Science and the Muslim Ummah

Introduction

One of the distinctive features of Islam is its emphasis on knowledge. The Quran 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 Quranic 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: "Acquisition of knowledge is incum¬bent 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 Ihya `ulum al-din (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 (kaldm) was an obligation, while the jurisprudents (fuqaha') thought that Islamic juris¬prudence (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 per¬formance 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 zakat. 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 wajib kifa'i[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 wajib kifai; the rest of them bring addi¬tional 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 of which are wajib kifai. Any further research into the detail and depth of problems of medical science 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 sub¬divides the "praiseworthy" religious sciences into four groups:

1. Usul (principles; i.e. the Quran, the sunnah, ijma ` or consensus and the traditions of the Prophet's companions)
2. Furu` (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 Quran, study of the principles of jurisprudence, `ilm al-rijal 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 wajib kifa'i.

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 wajib kifa'i, 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 (kalam), his opinion is that only as much of it as is corroborated by the Quran and hadith is beneficial. Moreover, he says, "now that the heretics attempt to induce doubts (in the minds of un¬sophisticated 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 too is useless while medicine is needful.

Mulla Muhsin Fayd al-Kashani, in his book Muhajjat al-bayda', says:

It is a personal obligation (wajib `ayni) of every Muslim to learn Islamic juris¬prudence to the extent of his needs. Further, learning of fiqh to fulfil the need of others is wajib kifa'i for him.

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 (Mulls 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 deal¬ings as unacceptable.[9]

In his opinion, learning of religious sciences (such as tawhid, Divine qualities and acts) and human sciences (such as dis¬positions 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 (wajib `ayni) 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 Wajib Kifa'i

Here we do not intend to enter into `a discussion about sciences whose learning is obligatory (wajib `ayni) for every responsible Muslim individual (mukallaf). Rather, we propose to discuss those sciences whose knowledge is a wajib kifa'i 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 start, we think it will be beneficial to revert to certain important points mentioned by Mulla Sadra in his commentary on Usul al-Kafı under the tradition: Acquisition of knowledge is an obligation of every Muslim.

1. The word `ilm (knowledge or science), like the word "existence" (wujud) 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 meaning in which it has been used in the prophetic tradition.

This broad sense of the word `ilm is common to all 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 means that acquisition of know¬ledge 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 obliga¬tory 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 the Martyr Murtada Mutahhari has rightly pointed out, this classification may bring about the misunder¬standing that the "non-religious" sciences are alien to Islam. And 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

Group of Sciences and their Scope

Besides, we think that the group of sciences belonging to the cate¬gory of wajib kifa'i is much more 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 Quran and the Prophet's sunnah.[14] Our reasons for not accepting such restrictions on learning are as follows:

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

Say: Are those who know and those who do not know alike? (39:9)

(God) taught man what he knew not. (96:5)

And He taught Adam all the names; then showed them to the angels, saying: "Tell me the names of these, if you are right."(2:31) Anyone who pursues a course of acquisition of knowledge, God will ease his eventual access to paradise. (prophetic tradition; source: Munyat al-Murid, p . 12, Najaf A.H. 1370)

Similarly other Quranic verses and traditions confirm that knowledge does not mean only learning of the principles and laws of the Shari'ah. We may note some further examples:

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)'. (16:15)

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

Do you not see that God sends down water from the shy, 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; surely, God is Almighty and Forgiving. (35:27-28)

Clearly, the word `ibadihi al-ulama' (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 (S) also point in the direction of the most general sense of the word "knowledge".

Seek knowledge by even going to China.[15]

The most learned of men is one who collects bits of knowledge from others and thus enhances his own knowledge.[16]

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.[17]

Accept whatever adds to your wisdom, irrespective of the nature of the source.[18]

From these sayings of the great Prophet of Islam and similar traditions which have been narrated from the Ahl al-Bayt[19] (the spiritual successors of the Prophet) the truth emerges that such recommenda¬tions 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.

2. 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 and that has come down to our own time. As is also confirmed by modern historians, 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 rejected 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 as a result the oneness of the Creator. Accord¬ingly, 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.

