



THE HOLY QUR'AN AND THE SCIENCES OF NATURE



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Preface

The study of the Qur'anic view concerning the cognition of nature has a long history in the Islamic world. In the golden era of Islamic civilization, most of the learned Muslim scholars considered the Qur'an as the source of their inspiration in their study of nature, and they viewed the discovery of the secrets of nature as a way for their familiarity with the signs of Allah in natural world and an effective way for proximity to Allah.

The rise of modern science and its rapid development was after the decadence of the sciences of nature in the Islamic world. When, about two centuries ago, Muslims started to import Western science, several attitudes developed in the Islamic world. Some scholars saw modern science as the only key to their future development and discarded the Qur'an completely. On the other hand, some scholars saw the root of all sciences in the Holy Qur'an and tried to adapt the Holy Qur'an with findings of modern science. Finally, some eminent Muslim scholars, viewed the Holy Qur'an as the source of their worldview and inspiration in the discovery of nature, but they also recommended the use of the methods and tools of modern science. This writer belongs to the last category.

This book contains several essays which were first presented at some international conferences, but are now ordered in a logical order. These essays deal with different aspects of the relation of the sciences of nature with the Holy Qur'an, among which are the following subjects:



- the Islamic conception of knowledge;
- the reason for the significance of the sciences of nature from the Qur'anic viewpoint;
- the necessity of binding science with moral values;
- the necessity of binding science with wisdom;
- epistemology from the Qur'anic viewpoint.

In my humble view, the neglect of the Qur'anic worldview has deprived many Muslim scholars from the comprehensive inspirations of the Qur'an concerning the study of the natural world. I hope and pray that this humble presentation would work as a small spark in attracting Muslim scholars' attention to this comprehensive world view, in the revival of scientific spirit in the '*Ummah*, and in promoting scientific knowledge in the Muslim world.

The English edition of this book was published in New York twice. Then the expanded edition was published by the Institute for Humanities and Cultural Studies, Tehran, Iran. Now that the last edition is being republished by Amin Research and Cultural Centre (ARCC) of Malaysia, I would like to thank Mr. Ramin Ghavifekr of this center's publication department for his effort in publishing this book, and Mr. Mohamad Mohideen Jalaluddin for the typesetting of the book.

Mehdi Golshani

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I

Science and the Muslim Ummah

Introduction

One of the distinctive features of Islam is its emphasis on knowledge. The Qur'an and the Islamic tradition (*sunnah*) invite Muslims to seek and acquire knowledge and wisdom and to hold men of knowledge in high esteem. Some of the Qur'anic verses and relevant traditions will be mentioned in the course of our discussion.

At the outset we may recall a famous *hadith* of the Holy Prophet (upon whom be Allah's peace and benedictions) that has come down through various sources; it says:

﴿طلب العلم فريضة على كل مسلم﴾

*"Acquisition of knowledge is incumbent on every Muslim."*¹

This tradition brought up the discussion as to what kind of knowledge a Muslim should necessarily acquire an issue around which various opinions were offered in the past.

Abu Hamid Al-Ghazzali (died A.D. 1111), in his famous book *Ihyā 'Ulūm al-Dīn* (The Revival of Religious Sciences), mentions that he had come across twenty different answers to the above question.² The theologians considered that learning of Islamic theology (*kalām*) was an obligation, while the jurists (*fuqahā*) thought that Islamic jurisprudence (*fiqh*) was implied in the prophetic tradition. Al-Ghazzali



himself favoured the view that the knowledge whose acquisition is a religious obligation is limited to what one must know for correct performance of the acts obligatory for a person within the framework of the Islamic *Shari'ah*.³ For instance, one whose occupation is animal husbandry should acquaint himself with the rules concerning *zakāt*. If one were a merchant doing business in an usurious environment, he ought to be aware of the religious injunction against usury so as to be able to effectively avoid it.

Al-Ghazzali then proceeds to discuss sciences whose knowledge is *wājib kifā'ī*⁴ (something which is obligatory for the whole society as long as the duty for fulfillment of a social need exists, but as soon as the duty is shouldered by enough number of individuals, others are automatically relieved of the obligation). Subsequently, he classifies all knowledge into “religious” and “non-religious” sciences. By “religious sciences” (*‘ulum al-shar’*) he means the bulk of knowledge imparted through prophetic teachings and the Revelation. The rest constitute the “non-religious” sciences. The non-religious sciences are further classified into “praiseworthy” (*mahmud*), “permissible” (*mubah*) and “undesirable” ones (*madhmum*). He puts history in the category of permissible sciences (*mubah*) and magic and sorcery in the category of the undesirable fields of “knowledge”. The “praiseworthy” sciences (*mahmud*), according to him, are those whose knowledge is necessary in the affairs of life and these are *wājib kifā'ī*; the rest of them bring additional merit to the learned who pursue them. He puts medicine, mathematics and crafts, whose sufficient knowledge is needed by the society, in the category of sciences which are *wājib kifā'ī*. Any further research into the detail and depth of problems of medical sciences or mathematics is put by Al-Ghazzali in the second category which involves merit for the scholar without entailing any manner of obligation.

Al-Ghazzali classifies the religious sciences also into two groups: praiseworthy (*mahmud*) and undesirable (*madhmum*). By “undesirable





religious sciences” he means those which are apparently oriented towards the *Shari’ah* but actually deviate from its teachings. He subdivides the “praiseworthy” religious sciences into four groups:

1. *Usul* (principles; i.e. the Qur’an, the *sunnah*, *ijmā’* or consensus and the traditions of the Prophet’s companions)
2. *Furū’* (secondary matters; i.e. problems of jurisprudence, ethics and mystical experience)
3. Introductory studies (Arabic grammar, syntax, etc.)
4. Complementary studies (recitation and interpretation of the Qur’an, study of the principles of jurisprudence, *‘ilm al-rijāl* or biographical research about narrators of Islamic traditions etc.)

Al-Ghazzali considers the knowledge of the disciplines contained in the above four groups to be *wājib kifā’ī*.

