, Islam actually encourages and supports very much the seeking and development of knowledge. Many Qur'anic verses⁶ and prophetic *hadiths* that praise those who have and seek knowledge anywhere they can⁷ and for as long as they are alive.⁸ In addition to it, these religious supports and admonitions to seek and cultivate science had been greeted enthusiastically by Muslims. Almost all the scientific fields⁹ at their times were touched and explored except the untouchable God's essence which lies beyond human's capacity to comprehend. In Islamic view, all God's creations are none but His own signs. To study the universe will mean study God's creative work. It is therefore hoped that a Muslim scientist who studies and explores the creation, can increase his faith and piety to Him. Even so, this boundless and timeless searching for knowledge should not be motivated just for the sake of curiosity, but for another higher purpose. Prof. Nasr says, "not one of Muslim scientists who seeks knowledge only for the sake of curiosity, but he does this to observe the trace of God (*vestigia Dei*)."¹⁰

In addition to this, Islam did permit the differences of opinions or views in scientific matters, leading to the rise of various scientific theories in Islamic world. Even, a theory of evo-

⁵ See the discussion on the challenge of modern science to religion in Mulyadhi Kartanegara, *Menembus Batas Waktu*, pp. 88-91, and 145-146,

⁶ For example QS al-Mujadalah (53), verse 11: "Allah will raise high the rank of those who believe among you and those who have knowledge."

⁷ The Prophet says: "Seek knowledge even if it is in China."

⁸ The prophet points out: "Seek knowledge from the cradle to the grave."

⁹ For the varieties of scientific branches cultivated by Muslim scholars see Mulyadhi Kartanegara, *Menembus Batas Waktu*, especially chapter 12 on the third Renaissance, pp. 109-123, and *Reaktualisasi Tradisi Ilmiah Islam* (Jakarta: Baitu Ihsan, 2006), especially on the scientific researches, pp.17-181.

¹⁰ Seyyed Hossein Nasr, *Introduction to Islamic Cosmological Doctrines*, p. 74.

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lution,¹¹ which both in Islam and the West had created so many reactions or criticisms, had been actually discovered and developed among the outstanding Muslim scientists such as al-Jāhiz, Ikhwān al-Ṣafā', Miskawayh and especially Mawlānā Rūmī,¹² alongside with the creationist theories, provided that it does not contradict the fundamental principle of religion. However, if these theories contradict the principles of religion, such as belief in God's existence, angel, hereafter and *wahy* (revelation/prophesy), Islam as a religion cannot and will not tolerate them, since the theories had deviated from the true Islamic principle and ethos. Therefore, I am not surprised, if the Muslims, especially the intellectuals, have given their various reactions to the Western secular scientific theories, once they knew that these theories contradict Islamic fundamental doctrines. It is in this context that I understand the significance of the attempts by great contemporary Muslim thinkers, such as Naquib Al-Attas, Ismā'il R. Fārūqī and S. H. Nasr to Islamize modern sciences. Recently, we can also see the similar attempts, as carried out by Mehdi Golshani and Osman Bakar, in what they promoted as the sacred science.¹³

4. New Concept of Islamization of Knowledge

Let us now turn to the original question "what kind or form of the Islamization of knowledge that I offer?" Actually I offer a simple form of Islamization, but it works on epistemological levels: (1) On the system of the classification of knowledge, and (2) on scientific methods.

a. *At Theoretical Plane*

¹¹ See the Christian criticism of (Darwin) theory of Evolution in Ian G. Barbour, *Juru Bicara Tuhan: Antara Sains dan Agama* translated from *When Science Meets Religion*, (Bandung: Mizan, 2002), pp. 195-201.

¹² See Mulyadhi Kartanegara, *Menjelami Lubuk Tasawuf* (Jakarta: Erlangga, 2006), pp.67-70.

¹³ Golshani's paper, "Science and the Sacred," and its commentary by Osman Bakar, as presented in the International Conference on Science and Religion in Yogyakarta, January 3, 2003.

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On the classification of knowledge, in principle, Islam allows all studies on any objects in various fields, from physics and mathematics to metaphysics. But these studies are possible only after we have established first the ontological status of their objects. In the natural science, for example, all branches of modern science become valid and legitimate fields to be included into Islamic sciences. There is no 'taboo' in Islam to explore and investigate any physical objects, for only God's essence should not be investigated. The outcomes of the modern science researches can be well accepted as a useful means to know better God's existence and greatness. But any scientific theory pointing out that the physical world is an independent and even ultimate reality, having no relation whatsoever with any higher realities, will never be accepted.