3. 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 conductive to preservation of the strength and vitality of an Islamic society, its knowledge is wajib kifa'i in the same fashion as scholarship in religious sciences has been pointed out as a wajib kifa'i for the Islamic society in the following verse of the Quran:

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? (9:122)

So we have discovered that the word 'Urn as it occurs in the Book and sunnah appears in its more general sense than what may apply exclusively to the religious studies. Nevertheless, it may be said that Islam has only dissuaded Muslims from preoccupying themselves with. any pursuit of such 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 (S) may be noted:

We seek God's refuge from knowledge that does not benefit. [20]

O God! Benefit me through knowledge that You have bestowed on me, teach me whatever would benefit me, and increase me in knowledge.[21] Ali (A) is related as having said: There is no good in knowledge which does not benefit.[22] Knowledge is too immense in scope [for anyone to be able to contain it. So learn from each science its useful parts.[23

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.[24] Instead, it is worthwhile to con¬centrate on the question of necessity of learning other sciences in the view of the Quran and sunnah. In this regard there are a number of argu¬ments whose discussion we shall take up immediately.

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 (wajib) since it entails the preliminary condition for fulfill¬ment 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 wajib kifa'i 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 wajib kifa'i 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 overtake the non? Muslim world in its scientific progress.

2. The society envisioned by the Quran 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 Quran:

...and Allah does not grant the unbelievers any way (of domination) over the believers. (4:141)

In order to realize this goal set by the Quran, it is essential that the Islamic society should have cultural, political and economic independence; this in turn necessitates training of specialists of high calibre in every field and 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 and 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?

And prepare against them what force you can...so that you may dismay the enemy of God and your enemy and others beside them whom you know not; God knows them. Whatever you spend in the way of God it will be repaid to you in full, and you will not be cheated. (8:60)

And is it not true that in our world today, 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 neces¬sary 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.

It is an obligation of Muslim scholars and researchers, living in the countries of the Eastern or Western block and are engaged in education, to acquire the latest and most complete scientific and tech¬nical knowledge. Otherwise their societies will inevitably remain under the domination of one superpower or another. Imam Ja'far al-Sadiq (A) says:

A knowledgeable man who is abreast of his time will not be overwhelmed by unexpected problems.[26]

To sum up, if the Muslims want to succeed in their struggle against the evil powers of this age, they should equip themselves with the essentials of scientific advancement and endeavour to make up their lag in scientific and technical fields. Whatever subject is essential for safe¬guarding the existence and vitality of the islamic societies should be learnt.

3. The Holy Quran 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 the inner depths of the human soul. The Quran 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. Few of these verses we shall quote here:

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. (50:7)

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? (88:18-21)

Say: Journey in the land, then behold how He originated creation; then God causes the second growth; God is powerful over everything. (29:20) In the earth are signs for those having sure

faith; and in yourselves; what, do you not see? (51:20-21)

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..' (3:190-191)

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. (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 what exists in it is considered one of the most important means for knowledge of God and recognition of the majesty of its Creator. The prophets also based their invitation to belief on this point. The Prophet Moses (A) makes a similar argument in his confrontation with Pharaoh. The Quran quotes Moses as putting his argument in these words: 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. (22:50-53)

Prophet Noah (A) is quoted in the Quran as saying to his people: He said, "My Lord, I have called my people by night and by day, but my call¬ing has only increased them in flight...and I said, Ask you forgiveness of your Lord; surely He is ever All-forgiving..., that you look not for majesty in God, seeing He created you by stages? 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.' " (71:5-20)

Obviously, it is not for everyone to be able to read the "book" of the universe. The Quran considers only men of knowledge to be capable of benefiting from the book of nature as can be seen from the follow¬ing verse:

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. (35:27-8)

The Quran 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 other verses of the Quran:

And these similitudes?We strike them for the people, but none understands them save those who know. (29:43)

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. (29:49) Obviously, as implied by the abovementioned verses, 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 this book of nature can only be achieved through such sciences as mathematics, physics, chemi¬stry, 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 Quran as the following:

Thou seest not in the creation of the All-merciful any imperfection. Return thy gaze; seest thou any fissure? Then return thy gaze, and again, and thy gaze comes back to thee dazzled, aweary. (67:3-4)

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

We shall show them Our signs in the horizons and in themselves, till it is clear to them that it is the truth. (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 Quran) 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 Quran of which we quote a few:

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 subjec¬ted 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. (16:12-16)

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 concernig God without knowledge orguidance, or an illuminating book. (31:20) 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. (45:13)

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.' (43:12-13)

According to the Quran, 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 opportuni¬ties. 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:

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. (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 acqui¬sition of knowledge as borne out by this verse:

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.' (2:31) Unfortunately Muslims have since long tended to overlook such verses of the Quran as quoted above, while this matter was appreciated by non?Muslims who afterwards monopolized the scientific tradition.