As to the extent to which one should learn the “praiseworthy” sciences, Al-Ghazzali’s view is that in matters of theology such as knowledge of God, Divine qualities, acts and commands, one should try to learn as much as is possible. However, as to religious topics whose knowledge is *wājib kifā’ī*, one should learn as much as is sufficient. Here the summary of his views is that one should not pursue learning of those sciences if there are already others devoting themselves to their study, and if one were to do so, he should refrain from spending all his life for their learning, “for knowledge is vast and life is short. They are preliminaries and not an end in themselves.”⁵

As to theology (*kalām*), his opinion is that only as much of it as is corroborated by the Qur’an and *hadith* is beneficial. Moreover, he says, “now that the heretics attempt to induce doubts (in the minds of unsophisticated believers), adequate knowledge of theology is necessary to confront them.”

Regarding philosophy, Al-Ghazzali thinks that it is distinguishable





into four parts: ⁶

1. Mathematics and geometry, which are legitimate and permissible.
2. Logic, which is a part of theology.
3. Divinities, which discusses Divine essence and qualities and is also a part of theology.
4. Physics, which may be divided into two sections: One part which involves discussions opposed to the *Shari'ah* and accordingly cannot even be considered a "science"; the other part discusses the qualities of bodies. The second part is similar to the science of medicine, although medicine is preferable to it. This section of physics is useless while medicine is needful.

Mulla Muhsin Fayd al-Kashani, in his book *Muhajjat al-Baydā*, says:

It is a personal obligation (wājib 'aynī) of every Muslim to learn Islamic jurisprudence to the extent of his needs. Further, learning of fiqh to fulfill the need of others is wājib kifā'ī for him. ⁷

Regarding philosophy, Kashani says:

The components of philosophy are not the only ones distinguished by Abu Hamid [Al-Ghazzali]—upon whom be God's mercy. Philosophy covers many other fields of religious and mundane matters (for example astronomy, medicine and rhetoric etc.)... Whatever of these sciences that is about the Hereafter exists to the point of perfection in the Shari'ah, and that which is not useful for the Hereafter is not needed; moreover, it may even hinder the pursuit of the path of Allah. In the case of those portions which are effective for the knowledge of the Divine and are encouraged by the Shari'ah (like astronomy), it is sufficient to be satisfied with the simple unelaborated discussions of the Shari'ah about such matters. ⁸





In brief, in Kashani's opinion anyone who wishes to learn these sciences should first acquaint himself with the religious sciences.

Sadr al-Din Shirazi (Mulla Sadra) in his commentary on *Usul al-Kafi* regards Al-Ghazzali's opinion about the limitation of obligatory knowledge for a Muslim to the matters of ritual practice and legitimate dealings as unacceptable.⁹ In his opinion, learning of religious sciences (such as *tawhid*, Divine qualities and acts) and human sciences (such as dispositions of the soul, its delights and afflictions) are also obligatory for the majority of human beings. Secondly, he believes that it is not at all essential that what is obligatory (*wājib 'aynī*) for all to learn should apply identically in case of every individual and what is obligatory for one individual be regarded as being equally obligatory for another.



Sciences Whose Knowledge Is Wājib Kifā'ī

Here we do not intend to enter into a discussion about sciences whose learning is obligatory (*wājib 'aynī*) for every responsible Muslim individual (*mukallaḥ*). Rather, we propose to discuss those sciences whose knowledge is a *wājib kifā'ī* for all the Muslim Ummah. To begin with, we consider some of the opinions of Imam Al-Ghazzali and Muhaqqiq Kashani in this regard as disputable and shall proceed to examine them. However, before we do that, we think it will be beneficial to revert to certain important points mentioned by Mulla Sadra in his commentary on *Usūl al-Kāfī* under the tradition:

﴿طلب العلم فريضة على كل مسلم﴾

Acquisition of knowledge is an obligation of every Muslim.

1. The word 'ilm (knowledge or science), like the word "existence" (*wujūd*) has a broad range of meanings which vary from the viewpoints of strength or weakness, perfection or deficiency.¹⁰





The word's generic sense covers this whole spectrum of meanings in which it has been used in the prophetic tradition. This broad sense of the word *'ilm* is common to all of its varied meanings. Accordingly, the tradition intends to state that whatever stage of knowledge one may be in, he should strive to make further advance. The Prophet meant that acquisition of knowledge is obligatory for all Muslims, scholars as well as ignorant men, beginners as well as learned scholars. Whatever stage of knowledge man may attain, he is still like a child entering into adulthood as far as this tradition is concerned; i.e. he should learn things which were not obligatory for him before.

2. The tradition implies that a Muslim can never be relieved of his responsibility of acquiring knowledge.¹¹
3. No field of knowledge or science is undesirable or detestable in itself; for knowledge is like light and so it is always desirable. The reason that some of the sciences have been regarded as "undesirable" is because of their occasional misuse.¹²

We do not accept the division of knowledge into "religious" and "non-religious" sciences; for, as Murtadā Mutahharī rightly pointed out, this classification may bring about the misunderstanding that the "non-religious" sciences are alien to Islam. This is not compatible with the comprehensive unity held up by Islam in all affairs of life. A religion which claims the ability to bring about conditions for perfect felicity of mankind and considers itself to be self-sufficing cannot estrange itself from things which play a vital role in the provision of welfare and independence for an Islamic society. According to the late Mutahhari:

"Islam's all-inclusiveness and finality as a religion demands that every field of knowledge that is beneficial for an Islamic society be regarded as a part and parcel of the "religious sciences." ¹³





Category of *Wājib Kifā'ī* Sciences

We think that the group of sciences belonging to the category of *wājib kifā'ī* is much larger than what Al-Ghazzali would have us believe. Moreover, we think that the parsimony he shows regarding those sciences which may be included in this category, does not harmonize with the teachings of the Qur'an and the Prophet's *sunnah*. Our reasons for not accepting such restrictions on learning are as follows:

1. In most of the Qur'anic verses and traditions, the concept of *'ilm* (knowledge) appears in its absolutely general sense, as can be seen from examples given below:

﴿قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ﴾ (الزمر/ 9)

“Say: Are those who know and those who do not know alike?”

(Sūrah 39:9)

﴿عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ﴾ (العلق/ 5)

“(God) taught man what he knew not.”

(Sūrah 96:5)

﴿وَعَلَّمَ آدَمَ الْأَسْمَاءَ كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلَائِكَةِ فَقَالَ أَنْبِئُونِي بِأَسْمَاءِ هَؤُلَاءِ إِنْ كُنْتُمْ صَادِقِينَ﴾ (البقرة/ 31)

﴿هَؤُلَاءِ إِنْ كُنْتُمْ صَادِقِينَ﴾ (البقرة/ 31)

And He taught Adam all the names; then showed them to the angels, saying: “Tell me the names of these, if you are right.”