Gravity

For in Islamic perspective, all the physical entities are but God's creation wholly dependent on, and closely related to, Him and they act basically as the signs for His existence and greatness.¹⁴ The Newtonian law of gravity, for example, can be very well accepted, provided that it does not assume that this law runs independently from God, thus replacing God's role in governing the world. If it does, it will be considered as dangerous, since it can so easily put God aside, as Laplace did, as an unneeded hypothesis.

Actually, the law of gravity had been discovered by Abū Rayhān al-Bīrūnī (d. 1041), a Muslim polymath of the eleventh century. His criticism of Aristotle's theory stipulating that the source of gravity was dual: heaven for fire and air, and the center of earth for soil and water, had made al-Bīrūnī theory very similar to Newton's.¹⁵ This discovery was substantiated by what the modern scientists may call 'the specific gravity of elements' (al-

¹⁴ According to Suhrawardi, any things other than God, need (*iftaḡara ilā*) God, so that the world is called by him *al-faḡir*, the needy. See Suhrawardi, *Ḥikmat al-Ishrāq*, pp. 76, 78 and Q.S. al-Baqarah (2), verse 164

¹⁵ See Ḥakim Muḥammad ṣa'id Dr. A.Z. Khan, *Al-Bīrūnī*, p. 145

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arkān),¹⁶ which surely cannot make sense without assuming (or more accurately affirming) the existence of gravity. However, while Newton and other modern physicists will probably consider 'gravity' as just one among other independent natural forces i.e. electromagnetic, weak force and strong force, Muslim thinkers, such as al-Fārābī, Ikhwān al-Ṣafā' and Ibn Sinā, considered these natural forces to derive from the supernal sources, such as the active intellect, the universal soul, or the souls of spheres and the universal intellect¹⁷ that derived ultimately from God.

Evolution Theory

The theory of evolution, both geological and biological, can be, and has actually been accepted by Muslim Scholars, as long as it does not consider that the moving force behind the evolution was independent or autonomous force from the divine. So it is different from Darwin's theory of natural selection that has been thought to be responsible for an organic evolution, including the origin of species. Otherwise, scientists will easily remove God as the creator of species (vegetable and animal), since the law of natural selection will replace His role as the creator and the sustainer of the universe, as done by Laplace, where God's role as the sustainer of the world has been replaced by mechanical law. In the Islamic world, the alchemists' attempt to transform a base metal into a noble one was based on the belief that the mineral substances have transmuted gradually.¹⁸ Here Muslim alchemists tried to 'revolutionize' and 'accelerate' the process of gradual transmutation into the faster one through a chemical engineering.

In a bigger scale, the theory of geological evolution has been justified and developed by a great Muslim philosopher, Mullā Ṣadrā, in his theory of trans-substantial movement (*al-harakah al-jawhariyyah*). According to this theory the universe has moved vertically towards higher levels without leaving its previous elements. In Mullā Ṣadrā's philosophy, however, we know that

¹⁶ *Ibid.*, p.147

¹⁷ See Davidson, *Alfarabi, Avicenna & Averroes*, pp. 76-77

¹⁸ Nasr, *Islamic Science: An Illustrated Studies* (London: World of Islam Festival Publishing Co. Ltd., 1976), p.194.

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these vertical movements will not cease to move until they have reached the level of their archetypal realities in the spiritual plane before finally return to the Divine presence.¹⁹ Therefore the Sadran theory of evolution in the form of trans-substantial movement does not discard its transcendent principle. This is of course different from the theory of evolution proposed by Henry Thomas Huxley and Charles Darwin.

In addition, the theory of evolution in biological realm has been found, developed or even supported by Muslim thinkers, such as al-Jāhiz, Miskawayh, Ikhwān al-Ṣafā' and Jalāl al-Dīn Rūmī. Like his European friend Darwin, Rūmī also believed in evolution. Again, like Darwin who had discovered 'the fundamental force responsible for the biological evolution in the law of natural selection, so also Rumi had discovered the similar force in what he called 'ishq (love).