Heretofore we have tried to establish that the injunction to acquire knowledge as found in the Quran and prophetic traditions is not restricted to the knowledge of the teachings of the Shari `ah, but equally applies to all fields of knowledge that are beneficial for man¬kind. We have tried to make the point that every science that serves as a preliminary to the performance of a religious obligation or serves the necessary requirements of an Islamic society, or helps in our under¬standing of the creation and the knowledge of God, or allows us to benefit from Divine blessings that are provided to man, should necessarily be regarded as useful knowledge by Muslims. Now in the light of the verses quoted below, we may as well assert that the basic criterion for the utility of a scientific discipline is that it should be an equivalent of worship of God, be instrumental in obtaining His good pleasure and bring man closer to His Creator. Here are the Quranic verses:

I have not created jinn and mankind except to serve Me. (51:56)

They were not commanded but to serve in all sincerity of their religion. (98:5) Knowledge is useful and beneficial for mankind only if it is seen as an instrument for obtaining knowledge of God, His good pleasure and nearness; otherwise knowledge itself is an iron curtain, a great inscrutable veil (hijab akbar), whether it is linked with the natural sciences or the sciences of the Shari`ah. The great Prophet of Islam (S) has said:

Anyone who seeks knowledge not for the sake of God and uses it not in the way of God, should be certain of his place in hell.[27] A scholar who seeks knowledge for the sake of God will receive the reverence of everything; whereas a scholar who seeks knowledge as a means to amass wealth will be awed by everything.[28]

God, the Most exalted, has said: `Learned discussion between My servants enlivens their [hearts if it leads them towards My command.'[29

Endeavors for Obtaining Closeness to God

Evidently, there are various dimensions to endeavour for obtaining closeness to God and His good pleasure. These include the obligatory worship, acquaintance with Divine teachings, refinement of one's inner self, recognition and understanding of the signs of God and service of His creatures.[30] In this context attention is drawn to the following con¬clusions:

1. When considered in the context of what we have mentioned above, all theological sciences are means for obtaining proximity to God, and the natural Sciences-since they also reveal truth?are sacred as long as they play this role. However this sanctity is not intrinsic as Martyr Dr. Beheshti has pointed out: "Any area of knowledge as long as it does not become an instrument in the hands of taghut (non-God or anti-God) is a means of enlightenment; otherwise knowledge may also become a means of misguidance."

2. Viewed in this perspective, there can be no separation or aliena¬tion between various sciences. On the other hand they help us in deciphering the book of creation, as the great mystic Shaykh Mahmud Shabistari has said:

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 Ikhlas.

In the pages of this Divine book, some chapters may have prece¬dence and priority over others, but nevertheless, all of them are essen¬tial for the appreciation of God's signs in dfdq (horizons) and anfus (souls), that is in the universe without and within.

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 interrelated as branches of the `tree' of knowledge.

The goal of all sciences was seen as discovery of unity and coherence in the world of nature. Accordingly, the source of all knowledge was considered as being one. They utilized the experi¬mental as well as the intellectual and intuitive approaches for under¬standing 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 some names among many. As long as this vision and perspective ruled Muslim scholarship and science, the Muslims were at the vanguard of the human civilization in those days and their cities were centers of specialized learning.[31]

George Sarton admits that during the period between A.D. 750 and 1100, the 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. After 1350 the European world began to advance and the Islamic world not only became stagnant but also failed to absorb the progress made out¬side it.

The theological schools excluded all natural sciences from their curriculum except astronomy and mathematics: This restriction imposed on the religious madrasahs led to grave repercussions on 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, which they continue to leave to foreigners to exploit.

2. Those Muslims who pursued the experimental sciences were mostly estranged from the religious sciences. Accordingly, they lacked the Islamic world?outlook which was replaced by the atheistic vision that dominates the Western scientific tradition.

3. The elimination of the study of the natural sciences from the curricula of the religious madrasahs and the lack of direct touch with the sources of modern science on the part of religious scholars gave rise to the 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 Quran and hadith according to their findings. The Quranic 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 Quran and the texts of Islamic tradition (hadith). The claim, supposedly, was aimed at demonstrating the miraculous and Divine nature of the Quran.[32]

In the introduction to his exegesis of the Quran, Shaykh Mahmud Shaltut, the late head of Al-Azhar University, writes: "God did not send down the Quran to inform mankind of scientific theories and technological techniques...If we try to attempt a conciliation between Quran 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 Quran in an apologetic and defensive perspective.