(Sūrah 2:31)

2. Some Qur'anic verses and traditions confirm that knowledge does not mean only learning of the principles and laws of the *Shari'ah*. We may note some examples:





﴿و لقد آتينا داود و سليمان علماً و قالوا الحمد لله الذي فضلنا علي كثير من عباده المؤمنين و ورث سليمان داود و قال يا ايها الناس علمنا منطق الطير و اوتينا من كل شئ ان هذا لهو الفضل المبين﴾ (النمل/ 15-16)

“And certainly We gave knowledge to David and Solomon, and both (the apostles) said: ‘All praise is God’s who made us to excel many of His believing servants. And Solomon succeeded David and he said: ‘O people! We have been taught the language of the birds, and we have been granted (plenty) of everything; surely, this is manifest grace (of God)’.”

(Sūrah 27: 15-16)

We see that the two prophets David and Solomon consider the knowledge of the language of birds to be a Divine blessing.

﴿الم تر ان الله انزل من السماء ماءً فاخرجنا به ثمرات مختلفاً الوانه و من الجبال جدد بيض و حمر مختلف الوانها و غرايب سود و من الناس الدواب والانعام مختلف الوانه كذلك ائما يخشي الله من عباده العلماء ...﴾ (فاطر/ 27-28)

“Do you not see that God sends down water from the sky, then We bring forth with it fruits of various colours, and in the mountains are streaks, white and red and of various colours and others intensely black? And of men and beasts and cattle are of various colours likewise; only those of His servants endowed with knowledge fear God ...”

(Sūrah 35:27-28)

Clearly, the phrase ‘only those of his servants endowed with knowledge’ occurring in the above verse refers to those who are aware of the laws and mysteries of nature and creation, and who acknowledge in all humility the greatness and majesty of God. The following traditions of the Prophet ﷺ also point to the most





general sense of the word “knowledge”.

﴿اطلبوا العلم ولو بالصين، فإن طلب العلم فريضة على كل مسلم﴾

“Seek knowledge by even going to China, for seeking knowledge is incumbent on every Muslim.”¹⁴

﴿اعلم الناس من جمع علم الناس الي علمه﴾

“The most learned of men is one who collects bits of knowledge from others and thus enhances his own knowledge.”¹⁵

﴿من اراد الدنيا فعليه بالعلم و من اراد الآخرة فعليه بالعلم و من ارادهما

معاً فعليه بالعلم﴾

“Anyone who desires the good of present life should seek knowledge. Anyone who desires the life of Hereafter should seek knowledge. And anyone who wants to do well in this life and in the next world should seek knowledge.”¹⁶

﴿الحكمة ضالة المؤمن فحيث وجدها فهو احق بها﴾

“Wisdom is the believer’s lost property, wherever he finds it, he deserves more than others to have it.”¹⁷

From these sayings of the great Prophet of Islam and similar traditions, the truth emerges that such recommendations for acquisition of knowledge are not confined to the knowledge of the principles and laws of the *Shari’ah*; because, as is obvious, China was not a centre of theological studies in those days but was famous for its crafts and industry. Moreover, it is clear that the laws of *Shari’ah* and Islamic doctrines cannot be learnt from polytheists and infidels.

3. Another reason for not considering “desirable” knowledge to be limited to the religious and theological studies is the precious





heritage left by the Muslim scholars of the first several centuries of Islamic civilization. As is also confirmed by modern historians of science, Muslim scholars were at the vanguard of the scientific tradition for centuries and their books were used as text-books in Europe for several hundred years.

In fact the major reason why Muslim scholars did not reject the intellectual traditions of other countries was that they did not see any separation between the goal of religion and the ends of knowledge and were convinced that both religion and knowledge were aimed at illuminating the unity of nature and consequently the oneness of the Creator. Accordingly, it was on the basis of this conviction of intrinsic fusion of religion and knowledge that religious coaching and rational training were considered as aspects of a single discipline in religious schools and mosques.

4. To set aside a group of sciences on the pretext that they do not have as much value as the religious studies is not correct. Because, whatever field of knowledge is conducive to preservation of the strength and vitality of an Islamic society, its knowledge is *wājib kifā'ī* for the Islamic society in the same fashion as scholarship in religious sciences are, as has been pointed out in the following verse of the Qur'an:

﴿وَمَا كَانَ الْمُؤْمِنُونَ لِيَنْفِرُوا كَافَّةً فَلَوْلَا نَفَرَ مِنْ كُلِّ فِرْقَةٍ مِنْهُمْ طَائِفَةٌ لِيَتَفَقَّهُوا فِي الدِّينِ وَلِيُنذِرُوا قَوْمَهُمْ إِذَا رَجَعُوا إِلَيْهِمْ لَعَلَّهُمْ يَحْذَرُونَ﴾ (التوبة/ 122)

“It is not for the believers to go forth totally (to acquire scholarship in religion); but why should not a party of every section of them go forth, to become learned in religion, and to warn their people when they return to them, that haply they may beware?”

(Sūrah 9:122)





Thus, we may conclude that the word ‘ilm’ as it occurs in the Qur’an and *sunnah*, appears in a more general sense than the religious studies. On this ground it can be said that Islam has only dissuaded Muslims from preoccupying themselves with those branches of knowledge whose harm is greater than their benefit (like magic and sorcery and games of chance used for gambling). The relevant sayings of the Prophet ﷺ may be noted:

﴿خير العلم ما نفع﴾

*“The best fields of knowledge are those which bring benefit.”*¹⁸

﴿اللهم انفعني بما علمتني و علمني ما ينفعني وزدني علماً﴾

*“O God! Benefit me from knowledge that You have bestowed on me, teach me whatever would benefit me, and increase my knowledge.”*¹⁹

Imam ‘Ali (A) is related as having said:

﴿لا خير في علم لا ينفع﴾

*“There is no good in knowledge which does not benefit.”*²⁰

﴿العلم اكثر من ان يحاط به، فخذوا من كل علم أحسنه﴾

*“Knowledge is too immense in scope for anyone to be able to contain it. So learn from each science its best parts.”*²¹



Necessity of Learning Other Sciences

There is no division of opinion on the necessity of acquiring knowledge particular to religious studies. Accordingly, we shall abstain from any further discussion of the subject.²² Instead, it is worthwhile to concentrate on the question of necessity of learning other sciences in the view of the





Qur'an and *sunnah*. In this regard there are a number of arguments which we present here.