However, unlike Darwin who believed that this natural selection was an autonomous natural law (in the sense of having no connection whatsoever with any super-natural force), Rūmī's theory requires the existence of this supernatural force as the central part of his theory, for, if love ('ishq) is the fundamental force responsible for evolutionary movement, the question is, "is it possible that love exists without the beloved?" Indeed, it is for the sake of the Beloved, the beautiful Deity, that this love has moved the universe closer to Him.²⁰ And it is the attempt of the universe to get closer to the Beloved (*al-ma'shūq*) that later we understood as evolution. Therefore, it is clear for Rūmī that there will be no evolution without love, and in a deeper level it is also true that there will be no love without the beloved. God as the beloved (*al-ma'shūq*) then becomes the condition for the existence of love ('ishq), and love, in its turn, becomes the condition for the existence of evolution. Hence, it shows clearly to us the importance of God's role, that without Him, there will never be evolution at all.

¹⁹ Nasr, "Mullā Ṣadrā: His Teachings" in Nasr and Leaman, *History of Islamic Philosophy*, Vol. 1, p. 649.

²⁰ For further discussion on the theory of evolution, see Mulyadhi Kartanegara, *Menembus Batas Waktu*, pp. 26-27.

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Metaphysics

Actually the same case holds good in other fields, such as psychology and sociology.²¹ But it will be probably too long to mention all in here. Suffice to say that in Islam, immaterial entities are never separated from knowledge. Instead, it is considered to be an integral part of it. These immaterial entities are put in different levels in the hierarchy of being, culminating in the first cause, God. Therefore, studies on the non-physical fields, such as cosmology and metaphysics become extremely important since without them, all the theories in physical sciences will not be understood properly, and will not be complete. For instance, psychology, which in Ibn Sinā's system of the classification of knowledge, belongs to physical sciences, will not be complete and well understood without the metaphysics of emanation, which surely belongs to metaphysical fields.²² According to him, human reason (*'aql*) will not reach its actuality until it has a contact (*ittiṣāl*) with the active or agent intellect (*al-'aql al-fa'āl*). This active intellect in Ibn Sinā's cosmology is considered to be the tenth or the last immaterial intellect in the series of immaterial intellects emanating from God. Likewise, human souls and their mental faculties cannot be considered merely as the neurological function of the brain, as modern neurologists did, but as 'an immaterial substance' in themselves and therefore they are immortal. Psychology has been studied by Muslim philosophers-scientists as a part of physical science, in so far as the soul is in the physical body during its worldly career.²³ Since the soul itself is immaterial (*mujarrad*), therefore it surely will survive the physical death, and continue its spiritual journey until it reaches its goal: be in God's

²¹ For the discussion of more Islamic sort of sociology, please consult my paper on 'Sociology of Ibn Khaldūn: A reconstruction of the Heritage of Muslim scholars' Social theories in the Medieval Time,' presented at University of Malang, in Malang, Indonesia, October 4, 2002.

²² Davidson, *Alfarabi, Avicenna & Averroes*, p. 82.

²³ See Fazlur Rahman, *Avicenna's Psychology*, pp. 58-63

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presence. To describe the fate of the soul after its physical death, there is a scientific branch, specifically designed for it, called 'eschatology' (*al-ma'ād*) which belongs to the metaphysical sciences.

b. At Methodological Plane

This is more or less the form of the Islamization of science that I have envisaged in the theoretical level. Now, let us turn to the Islamization of science in the methodological level.

Experimental Method

When the study of Islamic science is not limited to the physical entities, such as happening in the modern science, but extends its wings to the non-physical entities, like mathematical and metaphysical, the Muslim thinkers and scientists were under constrain to create not only scientific methods suitable to physical entities, such as observation and experimental methods (*tajribi*), but also other methods applicable to the non-physical entities, such as demonstrative method (*burhāni*) or intuitive (*'irfāni*).²⁴ We cannot, for example, accept observation or calculation, as a mathematical method, but reject the others, such as done by Laplace when he said, "I mistrust anything but the direct result of observation and calculation."²⁵ Of course we know that observation and calculation are very important and had been also practiced by great Muslim scientists, especially al-Birūnī and Ibn Haytham, who said that suitable scientific method for astronomical and optical researches, was the combination of experimental and mathematical methods. However, we should not stop in here, since scientific areas are not limited to the physical and mathematical fields only, but also the metaphysical one. Of course, this metaphysical field necessarily demands a different method

²⁴ As for the scientific methods used in the Muslim scholars' scientific framework, please refer to chapter 6 of this work

²⁵ See Mulyadhi Kartanegara, *Menembus Batas Waktu: Panorama Filsafat Islam*, p. 87.

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whose function cannot be fulfilled by either observation or calculation (mathematical) methods.

