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EDITOR
B.A. RAFIQ



THE AHMADIYYA MOVEMENT

The Ahmadiyya Movement was founded in 1889 by Hazrat Mirza Ghulam Ahmad, the expected world reformer and the Promised Messiah. The Movement is an embodiment of true and real Islam. It seeks to unite mankind with its Creator and to establish peace throughout the world. The present head of the Movement is Hazrat Mirza Tahir Ahmad. The Ahmadiyya Movement has its headquarters at Rabwah, Pakistan, and is actively engaged in missionary work.



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COMMENTARY ON A VERSE OF THE HOLY QURAN

وَإِنْ كُنْتُمْ فِي رَيْبٍ مِّمَّا نَزَّلْنَا عَلَىٰ عَبْدِنَا فَأْتُوا بِسُورَةٍ
مِّثْلِهِ ۚ وَادْعُوا شُهَدَاءَكُمْ مِّنْ دُونِ اللَّهِ إِنْ كُنْتُمْ صَادِقِينَ ۝

“And if you are in doubt as to what We have sent down to Our servant, then produce a chapter like it, and call upon your helpers beside Allah, if you are truthful.”

In the present verse God says that if the Quran created doubts and disquietitude in their minds and is not worthy of acceptance, then disbelievers should produce one like it. If they cannot, then this very fact would prove them to be wrong.

The subject of the incomparable excellence of the Quran has been dealt with at five different places in the Quran, *i.e.* in 2:24; 10:39; 11:14; 17:89; & 52:34, 35, and disbelievers have been challenged to produce its equal.

In two of these five verses (2:24 & 10:39) the challenge is identical, while in the remaining three verses three separate and different demands have been made from disbelievers. Thus, to begin with the largest demand in 17:89, disbelievers are challenged to produce the like of the whole Quran, and they have been told that even if all *jinn* and men should join together they would not be able to produce it. In 11:14 the challenge is limited to the production of ten chapters. In 2:24 and 10:39, however, it has been confined to one *Sura* only; while in 52:34, 35, the condition of even one *Sura* has been omitted and disbelievers have been given the option of producing even a single piece like any one piece (*i.e.* announcement) of the Quran. On the face of it, this difference in the form of the challenge at different places seems to be incongruent and to spring from a lack of harmony in the Quran. Some Commentators have endeavoured to explain away this seeming incongruity by saying that it was due to the challenge having been made at different times. At first disbelievers were called upon to produce the like of the whole Quran. When they failed to do so, the challenge was whittled down to the production of the like of any ten chapters. When, however, they were unable to produce even ten chapters, the challenge was further reduced to the production of a single chapter; and, lastly,

disbelievers were asked to produce even a single piece like any piece of the Quran. This explanation, however, does not seem to hold good. The different *Suras* containing these different challenges were revealed in the following order: (1) 52:34, 35; (2) 17:89; (3) 11:14; (4) 10:39; (5) 2:24 (Rodwell). Now in *Sura* 52, the first to be revealed, the challenge is not qualified by any condition as regards size, disbelievers having been given the choice of producing even one single piece like any piece of the Quran. It is very strange that, whereas at first the challenge was unqualified and disbelievers were called upon to produce something comparable to any piece of the Quran, later it began to be hedged round by conditions and stipulations, first requiring disbelievers to produce the like of the whole book, then reducing the challenge to ten *Suras*, and last of all reducing it to a single chapter. The order is most unnatural.

Moreover, some of the *Suras* which contain this challenge were revealed on occasions so close to one another that some Commentators have found it difficult definitely to fix their order of priority. Hence it is unwise to settle this question on the basis of the chronological order of the *Suras* containing this challenge.

Another point worth considering in this connection is that the verses in question do not mention any historical event but contain only a general challenge which stands for all time. Now the question is, in what form should the challenge be delivered to the world? Should disbelievers be called upon to produce the like of the whole Quran, or to produce ten *Suras* like any ten *Suras* of the Quran, or should they be called upon to bring forward the like of one *Sura* only or the like of any single piece of the Quran? If it is enough to make a demand for the like of a single piece of the Quran, why should a demand for the like of a *Sura* be made, and if it is enough to make a demand for the like of one *Sura*, the demand for the production of ten *Suras* or, for that matter, for the whole of the Quran seems extravagant.

The fact is that these verses contain certain demands which stand for all time, and there is no need to enter into the question of their chronological order. The challenge can be made even today in all the different forms mentioned in the Quran as it was made at the time of the Holy Prophet.