1. If knowledge of a science is a preliminary requirement for attaining an Islamic goal, as envisaged by the *Shari'ah*, its pursuit is an obligation (*wājib*), since it entails the preliminary condition for fulfillment of a duty prescribed by the *Shari'ah*. For example, the physical welfare of individuals in an Islamic society is necessary, hence it is a *wājib kifā'ī* for the Muslims to study medicine.

Some are of the opinion that in this context the duty to learn any specific science depends on the need of the society for it. For example, in our day, in order to succeed in large-scale agriculture or commerce, specialized knowledge of these subjects is necessary. Accordingly, it is a *wājib kifā'ī* for Muslims to acquire specialty in these fields.

Evidently, if the Muslims restrict themselves to the religious sciences and limit themselves to a minimum of what is necessary for their survival, they can never hope to catch or overtake the non-Muslim world *in its scientific progress*.

2. The society envisioned by the Qur'an is an independent society of majesty and grandeur, not one subservient to and dependent on the unbelievers, as can be seen from this verse of the Qur'an:

﴿... ولن يجعل الله للكافرين على المؤمنين سبيلاً﴾ (النساء/ 141)

“...and Allah does not grant the unbelievers any way (of domination) over the believers.”

(Sūrah 4: 141)

In order to realize this goal set by the Qur'an, it is essential that the Islamic society should have cultural, political and economic





independence; this in turn necessitates training of specialists of high caliber in every field and the creation of the necessary scientific and technical facilities in Islamic societies. It is clear that one of the reasons of decline of Muslim societies in the recent centuries is that they left the study of those sciences to others which they themselves deserved to study most; thus, they made themselves dependent on others. Should not the Muslims equip themselves in every way to defend themselves against the non-believers as stressed by the following verse?

﴿واعتدوا لهم ما استطعتم من قوة و من رباط الخيل ترهبون به عدو الله و
عدوكم ...﴾ (الانعام/ 60)

“And prepare against them whatever force you can ... so that you may dismay the enemy of God and your enemy ...”

(Sūrah 8:60)

Is it not true that in our world today, the possession of defence facilities to face the enemies of Islam requires all kinds of scientific and technical know-how? Then, why don't the Muslims give the necessary attention to the issue of preparing themselves adequately for their self-defence?

In the modern age, human life is inextricably linked with the effort for scientific advancement and the key to success in all affairs lies in knowledge. Thus, it is an obligation for Muslim scholars and researchers, living in the countries of the Eastern or Western block and engaged in education, to acquire the latest and most complete scientific and technical knowledge. Otherwise, their societies will inevitably remain under the domination of one superpower or another. Imam Ja'far al-Sādiq (A) says:





﴿العالم بزمانه لا تهجم عليه اللوابس﴾

“A knowledgeable man who is abreast of his time will not be overwhelmed by unexpected problems.”²³

To sum up, if Muslims want to succeed in their struggle against the evil powers of their age, they should equip themselves with the essentials of scientific advancement and should try to make up their lag in scientific and technical fields. Thus, whatever subject is essential for safeguarding the existence and vitality of the Islamic societies should be learnt.

3. The Holy Qur'an invites mankind to study the system and scheme of creation, the wonders of nature and the causes and effects of all things that exist, the conditions of living organisms, and in short all signs of God discernable in the external universe and in the inner depths of the human soul. The Qur'an enjoins thought and meditation about all aspects of creation and requires human beings to apply their reason and perceptual faculties for the discovery of the secrets of nature. Here we quote a few of these verses:

﴿اولم تنظروا الي السماء فوقهم كيف بنيناها و زينناها و ما لها من فروج
والارض مددناها و القينا فيها رواسي و انبتنا فيها من كل زوج بهيج تبصرة
و ذكرى لكل عبد منيب﴾ (ق/ 6-8)

“What, have they not beheld heaven above them, how We have built it, and decked it out fair, and it has no cracks? And the earth—We stretched it forth, and cast on it firm mountains, and We caused to grow therein of every joyous kind for an insight and a reminder to every penitent servant.”

(Sūrah 50:6-8)





﴿ افلا ينظرون الي الابل كيف خلقت و الي السماء كيف رفعت و الي الجبال كيف نصبت و الي الارض كيف سطحت ﴾ (الغاشية/ 17-20)

“What do they not consider how the camel was created, how heaven was lifted up, how the mountains were hoisted, how the earth was outstretched?”

(Sūrah 88:17-20)

﴿ قل سيروا في الارض فانظروا كيف بدء الخلق... ﴾ (العنكبوت/ 20)

“Say: Journey in the land, then behold how He originated creation...”

(Sūrah 29:20)

﴿ و في الارض آيات للموقنين و في انفسكم افلا تبصرون ﴾ (الذاريات/ 21-20)

“In the earth are signs for those having sure faith; and in yourselves; what, do you not see?”

(Sūrah 51:20-21)

﴿ ان في خلق السموات و الارض و اختلاف الليل و النهار لآيات لاولي الالباب، الذين يذكرون الله قياماً و قعوداً و علي جنوبهم و يتفكرون في خلق السموات و الارض ربنا ما خلقت هذا باطلا سبحانك فقنا عذاب النار ﴾ (آل عمران/ 190-191)

“Surely in the creation of the heavens and the earth and in the alternation of the night and day there are signs for men possessed of minds who remember God, standing and sitting and on their side, and reflect upon the creation of the heavens and the earth: ‘O Lord, Thou hast not created this out of falsehood. Glory be to Thee! Guard us against the chastisement of the Fire.’”

(Sūrah 3:190-191)





﴿انّ في خلق السموات والارض و اختلاف الليل و النهار و الفلك التي تجري في البحر بما ينفع الناس و ما انزل الله من السماء من ماء فاحيا به الارض بعد موتها و بثّ فيها من كل دابة و تصريف الرياح و السحاب المسخر بين السماء و الارض لآيات لقوم يعقلون﴾ (البقرة/ 164)

“Surely in the creation of the heavens and the earth and the alternation of night and day and the ship that runs in the sea with profit to men, and the water God sends down from heaven therewith reviving the earth after it is dead and His scattering abroad in it all manner of crawling thing, and the turning about of the winds and clouds compelled between heaven and earth—surely there are signs for a people having understanding.”