Demonstrative Method (Burhānī)

Therefore, scientific methods used in the Islamic sciences, should also recognize other methods such as *burhānī* (logical) and '*irfānī* (intuitive) methods. *Burhānī* (demonstrative) method had been developed so intensively by Muslim philosophers and scientists, so that a philosopher like Ibn Sīnā needed nine volumes in his magnum opus *al-Shifā'* to elaborate this method. In connection with metaphysical investigations, the *burhānī* method is very much needed, not only to prove the existence of spiritual entities and their ontological status – as carried out by al-Kindī, Ibn Sīnā and Ibn Rushd in their attempts to prove the existence of God, but also to demonstrate rationally some extraordinary occurrences such as *mi'rāj* (the ascension),²⁶ mystical experience, and especially prophetic revelation (*wahy*). Therefore, this method is extremely important to rationally support our faith which has been usually accepted dogmatically.

Intuitive Method ('Irfānī)

The '*irfānī* (intuitive) method is also very much needed in metaphysical and religious fields, for it is through this method that we are introduced not only to the immaterial entities, like in the case of demonstrative method, but more than that we are also ushered to 'witness' through our own heart (intuition) of those things so far known to us only by means of discursive knowledge. Through '*irfānī* method, we are guided to experience and witness ourselves (*mushāhadah*) metaphysical worlds so far hidden, until through this method these hidden secrets, by God's per- mit, are revealed. In his work *Risālat al-Anwār fī mā yumna Ṣāhib al-Halwā*

²⁶ Even we find Ibn Sīnā as having written a peculiar work on the *mi'rāj* of the Prophet, wherein he interprets it philosophically. This work has been translated into English from Persian by Henry Corbin. See Henry Corbin, *Avicenna and Visionary Recital* (Irving, Texas: Spring Publication, 1980), pp. 165-177.

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min al-Asrār Ibn 'Arabī reveals his extraordinary mystical experiences through 'irfānī method in the form of *dhikr*. Here, Ibn 'Arabī systematically describes his 'spiritual journey' from the material world ('*ālam al-mulūk*), the imaginal world ('*ālam al-mithāl*) to the spiritual world ('*ālam al-jabarūt*), telling us how he entered the mineral world with its various stones and metals introducing themselves to him of the medical and nutritive benefits they have. Then he entered the vegetable, animal, imaginal and spiritual worlds and witnessed many unbelievable things such as paradise, with their various levels and tells us how people there sit next to each other and compares the ranks of their happiness, 'hell-fires' with their different levels, and 'Arash with all entities that exist above it. In addition, he also tells us that God has revealed to him all the secrets of mineral, vegetable and animal kingdoms with its varieties of forms and their nutritive as well as medical benefits and the harms that they might bring about.²⁷

These mystical exposures by a number of Sufis, like Ibn 'Arabī and Rūmī may seem quite strange and fantastic for most of us. But in a more serious reflection this secret disclosure (*mukāshafah*) received directly from God (*al-Ḥaqq*) has shed important metaphysical lights to certain contemporary thinkers, such as Brian Hines and Bruno Guiderdoni. For example, in his work *God's Whisper and Creation's Thunder*, Brian Hines has considered Rūmī as a great spiritual scientist,²⁸ who through his mystical experiences has revealed to us the spiritual dimensions of reality, which the Modern sciences has disclosed only its physical dimension. Modern scientists, according to him, need spiritual or mystical insights like these to complete their vision on reality, which only its echo can be detected by the new physics.

So also Professor Bruno 'Abd al-Ḥaqq' Guiderdoni, a French astrophysicist, who converted to Islam, can see clearly the importance of the mystical disclosure to Ibn 'Arabī on the reality of the world in understanding diverse natural phenomena in the

²⁷ See Ibn 'Arabī, *The Journey to the Lord of Power*, translated from Arabic by Rabia Terri Harris (New York: Inner Tradition International, 1981). Pp. 36-48.

²⁸ Brian Hines, *God's Whisper and Creation's Thunder*, pp. 45-47.

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universe.²⁹ The Shayikh al-Akbar's doctrine that the Truth reveals His face differently at any given moment has provided our astrophysicist with a clear explanation on why the universe, observed by sophisticated scientific tools, has repeatedly created puzzles which are still unsolved till these days by modern scientists. Through Ibn 'Arabi's doctrine, professor Bruno became fully realizes that these puzzles will never be resolved solely based on the efficient causes, as has been done by modern physicists, but it should be combined with a spiritual (mystical or religious) authority which involves the explanation of 'the final cause.'