Before explaining the various forms of these challenges it is worth noting that mention of them in the Quran is invariably accompanied by a reference to wealth and power, except in 2:24, which, as already stated, does not contain a new challenge but only repeats the challenge made in 10:39. From this it may be concluded that

there exists a close connection between the question of wealth and power and the challenge for the production of the like of the Quran or a part thereof. This connection lies in the fact that the Quran has been held out to disbelievers as a priceless treasure. When disbelievers demanded material treasures from the Holy Prophet and asked, *Wherefore has not a treasure been sent down to him* (11:13), they were told in reply that he possessed a matchless treasure in the Quran. The same reply was repeated when disbelievers asked, *Wherefore has not an angel come with him?* (11:13). They were told in reply that angels did descend upon him; for their function was to bring the word of God, and the divine word had already been vouchsafed to him. Thus both the demand for a treasure and the demand for the descent of angels have been jointly met by offering the Quran as a matchless treasure brought down by angels, and the challenge to produce the like of the Quran has been put forward as a proof of its peerless quality.

Let us now take the different verses containing this challenge separately. The greatest demand is that made in 17:89, where disbelievers are required to bring a book like the whole of the Quran in all its manifold qualities. In this verse disbelievers are not required to represent their composition as the word of God. They may bring it forward as their own composition and declare it to be the equal of or, for that matter, better than the Quran. As, however, it was necessary to define in what respect the work to be produced was to resemble the Quran, the Quran says in the next verse, *And of a truth We have (herein) set forth for mankind in various ways, all kinds of similitudes, but most of men would reject everything but disbelief* (17:90), hinting thereby that if disbelievers reject the divine origin of the Quran and believe it to be the work of the Prophet himself, then let them produce a book which, like the Quran, should possess the following excellences: (a) it should throw light on every essential subject pertaining to religion; (b) its discussion of these subjects should be exhaustive, offering detailed guidance on every question; (c) it should be free from all harm and contain nothing but good; and (d) it should aim not at the good of any particular people or community but at the well-being of all mankind, containing guidance for all temperaments and dispositions as well as for all circumstances and conditions. But as at the time when this challenge was made the whole of the Quran had not yet been revealed, disbelievers were not required to produce the like of the Quran there and then; and the challenge thus implied a prophecy that they would not be able to produce the like of it, neither in the form in which it then was nor when it became complete. Again, the challenge was not

confined to the disbelievers of the Prophet's time alone, but extended to doubters and critics of all times.

The second verse which contains a challenge is 11:14. In this verse the disbelievers' objection that the Prophet had not come with a treasure, nor had an angel come to him, has been met by calling upon them to bring similar *Suras* which they should represent as the word of God. The latter demand, *i.e.*, the pertaining to the representation of the required production as the word of God, has a reference to the objection of the disbelievers that no angel has come down to the Prophet. They are told that if no angel has really come to him and his claim to receive divine revelation through the medium of angels is false, then let them also produce the *Suras*, claiming, like him, that they have been brought down to them by angels, and then see what their end would be. If they had not the courage to forge a lie against God, how could they think that the Prophet could be guilty of such fabrication or, if he had dared to commit this forgery, why had he remained secure from God's punishment?

The reason why the disbelievers in this verse have been called upon to produce ten *Suras* and not the whole Quran is that the question here did not relate to the perfection of the Quran in all respects, but to that of only a portion of it. The disbelievers had objected to some parts of it being defective, as is evident from the words: *They imagine that thou art now perhaps going to abandon part of that which has been revealed to thee* (11: 13). Hence, they have not been required here to bring a complete book like the whole Quran, but only ten *Suras* in place of those parts of the Quran which they deem to be defective, in order that the truth of their assertion may be tested.

As for the selection of the specific number 10 for this purpose, it should be noted that in Arabic 10 represents a complete number. As the object was to refute the assertion of the disbelievers that certain portions of the Quran were defective, therefore the disbelievers were given the option of making as many as ten efforts to substantiate their claim. They were thus asked to produce ten *Suras* not because they could produce less than that number but because the best way to refute their objection was to afford them several opportunities to substantiate the truth of their assertion. In short, since in 17:89 the whole Quran was claimed to be a perfect Book, its opponents were called upon to produce the like of the whole Quran; but since in 11:14 the point was that certain portions of it were objected to, so they were asked to choose ten such portions as

appeared to them to be most defective and then produce a composition even like those portions.

The third verse where the Quran has been declared to be matchless is 10:39. Here disbelievers have been called upon to produce the like of only one *Sura* of the Quran. This is so because, unlike the above-mentioned two verses, the challenge made in this verse is in support of a claim made by the Quran itself and not in refutation of any objection on the part of disbelievers. In the verses preceding 10:39, it was claimed that God possessed full authority over all things (see 10:32–36), and as a proof of this, in 10:38 the Quran was put forward as possessing the following excellences: (a) it contains teachings which could not be devised by man; (b) it has come in fulfilment of the prophecies contained in the previous scriptures; (c) in it the imperfect teachings of the previous scriptures have been perfected; (d) the word of God embodied in it has been made secure from being interpolated or tampered with by man; and (e) its teachings are meant for all men and all time. In support of this claim, verse 10:39 throws out a challenge to those who deny or doubt it to produce a single chapter containing these excellences in the same perfect form in which they are contained in this chapter *i.e.* ch. 10.