Whatever is mentioned in the Quran about the mysteries of creation and natural phenomena is intended to impel man¬kind 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 resulted in the repercussion that many Muslims turned away from religion. Had the natural sciences not been exiled from the religious curricula, this tragedy would not have 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 Quran unambiguously declares:

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.' (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 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 the 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-outlook and ideology.

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 Quranic verse:

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

For the achievement of this goal, it seems inevitable that the latest scientific principles should be taught in theological centers, and, in the same way, religious sciences should be taught in universities on a com¬paratively advanced level. This will be instrumental in familiarizing

Muslim research scholars with the Islamic world-outlook. Moreover, it would give the opportunity to theological schools to utilise latest scien¬tific findings for 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 indus¬trial 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 Quran 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 accom¬panied 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 preli¬minary 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 was more or less of a preliminary nature. Now it is time for a decisive step in this direction. Notes:

Notes

[1]. Al-Kulayni Thiqat al-Islam Muhammad ibn Ya'qub, Usul al-kafi, vol. I, p. 30. Also see the `introduction' to Ibn Majah's Sunan; Bihar al-anwar, vol. I, p. 177.

[3]. Ibid, vol. I, p. 15.

[4]. Ibid, vol. 1, p. 16.

[5]. Ibid, vol. I, p. 39.

[6]. Ibid, vol. I, p. 22.

[8]. Ibid, vol. I, p. 72.

[9]. Mulla Sadra, Sharh Usul al-kafi, p. 121.

[10]. Ibid, p. 120.

[11]. Ibid, p. 121.

[12]. Ibid, p. 129.

[13]. Murtada Mutahhari, Guftar-e Mah, vol. I, p. 137.

[14]. Al-Ghazzali, Ihya ulum al-din, vol. I, p. 39.

[15]. Ibid, vol. I, p. 14. Also see Muhajjat al-bayda', vol. 1, p. 21, and Bihar al ¬anwar, vol. I, p. 57.

[16]. Shaykh Saduq, Amali, p. 19. Also see Safinat al-bihar, vol. 2, p. 219.

[17]. Al-Nizam al-tarbawi fi al-Islam, p. 188.

[18]. Mukhtar al-ahadith al-nabawiyyah wa al-hikam al-Muhammadiyyah, p. 70.

[19]. Nahj al-balaghah. Dublished by Dr. Subhi al-Salih, p. 481.

[20].Ibn Majah, Sunan, No. 250; also see Misbah al-shariah, chapter 60.

[21]. Al-Tirmidhi, Sunan, the chapter on da'wat, Ibn Majah, Sunan, `introduction'.

[22]. Nahj al-balaghah, published by Dr. Subhi al-Salih, p. 393.

[23]. `Abd al-Wahid Amadi, Ghurar al-hikam wa durar al-kalim, p. 42.

[24]. Although even in this case it may be said that the religious information of most of the Muslims is very scanty, and unfortunately most of the laws of Islam have, in practice, lost their social relevance.

[26]. Tuhfat al-`uqul, p. 261; also see al-Majlisi's Bihar al-anwar, vol. LXXVIII, p. 80.

[27]. Munyat al-murid, p. 28, Najaf 1370.

[28]. Mukhtar al-ahadith al-nabawiyyah wa al-hikam al-Muhammadiyyah, p. 99.

[29]. Muniyat al-murid, p. 53, Najaf 1370.

[30]. A narration from the Holy Prophet (S) found in Nahj al-Fasahah, p. 635, says: All human beings are the family of God, and the most beloved of men near God is one who is most beneficial to His family.

[31]. In the thirteenth century A.D. it was Khwajah Nasir al-Din al-Tusi, who gathered scholars of various sciences in the city of Mardgheh.
However, in the twentieth century, it is the Americans and Europeans who have gathered scientists from all over the world in their scientific and research institutions and furnished them with all kinds of facilities.

[32]. See `Abd al-Razzaq Nawfal, Al-Muslimun wa al-`ilm al-hadith ("The Muslims and the Modern Science"), pp. 5, 93.

.[33]. Shaykh Mahmud Shaltut, Tafsir al-Qur an al-karim, chapter 11,11:14