Finally, *'irfānī* method is also very crucial in the frame of Islamic knowledge, for it is through it we can understand and thus justify the reality of prophecy in the form of revelation (*wahy*), as one of our pillars of the faith (*arkān al-īmān*). Revelation is but the peak or the highest level of mystical experience. For according to Farid al-Din 'Aṭṭār the highest level of mystical experience (*wilāyah*) achieved by sufis is just the beginning of prophetic experience (*nubuwwah*).

5. Epilogue

In conclusion, we come to realize that in the Islamic scientific view, both in theoretical and methodological fields, Muslim scientists have studied scientifically not just the physical entities of the universe, but also metaphysical entities. Therefore, science they produced can go hand in hand with religion. It will not for sure contradict the fundamental doctrines of religion, as frequently happened in the West. Instead, it will justify and support the doctrines wholeheartedly.[]

²⁹ See Bruno Guiderdoni's paper, "How did the Universe begin?" presented in the International Conference of Science and Religion, in Yogyakarta, January 3, 2003, pp. 1, 6-8.

Conclusion

IN this conclusion, I would like to draw some essential points contained in this work and some notes which are probably important for any further research in the field of Islamic epistemology.

First of all, we need a clear understanding on the similarities and differences between *'ilm* and science. In Islam, *'ilm* has been understood as 'knowledge of some-thing as it is,' and this kind of knowledge should be distinguished from an opinion (*al-ra'y*), that is, knowledge which is based merely on sense impression or unproven knowledge. Perhaps this opinion is not so far from the term knowledge used in a general term. From this vantage, *'ilm* is almost similar to science as a systematic knowledge contrasted in the West epistemology with knowledge. Even so, it is very important to note the fundamental differences between the two. While science restricts itself to the empirical and physical fields, *'ilm* includes not only empirical fields but also non-empirical ones, like mathematics and metaphysics.

The second, the scientific investigation on the universe has provided us with spectacular information on the structure of physical world. But unfortunately, with its strong secular inclination, it tends to reduce the spiritual dimension of both the universe and human being, so it does not sufficiently give us a meaningful position in the cosmic order. In this case, we need a philosophy or religion to provide a more comprehensive world view, so that human being will regain his noble place in the cosmos, which has been so far put aside by modern science.

The third, when we really want to know the object of our inquiry, we realize that the external senses *per se* cannot provide us with that we need. The information we get from the senses is

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quite often misleading. Therefore, senses need reason to complete their shortcomings, since reason can provide the truer information on the object. With its help we can acquire a more complete knowledge than before. Even so, since reason works through our built-in mental categories which we impose on the objects, our rational knowledge thereof cannot be immediate and intimate, since it is known only indirectly. For that reason, we still need yet another instrument or source of knowledge known as intuition (heart) which can, through the mode of presential (*ḥuḍūrī*) method, touch the heart of the object. Through this, the unity between the subject and object can take place and a more intimate apprehension of the object can be achieved.

The fourth, 'the knowledge of something as it is,' as the definition of '*ilm*,' can be reached only if the ontological status of its objects, physical and non-physical, has been established. Muslim scientists and philosophers have shown how the ontological status of the objects was established philosophically. They discover that the ontological status of an object indeed corresponds with its position in the hierarchy of being (*tartīb al-mawjūdāt*). The higher its position in the hierarchy is, the more real and fundamental its ontological status becomes. Since God, the Cause of causes, occupies the peak of the hierarchy, therefore, according to Muslim philosophers, His ontological status is the most real and fundamental. This was followed immediately by angels, celestial bodies, and finally by the physical entities at the very bottom of the hierarchy.

The fifth, the ontological status of scientific objects becomes important as the ontological basis for the classification of knowledge and this in turn will reflect not only the positions of the objects in the hierarchy of being but also their real nature. Therefore, we realize that the objects of physical sciences are those which are, according to Ibn Sinā, necessarily attached to matter and movement, while the objects of mathematical sciences are in them-selves immaterial but can have contact with matter and movement, and finally the objects of metaphysical sciences which cannot have any direct contact with matter and its movement.

The sixth, the great range of objects, from physical and non-physical, cannot be captured entirely just by sense observation,

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which has been considered to be the most reliable method of modern science, because the observation method can only work with the physical objects. It is why Muslim scientists and philosophers have developed other scientific methods, in addition to the experimental method. (1) the demonstrative method (*burhān*). This method can capture the intelligible objects (*al-ma'qūlāt*) indirectly through a syllogism (*al-qiyyās*), by drawing a conclusion from the known premises. (2) the intuitive method (*'irfānī*) which captures its objects in such a peculiar way so that it can make its objects present in his own soul and therefore perceive them immediately and intimately in the so-called knowledge by presence (*al-'ilm al-ḥuḍūri*).