The verses 52:34, 35 contain the smallest of all demands. In these verses disbelievers are challenged to produce a single piece or a single announcement like any piece or announcement of the Quran. This demand also has been made in support of a claim made by the Quran itself and not in refutation of any objection on the part of disbelievers. Hence the smallness of the demand. The claim in question is made in the opening verses of chapter 52 *i.e.* *Sura Al-Tur* to the effect that the Quranic revelation which was promised to mankind through Moses on Mount Sinai, will continue to be written, read and published throughout the world and that its followers will continue to multiply and will comprise not only common men but persons of great spiritual and temporal eminence, and that the fountain of the new faith will continue to provide the water of eternal life to all the countries of the world so that the fulfilment of these prophecies will constitute a proof of the fact that there is a Day of Judgement. Thereafter the Quran proceeds in 52:34, 35 to challenge disbelievers that, if they look upon the revelation of the Quran to be a fabrication, then they should come forward and make a prophecy like the one made above. This challenge is unconditional and without qualification. Disbelievers are not required to represent what they produce as the word of God, nor is it laid down as a

condition that their prophecy should be of their own devising. They may as they like either make a prophecy of their own devising or borrow it from any other scripture. Again, disbelievers are not asked to bring forward as many prophecies as there are in the Quran—and these are legion—but to bring forward only one single prophecy similar to any one of the prophecies made in the beginning of the *Sura*. They are told that they will not be able to fulfil this demand, for such a prophecy could be made only by the Being Who is the Creator and Owner of the heavens and the earth, along with their treasures, and Who not only knows, but possesses mastery of, the unseen. This challenge also stands for all time.

The fifth challenge to produce a like of the Quran is contained in the verse under comment (2:24) and here also, as in 10:39, disbelievers have been called upon to bring a *Sura* like that of the Quran, not in refutation of any of their objections, but in support of a claim made by the Quran itself. In the case of the verse under comment this claim is stated in the beginning of the *Sura* in 2:3 which says: *This is a perfect Book; there is no doubt in it; it is a guidance for the righteous*. Similarly, 10:39 is also preceded with the words: *there is no doubt about it* (10:38). This shows that the challenge to produce a chapter like one of the Quran has special reference to the peculiarity which is described by the words, *there is no doubt about it*. The challenge given in the present *Sura* is preceded by the claim that the Quran is guidance for those who fear God (2:3), which means that it guides the righteous to the highest stages of spiritual progress. Hence in the above challenge it has been declared that if disbelievers are in doubt as to the divine origin of the Quran, then they should bring forward a *Sura* that may be comparable to the Quran in the spiritual influence it exercises over its followers.

One of the characteristics of the Quran is that, whatever chapter of it we may read, it casts a subtle and sublime spiritual influence over our minds. Thus, instead of creating doubts it dispels them and takes men to a stage where no doubt can possibly survive, which is the stage of communion with God. This stage can be attained only by the study of the Quran; no other Book can compare with it in this respect.

The above explanation will show that all these challenges calling upon disbelievers to produce the like of the Quran are quite distinct and separate one from another, and all of them stand for all time, none of them superseding or cancelling any other. The misconception that these challenges are one and the same seems to

have arisen from the wrong notion that in all of them it is the elegance of the Quranic style and diction this has been held out as unique and incomparable and that it is such elegance of Arabic diction that disbelievers have been called upon to produce. But this is not the case. The challenges made in the five *Suras* referred to above are not one or identical nor do they make the same demand; each has a distinct and separate demand of its own and it is in keeping with the nature of these demands that disbelievers have been called upon to produce the like of the whole Quran or a part of it.

The question now remains whether these demands also include a challenge to produce a work comparable to the Quran in elegance of style and diction. The answer is that they certainly do so, but only in an indirect way and not as a direct and fundamental demand, for sublime ideas can only be expressed in sublime language. As the Quran comprises sublime and lofty ideas, it was inevitable that the most beautiful diction and the chastest style should have been employed as the vehicle for the expression of those ideas; otherwise the subject matter was liable to remain obscure and doubtful and the perfect beauty of the Quran would have become marred. Thus, in whatever form and in whatever respect disbelievers have been challenged to produce a composition like the Quran, the demand for beauty of style and elegance of diction comparable to those of the Quran also forms a part of the challenge.