(Sūrah 2:164)

As can be seen from the foregoing verses, God refers to all existing things in the universe as the “signs” of their Creator, and the system of the universe as the imprint of an omniscient designer and programmer. The study of the universe and whatever exists in it is considered as one of the most important means for acquiring the knowledge of God and the recognition of the majesty of its Creator. The prophets also based their invitation on the belief in this point. The Prophet Moses (A) made a similar argument in his confrontation with Pharaoh. The Qur'an quotes Moses as putting his argument in these words:

﴿قال ربناالذي اعطي كل شئ خلقه ثم هدي ... الذي جعل لكم الارض مهذا و سلك فيها سبلا و انزل من السماء ماءً فاخرجنا به ازواجاً من نبات شتى﴾ (طه/ 53-55)

“He said, ‘Our Lord is He who gave everything its creation, then guided it... He who appointed the earth to be a cradle for you and therein threaded roads for you and sent down water out of heaven, and therewith We have brought forth diverse kinds of plants.”





(Sūrah 20:50-53)

Prophet Noah (A) is quoted in the Qur'an as saying to his people:

﴿قال رب اني دعوت قومي ليلاً و نهاراً فلم يزدتهم دعائي الا فراراً ... فقلت استغفروا ربكم انه كان غفراً ... الم تروا كيف خلق الله سبع سموات طباقاً و جعل القمر فيهن نوراً و جعل الشمس سراجاً و الله انبتكم من الارض نباتاً ثم يعيدكم فيها و يخرجكم اخراجاً و الله جعل لكم الارض بساطاً لتسلكوا منها سبلاً فجاجاً﴾ (نوح / 20-5)

“He said, ‘My Lord, I have called my people by night and by day, but my calling has only increased them in flight ... and I said, Ask you forgiveness of your Lord; surely He is ever All-forgiving ... Have you not regarded how God created seven heavens one upon another, and set the moon therein for a light and the sun for a lamp? And God cause you to grow out of the earth, then He shall return you into it, and bring you forth. And God has laid the earth for you as a carpet, and thereof you may tread ways, ravines.’”

(Sūrah 71:5-20)

Obviously, it is not for everyone to be able to read the ‘book’ of the universe. The Qur'an considers only men of knowledge to be capable of benefiting from the book of nature, as can be seen from the following verse:

﴿الم تر ان الله انزل من السماء ماءً فاخرجنا به ثمرات مختلفاً الوانها و من الجبال جدد بيض و حمر مختلف الوانها و غرابيب سود و من الناس والدواب والانعام مختلف الوانه كذلك ائما يخشي الله من عباده العلماء﴾ (فاطر / 27-28)

“Hast thou not seen how that God sends down out of heaven water, and therewith We bring forth fruits of diverse hues? And in the mountains are streaks White and red, of diverse hues, and pitchy black; men too, and beasts and cattle, – diverse are their





hues. Even so only those of His servants fear God who have knowledge; surely God is Almighty, All-forgiving.”

(Sūrah 35:27-28)

The Qur'an regards only men of knowledge as being capable of discerning the majesty and magnificence of God's creation and as possessing the humility produced by their knowledge of Divine power and greatness. This point is stressed in some other verses of the Qur'an:

﴿و تلك الامثال نضربها للناس و ما يعقلها الا العالمون﴾ (العنكبوت/ 43)

“And these similitude's – We strike them for the people, but none understands them save those who know.”

(Sūrah 29:43)

﴿بل هو آيات في صدورالذين اوتوا العلم و ما يجحد بآياتنا الا الظالمون﴾ (العنكبوت/ 49)

“Nay; rather it is signs, clear signs in the breasts of those who have been given knowledge; and none denies Our signs but the evildoers.”

(Sūrah 29:49)

Obviously, as implied by the abovementioned verses, an understanding of the “signs” of the Creator, is considered possible only for the learned and the men of knowledge who have strived to fathom the secrets of nature and have acquired knowledge in their fields of study. Otherwise, only a superficial acquaintance with the “book of creation” is not very revealing. A suitable initiation into the book of nature can only be achieved through such sciences as mathematics, physics, chemistry, astronomy, botany, zoology (which we shall refer to as ‘natural sciences’). It is with the aid of these and the rational sciences that we discover the laws of nature and unravel the wonderful order and scheme of creation that underlies nature. It is in this light that we should read the verses of





the Qur'an such as the following:

﴿فارجع البصر هل ترى من فطور ثم ارجع البصر كرتين ينقلب اليك
البصر خاسئاً و هو حسير﴾ (ملك/ 3-4)

*“You see not in the creation of the All-merciful any imperfection.
Return your gaze; Do you see any fissure? Then return your gaze,
and again your gaze comes back to you dazzled, a weary.”*

(Sūrah 67:3-4)

It means that the further human knowledge makes progress in understanding God's creation, the more His Greatness and Majesty will become obvious to men. Consider the following verse:

﴿سنريهم آياتنا في الآفاق و في انفسهم حتي يتبين انه الحق ...﴾ (فصلت/
53)

*“We shall show them Our signs in the horizons and in
themselves, till it is clear to them that it is the truth.”*

(Sūrah 41:53)

In the above verse God promises revelation of His signs, in the universe without and the world of spirit within, to mankind in future so as to make them convinced that it (the Qur'an) is indeed absolutely the Truth.

Another reason for the study of the natural phenomenon and the scheme of creation is that the knowledge of the laws of nature and characteristics of things and organisms can be useful for improvement of conditions of human life. This aspect is emphasized by numerous verses of the Qur'an of which we quote a few:

﴿و سخر لكم الليل و النهار و الشمس و القمر و النجوم مسخرات بامرہ ان في ذلك لآيات لقوم يعقلون و ما ذرأ لكم في الارض مختلفاً الوانه ان في ذلك لآية لقوم يذكرون و هو الذي سخر البحر لتأكلوا منه لحماً طرياً و





تستخرجوا منه حلية تلبسونها و تزي الفلك مواخر فيه ولتبتغوا من فضله و
لعلمك تشكرون والقي في الارض رواسي ان تميد بكم و انهاراً و سبلاً لعلمك
تهتدون و علامات و بالنجم هم يهتدون ﴿ (النحل/ 12-16)

“And He subjected to you the night and day, and the sun and moon; and the stars are subjected by His command. Surely in that are signs for people who understand. And that which He has multiplied for you in the earth of diverse hues. Surely in that is a sign for a people who remember. It is He who subjected to you the sea, that you may eat of it fresh flesh, and bring forth out of it ornaments for you to wear; and thou mayest see the ships cleaving through it; and that you may seek of His bounty, and so haply you will be thankful. And He cast on the earth firm mountains, lest it shake with you, and rivers and ways; so haply you will be guided; and waymarks; and by the stars they are guided.”