The seventh, objectivity in its absolute sense will not be attained, and for this reason the scientists should be humble enough to acknowledge that the subjective elements cannot be avoided in scientific researches and investigations. Even so, the scientists are obliged, by utilizing the scientific instrument, criteria and procedures, to try their best to 'cultivate' and analyse the received data as objectively as possible in view of bringing them closer to the target of having 'knowledge of something as it is.'

The eighth, even though the mystical experience is personal and subjective, but it does not necessarily mean that it does not have any objective ontological basis at all. Like the world of dream which is objective due to its certain traits and nature shared by every dreamers, so also the mystical world, or imaginal world (*'ālam al-mithāl*), is objective, for it has peculiar features shared by whoever experiences it, despite the fact that they experience it subjectively or personally. And the nature of the mystical (imaginal) world—like the dream world—is that it has some physical forms and images, but no physical elements.

The ninth, a mystical experience is important not only for the Sufis, but for the philosophers and scientists as well. For them the mystical experience is as essential as those of sensory and rational ones. Like sensory experience is important for acquiring the knowledge of the physical world, so also the mystical experience is, as shown in Ibn Sinā's *Risālat al-Ṭayr* and Suhrawardī's *al-Ghurfaḥ al-Gharbiyyah*, very important for investigating the extra-sensory or unseen worlds, in order to understand the

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cosmic structure. It is also essential for constructing a cosmology needed as 'a roadmap' which will give us a right direction and orientation as to where human beings should go and return.

The tenth, Muslim philosophers consider prophecy as an extraordinary or miraculous event, but it is possible philosophically. According to them, this prophecy is but the contact of the prophet with the active intellect. The contact with the active intellect, in their view, is an experience which can occur to anyone possessing the acquired intellect (*al-'aql al-mustafād*). However, as far as its occurrence is concerned, the differences exist between the philosophers and the prophets. The philosophers would have a contact with it only after exerting rigorous efforts and studies through their intellectual power, while the prophets acquire it effortless through a very special power given to them by God, a special gift that sometimes is called imagination or *mutakhayyilah* (al-Fārābī) the sacred intellect or *al-'aql al-qudsī* (Ibn Sīnā). But what is essential is the philosophers' conviction that the prophecy is philosophically possible.

The eleventh, knowledge cannot be really neutral or value free, and this can be seen from what Professor Sabra terms as 'the naturalization of knowledge' which really took place throughout the history of science development. The Naturalization of knowledge, in the sense of a process of adapting and assimilating the incoming science from outside into the cultural frame of a particular state or civilization, in its concrete or real history, has indeed occurred in the forms of Hellenization of knowledge, Christianization (Baptizing) of knowledge, Islamization of knowledge, and Westernization of knowledge. So also the secularization of knowledge is but a particular form of naturalization of knowledge, wherein the Islamic scientific heritage has been assimilated and adapted into certain culturally and ideologically secular values of the West. Therefore, it is just natural, to me, if the modern sciences acquired by Muslims from the West are being readapted and re-assimilated into the values of Islamic culture and religion in the so-called Islamization of knowledge. By the Islamization of knowledge here I do not mean simply the labialization of science or scientific theories and discoveries with certain Qur'ānic verses or *hadiths*, following after the Buccailian

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model, but it goes deeper into various epistemological dimensions covering the issues of the onto-logical status of scientific objects, the system of classification of knowledge and the scientific methods including the experimental, demonstrative and intuitive methods.

These are the conclusions that I can draw from this work. But as a work designed as an introduction or even a hand book, surely it will not be comprehensive and still far from being perfect. And yet, I hope that this book, with all its shortcomings, will still give some benefits to its readers in general and students in particular in deepening their understanding on Islamic epistemological doctrines which have become a darling subject for Muslim scientists and philosopher over ages.

However, since it is just an introduction, we also hope that this book should serve as a basis or the first step for any further studies, which are more intensive and comprehensive, on Islamic epistemology whose publications are still very much needed. Hopefully, this small work can trigger some greater and more profound works of similar nature. Finally, as a work which is based on the epistemological course, I hope this book can be used as textbook for the course of Islamic epistemology or philosophy of knowledge, especially for students of philosophy or theology and also for general readers who are interested in finding the Truth and the philosophical foundation of knowledge.[]

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