God has given me the good tidings that my followers will always triumph over others through their reasoning in support of the truth, and that they and their progeny will be greatly honoured in the world, so that they should see that he who comes to God never suffers loss.

(The Promised Messiah)

NOTES AND COMMENTS

By
B. A. Rafiq

A belief in One God, Who is the Heavenly Father Who hears the supplications of His ailing creatures, Who endlessly showers mercy on the erring human beings, has easily been acceptable since the days of antiquity. Thus was the God Almighty of Adam, Noah, Abraham, Moses, Jesus, Muhammad and Ahmad (on all of whom be peace and blessings of God). One is, however, hopelessly lost in total incomprehension when one is told that Jesus of the Gospel narrative, who ate, drank and behaved like ordinary mortals, was God. What divine model and example did he leave to the world?

The events in his alleged life do not warrant the crown of a deity fit for worshipping. If he appeared to the world again no one would recognise him. No one, indeed would be so overwhelmed that he would instantly prostrate in adoration at his feet. What credentials did he bring for being God? Look at his behaviour after the crucifixion. He appears to be a mere man who is brutally mishandled, cruelly tortured and beaten down, who is mercilessly bruised, who needs bandaging, rest, and quiet. This God does not want anyone to touch him for fear of pain yet he allows Thomas to feel his wounds. He moves about in the country disguised in different clothes; meets his disciples behind closed doors, often at night; is nervous to be recognised and again betrayed. There is big fear in his mind and no expression of joy anywhere.

Does he present to the world the picture of a God who is victorious over death? Why did he not go to the Jews who were his murderers and hail to them his victory? This is an overwhelming combination of ecclesiastical twist and unreasonable faith which chokes people by its unpalatability.

In the creation of the heavens and the earth, God Almighty, alone, had been the master mind. In designing the universe there has been no partner in His admirable plans. He Himself is the Source of all guidance and no other son or ghost was ever required to lend Him a hand in dispensing justice. He alone has, ever since the beginning of the world, forgiven sins, bestowed favours or punished the arrogant and the haughty. No proverbial pound of flesh was ever required from Jesus or anyone else to remit the sins of the people at large. He is the Master and as a good Master treats his servants with

mercy. So does God act benevolently towards them and forgives their trespasses.

The pagan mind had been patiently waiting for the approach of a divine deliverer who would carry their sorrows and bring salvation to them. In such a ceremonial drama the chief figure was the sun-god or Son of God. He was also the Avatar, Bodhisattwa, the world-Saviour. Generally he was called the Coming One. Those who believed in such an advent always thought that such a man could never take a birth as a person in history. The long chain of world saviours antecedent to Jesus were types and not persons begotten in history. No God born as a man can bring godliness in his single person. Only the attributive throb of Fatherly compassion can transform all hearts and exalt all minds into the likeness of His image.

The high prestige exerted by the belief in the historical Jesus, being pushed to the point of myth, ominously matches with the allegorical concurrences in the dramatic and the mythic representations of several earlier figures who made their appearance in the ancient religious systems. It is strange that when God did descend to the earth, in the person of Gospel Jesus, to establish a universal religion to save human beings, his life precisely copied the already publicized careers of some scores of previous personages. He truly matched and dramatized typical characters or sun-gods of antecedent religions. The earlier characters whose career he repeated were non-historical or legendary semi-historical persons. The Gospels have a disconcerting identity in many places with the incidents in the known lives of Horus, Izdubar, Sabazius, Mithra, Andonis, Hercules, Witoba, Mardux, Krishna, Buddha, Rama, Zoroaster, Orpheus and Hermes. It is a strange thing that the Gospel Jesus should have presented a model which had already been on view in nearly every ancient nation for centuries.

The concept of God as a man in the historical perspective, however, jams the lock and opens nothing to the reasoning intelligence. This shift of Christianity from man divine to a divine man in an historical personage has brought direct confusion in the structure of its system. It has appealed to the less intelligent folk for whom it has opened the hypnotic guilibility of religious piety and pitiable slavery to religious superstition. It is the greatest tragedy ever worked out in the world which will make the most lugubrious chapter in human history. This idea of a God as "a man" who ate, drank, slept, walked and spoke like an ordinary mortal man has drowned the saner sense of mankind.

The appendage to this idea of an historical personage fashioned

into the physical Son of God, is the assurance of each man's salvation if he believed in vicarious shedding of blood. For centuries millions of misguided souls have leaned to someone other than the real God to take away their sins. A meaningless worship has repeatedly been paid out to this man divine whose mini-life is found in the contradictory narratives of a few unauthentic accounts. Piles and piles of adoration is heaped upon this figure pleading him to take away the sins from them. Life in fact, grants nothing to any unit of being that it has not earned. If it does it would be to introduce favouritism and particularity into the universal economy. Thus there is the danger of inequity and chaos in the counsels of evolution. Every human being can, however, qualify for the mercy of God Almighty independent of any earthly Saviour. It is surprising that the saving principle of God's grace should have been held off until the birth of a babe freely accessible to the righteous people antecedently.