(Sūrah 16:12-16)

﴿الم تروا ان الله سخر لكم ما في السموات وما في الارض واسبغ عليكم
نعمه ظاهرة و باطنة و من الناس من يجادل في الله بغير علم و لاهدى و لا
كتاب منير﴾ (لقمان/ 20)

“Have you not seen how that God has subjected to you whatsoever is in the heavens and earth, and He has lavished on you His blessings, outward and inward? And among men there is such a one that disputes about God without knowledge or guidance or an illuminating book.”

(Sūrah 31:20)

﴿و سخر لكم ما في السموات و ما في الارض جميعاً منه ان في ذلك آيات
لقوم يتفكرون﴾ (الجاثية/ 13)





“And He has subjected to you what is in the heavens and what is in the earth, all together, from Him. Surely in that are signs for a people who reflect.”

(Sūrah 45:13)

﴿والذي خلق الأزواج كلها و جعل لكم من الفلك والانعام ما تركيبون لتستوا علي ظهوره ثم تذكروا نعمة ربكم اذا استويتم عليه و تقولوا سبحان الذي سخر لها هذا و ما كنا له مقرنين﴾ (الزخرف/ 12-13)

“He who created the pairs, all of them, and appointed for you ships and cattle such as you ride, that you be seated on their backs and then remember your Lord’s blessing when you are seated on them, and say, ‘Glory be to Him, who has subjected this to us, and we ourselves were not equal to it.’”

(Sūrah 43:12-13)

According to the Qur’an, the study of the book of nature reveals to man its secrets and manifests its underlying coherence, consistency and order. It allows men to use the agency of knowledge to uncover the riches and resources hidden in nature and to achieve material welfare through his scientific discoveries. God has appointed man His vicegerent or deputy upon the earth and provided him with unlimited opportunities. It is for him to recognize his own possibilities and benefit from his opportunities and acquire the power and wisdom befitting his role as a ‘deputy’ of God and a ‘sign’ of His wisdom and omnipotence:

﴿و هو الذي جعلكم خلائف الارض و رفع بعضكم فوق بعض درجات ليبلوكم فيما آتاكم ان ربك سريع العقاب و انه لغفور رحيم﴾ (الانعام/ 165)

“It is He who has appointed you viceroys in the earth, and has raised some of you in ranks above others, that He may try you in





what He has given you. Indeed your Lord is quite in retribution, and He is Forgiving and Merciful.”

(Sūrah 6:165)

In fact, this station of being God's viceroy or deputy upon the earth has been bestowed upon man as a result of his capacity for acquisition of knowledge as borne out by this verse:

﴿وَعَلَّمَ آدَمَ الْأَسْمَاءَ كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلَائِكَةِ فَقَالَ أَنْبِئُونِي بِأَسْمَاءِ هَٰؤُلَاءِ إِنْ كُنْتُمْ صَادِقِينَ﴾ (البقرة/ 31)

“He taught Adam all the names then presented them to the angels; then He said: ‘Tell me the names of those if you are right.’”

(Sūrah 2:31)

Unfortunately Muslims have since long tended to overlook such verses of the Qur'an as quoted above, while this matter was appreciated by non-Muslims who afterwards monopolized the scientific tradition.



Criterion for the Usefulness of Any Science

So far we have tried to show that the recommendations of the Qur'an and *Sunnah* concerning the acquisition of knowledge is not restricted to the particular teaching of *Shari'ah*, but it equally applies to any knowledge useful for mankind. Now we are going to set the criteria as to what sort of knowledge is useful. To do so, we have to find out and define what the obligation and goal of a Muslim in his earthly life is, the Qur'an says that all return to the Creator.

﴿إِلَّا إِلَهُ اللَّهِ تَصِيرَ الْأُمُورِ﴾ (شوري/ 53)





“... To Allah do all affairs eventually come.”

(Sūrah 42: 53)

And the purpose of the creation of the jinn and human beings is that worship and seek proximity to the Almighty:

﴿و ما خلقت الجن و الانس الا ليعبدون﴾ (الذاريات/ 56)

“And I have created the jinn and the men except that they should worship Me.”

(Sūrah 51: 56)

﴿و ان اعبدوني هذا صراط مستقيم﴾ (يس/ 61)

“And that you should worship Me; this is the right way.”

(Sūrah 36: 61)

﴿و ما امروا الا ليعبدوا الله مخلصين له الدين ...﴾ (بينه/ 5)

“And they were not enjoined anything except that they worship Allah, being sincere to Him in obedience.”

(Sūrah 98: 5)

Therefore, the main objective of man should be seeking proximity to God and attaining His consent, and focusing his activities in this direction. Anything that brings about this proximity or guides him in that direction is praiseworthy. Thus knowledge is useful only if it is an instrument for obtaining knowledge of God, and His pleasure and proximity; otherwise knowledge itself is an inscrutable veil (*hijāb-eakbar*), whether it is linked with the sciences of nature or the sciences of the *Shari’ah*. As the Persian poet Sa’di has put it:

جز یاد دوست هر چه کنی عمر ضایع است

جز سرّ عشق هر چه بگوئی بطلالت است





سعدی بشوی لوح دل از نقش غیر او

علمی که ره بحق ننماید جهالت است

Life is vain except when recalling Him,

No words are good but (uttering) the secrets of love,

Sa'di! Wash of your heart of all but Him,

The knowledge not leading to Him is ignorance.

It is obvious that worshipping God is not only through prayers, fasting and so on. In fact, any move in the direction of proximity to God is considered as worship. One of the means to help man in his way towards God is knowledge, and of course a knowledge with this characteristics can only be considered valuable. By means of knowledge a Muslim can gain proximity to God in various ways and manners.

First of all, he can increase his cognition of God. Our great Prophet Muhammad ﷺ is related as having said:

﴿ان الله يطاع بالعلم و يعبد بالعلم و خير الدنيا و الآخره مع العلم و شرّ الدنيا و الآخره مع الجهل﴾

“God can be worshipped and served by means of knowledge; bliss in this world and Hereafter comes through knowledge; and adversity of this world and Hereafter lies in ignorance.”²⁴

Secondly, he can effectively help in the advancement of “Islamic society and realization of Islamic goals”:

﴿كلمة الله هي العليا﴾ (توبه/ 40)

“And the word of Allah is the highest.”

(Sūrah 9: 40)

A tradition has been quoted from our great Prophet ﷺ:





﴿من جاءه الموت و هو يطلب العلم ليحيي به الاسلام كان بينه و بين الانبياء درجة واحدة في الجنة﴾

“Should death occur to a man who is learning knowledge with the purpose of reviving Islam, his position in paradise will be (only) one stage below (that of) the prophets.”²⁵

Thirdly, he can guide other people. It is reported from our dear Prophet ﷺ as having said:

﴿قال (ص): رحم الله خلفائي، فقيل و من خلفاؤك؟ قال: الذين يحيون سنتي و يعلمونها عبادالله﴾

“God will patronize my successors. He was asked, ‘Who are your successors?’ He answered, those who revive my traditions, and teach them to God’s worshipers.”²⁶

The knowledge employed in the above mentioned ways is deemed to be useful; otherwise, it would not have any real value:

﴿ذلك بان الله هو الحق و انّ ما يدعون من دونه الباطل ...﴾ (لقمان/ 30)

“This is because Allah is the truth, and that which they call upon besides Him is the falsehood ...”

(Sūrah 31: 30)

Our great Prophet ﷺ is related as having said:

﴿من تعلم علماً لغير الله و اراد به غير الله فليتبوأ مقعده من النار﴾

“He who learns knowledge for other than God, and his aim be other than God, will abide in fire (hell).”²⁷

﴿من ازداد علماً و لم يزدد هدياً لم يزدد من الله الا بعداً﴾





“One whose knowledge increases but his salvation does not keep pace with it, his remoteness from God increases.”²⁸

﴿ان الله عزوجل يقول تذاكر العلم بين عبادي مما تحيي¹ عليه القلوب الميتة
اذا هم انتهوا فيه الي امري﴾

“God, the Most exalted, has said: ‘Knowledge discussions among my worshipers can enliven their hearts if it leads them towards my commands’.”²⁹

Any knowledge not helping man on his way to Allah is similar to the load of books carried on the back of a donkey:

﴿مثل الذين حملو التوراة ثم لم يحملوها كمثل الحمار يحمل اسفارا﴾ (جمعه)
(5)

“The likeness of those who were charged with the Tawrah, then they did not observe it, is as the likeness of the ass bearing books ...”

(Sūrah 62: 5)

Sayyid Qutb in his commentary on the verse (16: 35) makes the following comment:

“In this verse the subject matter of the knowledge has not been mentioned, for it considers knowledge in general. Moreover, it implies that all kinds of knowledge are considered the gift of God, and any learned man should realize the origin of his knowledge and turn his face towards God to thank Him. He should also utilize it in attaining the consent of God, who has granted him that knowledge. Therefore, knowledge should not stand between man and his creator, for knowledge which causes separation between man’s heart and God is nothing but aberration and had gone astray from its origin and is oblivious of the destination. It brings happiness neither to its possessor not to others, and has





*only gone away from its origin, deviated from its real direction, and has lost its way toward God.”*³⁰

Hence we can draw the following conclusions:

- a) All sciences, whether theological or natural are means for obtaining proximity to God, and as long as they play this role, they are sacred. But this sanctity is not intrinsic.
- b) In this perspective, various sciences are not alien to each other because in their own way they interpret the various pages of the book of creation to us. As the eminent poet-sage Shaikh Mahmūd Shabistārī says:

بنزد آنکه جانش در تجلی است

همه عالم کتاب حق تعالی است

از او هر عالمی چون سوره‌ای خاص

یکی زان فاتحه و آن دیگر اخلاص

“To him whose spirit is enlightened,

The entire universe is a sacred book of the Most High;

Every sphere of universe is a different chapter,

One is the Opening Surah, and another the Surah of Unity.”

In this pages of this Divine book, some chapters may have precedence any priority over others, but all of them are essential for the appreciation of God’s signs in ‘*āfāq* (horizons) and *anfus* (souls), that is in the universe without and the universe within.





Decline of Sciences in the Islamic World

In the early centuries of Islamic civilization, when it was at its peak, the Muslim intellectuals approached the question of learning with a vision similar to the one discussed above. Different sciences were seen in a single perspective and considered as branches of the 'tree' of knowledge. The goal of all sciences was seen as the discovery of unity and coherence in the world of nature. Accordingly, the source of all knowledge was considered as being one. They utilized the experimental as well as the intellectual and intuitive approaches for the understanding of various levels and stages of existence. During that period we find numerous examples of scholars who combined authority in religious sciences with encyclopedic knowledge of the natural sciences. Men like Ibn Sina, 'Umar Khayyam, Khwajah Nasir al-Din Tusi and Qutb al-Din Shirazi are eminent examples. As long as this vision and perspective ruled over Muslim scholarship and science, the Muslims were at the vanguard of the human civilization and their cities were centers of specialized learning.

George Sarton admits that during the period between A.D. 750 and 1100, Muslims were undisputed leaders of the intellectual world and between A.D. 1100 and 1350 the centers of learning in the Muslim world retained their global importance and attraction.³¹ After 1350 the European world began to advance and the Islamic world not only became stagnant but also failed to absorb the progress made elsewhere. The theological schools excluded all natural sciences from their curriculum, except astronomy and mathematics: This restriction imposed on the religious schools (*madrasah*'s) led to grave repercussions for the Islamic world. Here we point out a few of these effects:

1. Whereas the Europeans were striving to unravel the hidden laws of nature and to discover ways of exploiting its treasures and resources, the Muslims set aside these activities, and left to others what they deserved most to handle. Today, they have reached the





point where they have to depend on America and Europe to satisfy their elementary needs. They remain largely unable to use their resources, and they continue to leave to foreigners to exploit them.