Millions of people had died without believing in any Jesus before his birth. No one had carried their sins vicariously. Why was it that God's love was stirred into action so late in history? Why the Divine compassion was held in abeyance, stopped, until the man Jesus arrived nearly four thousands years after Adam's fall. It is rather too late to open the door of salvation till the man-God Jesus had landed on this planet.

Salvation, therefore, could be secured without his existence as it must have been done before he lived. The Christ of John and the Evangelists is only a super added and super numerary theological luxury. He cannot be any element in the system of redemption and no scheme of human redemption ever vitally needed his blood. It could do without him.



*God has bestowed upon me the understanding of the Quran.
God has taught me the language of the Quran in a miraculous manner.*

God accepts my prayers more than of any other person.

God has supported me with heavenly Signs.

God has bestowed upon me Signs from the earth.

God has promised me that I shall triumph over everyone who comes forward to oppose me.

(The Promised Messiah)

AHMADIYYAT AND THE PHILOSOPHY OF REVIVAL OF RELIGION

*Text of an address delivered by
Hazrat Mirza Tahir Ahmad, Khalifatul Masih IV*

I address you today on the Islamic Philosophy of the revival of religions. Religions are always revived through Divine intervention. A reformer is sent by Allah the Almighty to turn the people away from materialism and return them to their Creator. Such a reformer invariably calls for immense sacrifices in the name of God. He invites people to toil and sweat; to persevere and be patient, and informs them that those who seek to live must be prepared to part with their lives. He prepares them for a long and painful struggle against blind opposition and persecution at the hands of those whom they love and endeavour to save. Indeed this is the only real and eternal philosophy of religious revival: every philosophy opposed to it is mere fantasy. I must mention though that all sects of Islam are not in unison on this subject. A large number of Muslims believe that a fundamental change has come about in the form of religious revival. The Ahmadiyya Muslim Community, on the other hand, believes that this historical process is constant and unchanged. Lest the difference of opinion amongst Muslims create a wrong impression, I deem it necessary to enumerate those shared fundamental beliefs which bind all the Muslims together, whatever denomination they belong to.

Every Muslim, regardless of sect, believes in the oneness of God and in the prophethood of the Holy Prophet Muhammad (upon whom be peace and blessings). Every Muslim believes that Islam is the ultimate religion for the salvation of mankind. All Muslims believe that Islam will continue to fulfil all of man's spiritual needs till the Day of Judgement. All Muslims believe that the Law revealed through the Holy Prophet Muhammad is unchangeable and that the Quran is incorruptible and unalterable to the extent even of an iota or a dot. Muslims of all shades of thought believe that the edicts of the Holy Prophet Muhammad have validity and authority till the end of mankind. Muslims of every sect believe that it is only through a bond with the Holy Prophet Muhammad that the light of eternal truth may be perceived. These basic points of creed are shared by all Muslims without exception.

With so much in common, there still remains the fundamental difference which sets the Ahmadiyya Muslim Community apart

from other Muslims—the difference on the issue of revival of Islam. All other differences emanate from this main issue.

How is the resurgence of Islam to come about? How is a new life and new vigour to be infused into it? Like the Ahmadiyya Community, all other Muslims, too, profess that the answer lies in the promised advent of Christ, Son of Mary, and in the appearance of the promised Imam Mahdi (the reformer appointed by God who would be divinely guided). This point of apparent concord when interpreted, actually generates two diametrically opposed views.

The Ahmadiyya Muslim Community regards the prophecy of the advent of Christ as a figure of speech. It believes that the prophecies regarding the Imam Mahdi are also allegorical. We believe that the truly glorious import of these prophecies cannot be understood if they are taken at their face value. In complete contrast to this, the other sects of Islam insist on a literal fulfilment of these prophecies. This is the fundamental difference that distinguishes—and sets apart—the Ahmadiyya Community from other sects.

A Background to the Prophecies

The prevailing decline of the Muslims and their internecine strife are matters of which the Holy Prophet Muhammad was not uninformed. Through divine revelation, he prophesied fourteen hundred years ago that Muslims would split into seventy two sects. He described the pitiable plight of the Muslims in such detail as if a view of our era had been unfolded before his very eyes. The Prophet's Traditions contain a graphic description of our times. He said, "Islam will have nothing left of it except its name. Mosques, though full of worshippers will be devoid of guidance. Their religious scholars will be the worst creation under the canopy of Heaven." However, alongwith these terrible portents, he also gave glorious tidings. He said that inspite of this dire distress, the Islamic nation would not perish:

كَيْفَ تَهْلِكُ أُمَّةٌ أَنَا أَوَّلُهَا وَعِيسَى بْنُ مَرْيَمَ آخِرُهَا

"How can my followers be destroyed when I am at their beginning and Jesus, Son of Mary, is at their end."