2. Those Muslims who pursued the experimental sciences were mostly estranged from the religious sciences. Accordingly, they lacked the Islamic world-view which was replaced by the atheistic vision that still dominates the Western scientific tradition.
3. The elimination of the study of the natural sciences from the curricula of the religious schools and the lack of direct contact with the sources of modern science, on the part of religious scholars, gave rise to two deviated intellectual currents in the Muslim world:
 - a) Some Muslims, under the influence of Western scientific and technical progress and without any knowledge of the limitations of empirical sciences, became singularly possessed with them. To the extent that they even tried to interpret the Qur'an and *hadith* according to their findings. The Qur'anic exegeses written by Tantawi and Sir Sayyid Ahmad Khan belong to this class. Others have gone still further, claiming that all the findings of the modern sciences are found in the Qur'an and the texts of Islamic tradition (*hadith*). The claim, supposedly, was aimed at demonstrating the miraculous and Divine nature of the Qur'an.³²

In the introduction to his exegesis of the Qur'an, Shaikh Mahmud Shaltut, the late head of Al-Azhar University, writes:

“God did not send down the Qur'an to inform mankind of scientific theories and technological techniques ... If we try to





attempt a conciliation between Qur'an and indurable scientific hypotheses, we will thereby subject it to reversals of times to which all scientific theories and hypotheses are prone. That would result in presenting the Qur'an in an apologetic and defensive perspective. Whatever is mentioned in the Qur'an about the mysteries of creation and natural phenomena is intended to impel mankind to speculation and inquiry into these matters so that thereby their faith in it is enhanced.”³³

- b) Some scholars of religion have considered scientific theories as opposed to the doctrines of religion and accordingly set out to attack science. This has caused many Muslims to turn away from religion. Had the natural sciences not been exiled from the religious curricula, this tragedy would have not occurred. Any fruitful criticism of ideas based on scientific theories requires, in the first place, familiarity with the various experimental disciplines within modern science, so that any unwarranted conclusions derived from scientific findings may be properly exposed and rejected. How is it possible to claim that the natural sciences result in man's estrangement from God, when the Qur'an unambiguously declares:

﴿إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَخِلْقِ اللَّيْلِ وَالنَّهَارِ لَآيَاتٍ لِّأُولِي الْأَلْبَابِ الَّذِينَ يَذْكُرُونَ اللَّهَ قِيَامًا وَقُعُودًا وَعَلَىٰ جُنُوبِهِمْ وَيَتَفَكَّرُونَ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ رَبَّنَا مَا خَلَقْتَ هَذَا بَاطِلًا سُبْحَانَكَ فَقِنَا عَذَابَ النَّارِ﴾ (ال عمران/ 190-191)

“Surely in the creation of the heavens and earth and in the alternation of night and day there are signs for men possessed of minds who remember God, standing and sitting and on their sides, and reflect upon the creation of the heavens and the earth:





'Our Lord, Thou hast not created this for vanity. Glory be to Thee! Guard us against the chastisement of the Fire.'

(Sūrah 3:190-191)

If the line of demarcation between religion and science is made clear, there is no reason for any conflict between these two. In fact they would complement each other. Science is like the lamp of life and religion its guide.



Proposals

We have seen how Islam has strongly emphasized the need for acquisition of knowledge in its widest sense, and how the Muslims, following the teachings of Islam, created a brilliant civilization and were the leaders of human intellectual advancement for centuries. We also saw how the separation of religion from science in Muslim societies caused the Muslims to abandon their role of intellectual leadership of mankind. But now that the Muslim community is showing gradual reawakening, and enthusiasm has emerged in almost every corner of the Muslim world, the time seems most suitable for taking decisive steps towards bringing about a scientific renaissance. In this context, we call the attention of our honoured reader to the following proposals:

1. Like the scholars and scientists of the early centuries of the Islamic civilization, we should acquire the knowledge of all useful sciences from others. We can liberate scientific knowledge from its attending Western materialistic interpretations and rehabilitate it in the context of Islamic world-view.
2. The kind of alliance which existed between religious and natural sciences during the peak days of Islamic civilization should be re-established, since, as has been pointed out, there is no separation between the ends of religion and science. Religion teaches that all





creation is oriented towards God as stated in the Qur'anic verse:

﴿يسبح لله ما في السموات و ما في الارض الملك القدوس العزيز الحكيم﴾
(جمعه/ 1)

“All that is in the heavens and the earth magnifies God, the Supreme, the All holy, the Almighty, the All-wise.”

(Sūrah 62:1)

Modern science is engaged in an attempt to unravel a comprehensive unity in the laws of nature. The present day physicists are involved in an effort of reducing all apparently independent forces of nature to a single fundamental principle and have obtained some success in this field.³⁴

For the achievement of this goal, it seems inevitable that the latest scientific findings should be taught in theological centers, and, in the same way, religious sciences should be taught in universities on a comparatively advanced level. This will be instrumental in familiarizing Muslim research scholars with the Islamic world-view. Moreover, it would give the opportunity to theological schools to utilise latest scientific findings for the interpretation and elucidation of the laws of the *Shari'ah*.

3. For the achievement of a comprehensive independence of the Islamic *ummah*, it is essential that all the Muslim countries take steps towards the training of specialists in all important scientific and industrial fields. Moreover, research centers should be established in all Muslim communities where the Muslim researchers can work without any anxieties or problems, and with all necessary facilities for research, so that they are not forced to take refuge in atheistic environments, and as a result compelled to put their expertise in the service of others.
4. Scientific research should be thought of as a fundamentally





essential and not an ancillary pursuit. The Muslims should think of it as an obligation imposed upon them by the Qur'an so that they do not come to rely and be dependent on others.

Presently, the practice in most Muslim countries is to import the craft of assembly from Eastern and Western countries instead of making a serious attempt in fundamental scientific research. The present trend will never lead Muslim countries to scientific and technological self-sufficiency. Imported technology should be accompanied by indigenous research work.

5. There should be cooperation between Muslim countries in the scientific and technological research. For this purpose, establishment of communication links between their universities can serve as a preliminary ground. Moreover, joint research and development bodies (such as the Geneva-based CERN organization) should be formed by the Muslim countries where Muslim scientists and research scholars can come together. There should be no nationalistic bias in this regard. Such centers were widely prevalent during the past ages of Islamic civilization.

All that has been done hitherto in this connection has been more or less, of a preliminary nature. Now it is time for a decisive step in this direction.