(Masnad Ahmad: Kanzal Aamal Vol. 7, p. 203)

Then he said:

كَيْفَ أَنْتُمْ إِذَا نَزَلَ ابْنُ مَرْيَمَ فِيكُمْ وَأَمَّاكُمْ مِنْكُمْ

“How will you be when Mary’s Son will descend among you; and he will be your guide from amongst you?”

(Bukhari: Book of Prophets)

And he repeated the news in these words:

وَالَّذِي نَفْسِي بِيَدِهِ لَيُوشِكَنَّ أَنْ يَنْزِلَ فِيكُمْ ابْنُ مَرْيَمَ حَكَمًا عَدْلًا

“I swear by Him Who has my life in His hand that the Son of Mary will indeed descend among you, and he will arbitrate with justice.”

(Bukhari: Book of Prophets)

The Holy Prophet also gave tidings of a great Imam—Imam Mahdi—who would appear alongwith Jesus, Son of Mary.

So, the Ahmadiyya Community is at one with the other Muslim sects in believing that the resuscitation of Islam and its global triumph are linked with the advent of Christ and the appearance of the Imam Mahdi. However, it differs from the rest in the interpretation of these prophecies. It insists that the prophecies be seen in the light of the divine law revealed in action and in consonance with the history of the earlier prophets. The other Muslim sects, on the contrary, assert that the prophecies have no inner, deeper message and adhere to their literal sense.

Non-Ahmadi Muslims’ Concept

In all fairness to our opponents, I shall now endeavour to elucidate the view point of our opponents who equate Islam’s renaissance with its economic and political dominance. There is perhaps an explanation for it. Lust for power and greed for gold have traditionally dominated human strife. The acme of national revival therefore would mean political and economic ascendancy. Divine favour would, according to them, fittingly manifest itself to bring about this result. This more or less, is the view held by many, concerning the revival of Islam. According to this belief, the advent of the Messiah will herald the era of Islam’s political conquests while the appearance of the Imam Mahdi will bring about their economic dominance.

First, I shall outline their concept of the Messiah’s advent. They believe that the very Jesus, Son of Mary, whom the Quran declares a prophet of the Israelites, will descend bodily from the sky. He will immediately set out with sword in hand and hack to death all enemies of Islam! His global sweep shall have three grand objectives. The first objective will be the destruction of the Cross. Not figuratively, but literally! He will set about destroying the

symbol of Christian faith with such vigour that not a trace shall be left of it. There will not remain a single Cross to be seen—in Church or home or around any neck.

According to them, his next important task will be the extermination of swine of every variety—domestic as well as wild! So, the followers of the Cross will then be left with neither a Cross for prayer nor a pig for dinner. Thus, Christ will deprive the Christians of the articles not only of their spiritual sustenance but also of their physical nourishment.

The third task for the Messiah will be the killing of "Dajjal" the Antichrist. Now who is this Antichrist? According to Traditions, if taken literally, as some would have it, he will be a one-eyed Colossus who will come riding an ass of extraordinary proportions. He will be so tall that his head will stand higher than the clouds. All prophets have warned their followers against the evil of this Antichrist. Now, while the Antichrist is busy ravaging the earth the Messiah will descend from the heavens. He will engage the Antichrist in battle near Damascus and slay him. He will then conquer the entire world. Having done this, he will hand over its governance to the Muslims.

This, in sum, is their philosophy of the Muslims' political resurgence and ascendancy. It absolves the Muslims totally from waging any political struggle whatsoever. Now, those who are basking in the assurance that they will inherit the earth without moving a muscle can see no possible reason to concern themselves with political thought and action. They live in blissful oblivion of their decay and degradation. For, everything else apart, they know most assuredly that the happy hour is not far when a divine being will descend from the heavens and unleash a campaign of conquests. He will slay the swine. He will wreck the Cross. He will subjugate all Powers of the East and the West. Then, he will beckon to the waiting Muslim masses and say, "Come hither, ye soldiers of God; come here, O virtuous ones! Come and take this sceptre of the kingdom of the earth." This is the bellicose view of Muslim renaissance which the Ahmadi Muslims find abhorrent. They simply cannot subscribe to it in its crude literalism.

Next comes the non-Ahmadi Muslims' concept of the economic resurgence of Islam. The scholars of the other sects hold the view that the remedy of the economic plight of the Muslims lay not in struggle and sacrifice but in the appearance of the Imam Mahdi. This Imam Mahdi will be a contemporary of the Messiah. His most important act on arrival will be the distribution of limitless largess

among the Muslims of the world. His bounty will be boundless; his generosity will defy description. This overwhelming wealth will far exceed the Muslim's capacity to garner it. Thus will come to an end all lust for goods and greed for gold. This is the panacea, as conceived by some, for the economic ills of the world of Islam. According to this belief, the appearance of Imam Mahdi is in itself the answer to the economic misery of Muslims. There is no need for sweat, tears and toil. There is no necessity to explore the earth's treasures, to peep into the heart of the atom and to seek out the secrets of space. Neither effort nor industry, nor inventiveness or application is needed. All that is needed is the arrival of the Mahdi! Again we differ and again we the Ahmadi Muslims find this concept childish, crude and unacceptable.

The Correct Interpretation According to Ahmadi Muslims

Although the Ahmadiyya Muslim Community does not in any way reject the prophecies concerning the descent of the Messiah and the appearance of the Mahdi, it does emphasise that to put a literal meaning on them is the height of naivete and ignorance. We believe that it is as a result of not grasping fully the exalted station of the Holy Prophet that such a serious error is made in understanding his deep and philosophical message. Men of insight and wisdom often use parables and allegories to outline subjects of such great import but the superficial eye cannot perceive their meaning.

The Ahmadi Muslims believe that the whole range of subjects covering the Messiah, the Antichrist and his ass is allegorical. The Messiah, therefore, is not that earlier prophet who was sent among the Isrealites. The Ahmadis believe that Jesus Christ died a natural death after surviving the torture of the Cross. The Messiah of the prophecy was in fact to be a new person who was to be born amongst the followers of the Holy Prophet Muhammad. Because of some characteristics and qualities he was to share with Jesus, he would be given the title of "Messiah, Son of Mary" in much the same way as a great dramatist is called Shakespeare. The reference to the Cross, too, is a simile. The Messiah will not literally go around wrecking crosses: he will defeat the Christian faith with strong reasoning and powerful arguments. The destruction of the Cross, therefore, stands for the ideological rout of Christianity. Similarly, the word 'swine' is not to be taken in the literal sense. It connotes the cultural filth of the western world which turns men into beastly beings. The word swine stands for the so called sexual anarchy sweeping across America and Europe. It stands for the disgusting debauchery which

claims even innocent children as its victims. The Traditions most assuredly did not convey that the Messiah would hunt down herds of wild boar or domesticated pigs. This would be a strange image of a prophet of God. It would rather remind one of Ajax, a hero from Greek mythology, who cut to pieces herds of cattle and flocks of sheep in the mad belief that they were the Greek army's chieftains!

The Antichrist, too, like the Messiah, the Cross and the Swine is symbolic. He symbolises a great and powerful nation which rules not only the earth but also space. The Cross and the Swine are in fact symbols pertaining to this nation. The Traditions say that the Antichrist's right eye will be sightless but his left eye will be large and bright. This is a symbolic description of the fact that though this nation would be devoid of spiritual light yet its material insight and therefore material attainments, would be great.

Lastly, the Ahmadi Muslims consider the Antichrist's ass to be a symbol too—a symbol that was used to describe the means of transportation of the days to come. All the features describing this ass are without exception identifiable with the fuel-powered vehicles invented by the West. Consider the salient features of the ass—as described in the traditions—it will eat fire, it will travel over land, over sea and above the air; its speed will be so great that it will cover a journey of months within the space of a few hours; the passengers will travel not on its back but in its belly which would be lit up; it will announce its departure and ask passengers to take their seats. The fulfilment of these things with such wondrous exactness is a glorious testimony of the truth of the Holy Prophet Muhammad, peace be on him.

According to Ahmadi Muslims, the prophecies relating to the advent of the Imam Mahdi are also symbolic. The wealth he will distribute amongst Muslims is the wealth of spiritual knowledge and wisdom, and not worldly wealth. The refusal of some to accept it further indicates what kind of wealth it was to be; for man is never satiated with material wealth: it is only the spiritual treasures that he spurns.

Thus Ahmadiyyat rejects the philosophy of Islamic renaissance as explained above and propagated by the other sects of Islam. It holds that this philosophy is at variance with the real intent of the Quranic teachings, at variance with the history of the prophets and most of all at variance with the demonstrated actions of the Holy Prophet Muhammad, peace be upon him. Ahmadiyyat shuns this ideological opiate which lulls nations into inaction and leads

them into the world of make-believe and fantasy.

Ahmadiyya Philosophy of Revival of Religion

This philosophy is no different from the one that is the common heritage of all religions. This is the only philosophy which history supports. Although the Scriptures and the legends mention many who ascended to the heavens, there is not one instance or account, since Adam, of the bodily return of any one of them to earth.

So, regardless of the difference in the manner of the professed ascent to the heavens by some, there is none who is reported to have returned to earth after a long disappearance. Reformers have always appeared from the ordinary stock of human beings and have always been rejected and scorned by man. No ceremonial arches are ever erected to welcome them. No garlands are offered. No lamps are lighted in joyous illumination. On the contrary, those who came in the name of God were persecuted for committing this 'crime'. Their paths were strewn with thorns. Dust was heaped on their heads and stones were thrown at them. They were crowned with the crown of thorns. Every conceivable torture was inflicted on them. You see them now, returning from the town of Taif bathed in blood from head to foot. You see them again, in the battlefield of Ohad, half-dead from their wounds, buried under the bodies of those who laid their lives for them.

You will find their followers suffering a similar fate. Every conceivable torment is practised on them. They are dragged by their feet through rough alley-ways. They are made to lie on burning sands under a sizzling sun. They are thrown on live coals and held there till the embers die down.

They are thrown out of their homes. They are driven into exile. They are threatened with starvation. They are put to the sword. The husbands are taken from the wives and the wives from the husbands. Parents are deprived of their children. Every right that life bestows is denied to them. They are neither allowed to pray nor to build mosques. They are deprived of the right to announce their faith. They are not even permitted to name their own creed.

Thus is man granted a new spiritual life. This is the path that leads to the revival of religion. This is the phenomenon that we see at work in the life of the Holy Prophet Muhammad (Peace be upon him) and in the life of every prophet before him. It is by treading this perilous path that the prophets have ever revived their nations.

This is the philosophy of the revival of religions since the days of Adam to the days of the Holy Prophet (Peace be upon him). When such is the case, how can we then accept that the Almighty has decided to change this inviolable and time-honoured practice? How can we then accept that the Muslims will inherit the earth without shedding a drop of their blood and without making a stroke of effort? How can we believe that they will succeed without treading the path of sacrifice? It did not happen before. It will not happen again. The Promised Messiah, the Holy Founder of the Ahmadiyya Muslim Community, affirms this eternal and everlasting truth when he warns the nation thus:

‘There has not been a Prophet who was not laughed at. So it was to be that people laugh at the Promised Messiah.

The Almighty says:-

يَحْسِرَةُ عَلَى الْعِبَادِ مَا يَأْتِيهِمْ مِنْ رَسُولٍ إِلَّا كَانُوا بِهِ يَسْتَهْزِئُونَ ۝

‘Alas for My servants, there comes not a Messenger to them but they mock at him’.

(36 :31)

So it is a sign from God that every prophet is mocked. Now, who can mock a person who physically descends from the heavens in the company of angels amidst a waiting crowd? The wise, therefore, can see that the bodily descent of the Promised Messiah from heaven is false belief. Remember! no one will descend from the sky. All those who oppose me and are now alive will die and not one from amongst them will see Jesus, Son of Mary, descend from heaven. Then their children and their children’s children, too, will die, and Mary’s Son will still not have descended. Then will God fill their hearts with fear that the days of the ascendancy of the Cross are gone and yet Jesus, Son of Mary, has not come down from the heavens. The wise will then tire of this belief. And before three centuries have passed from this day, Muslims and Christians alike will discard this false creed in disgust and despair. Their shall be only one religion in the world and only one Guide. I have come but to sow the seed. This seed has been sown at my hand. It will now grow and bear fruit and there is no power on earth that can harm it.”

(Tazkarat-ul-Shahdatain, p. 64-65)

Every fair minded person can see from this comparison that the Ahmadiyya view-point is based on the history of religions while the philosophy of its opponents is mythical and contradicts the

history of religious revival. We learn from history that every one appointed by God was faced with a storm of opposition. All prophets came with the message of truth and eternal life but were opposed by those who preferred falsehood to truth, and spiritual death to spiritual life. This indeed is the process of the birth of religions. When impurities and corruption crept into religions, their rebirth also took the same course. The reformers sent by God also suffered as the prophets had suffered. Whenever the Almighty chose to revive a nation spiritually, it split into two groups—those who saw the truth and those who opposed it. And neither group ever changed its demonstrated attitude. The Holy Quran describes this oft repeated cycle in a most effective and moving manner. A study of the Quran shows that:—

- a) Religions are born and revived through divinely appointed reformers. Never have the scholars ever reformed a religion through conferences and consultations.
- b) The divinely appointed reformers are invariably rejected by their people and treated with arrogance and disdain.
- c) Such reformers are always opposed by violence. They are accused of corrupting the religion of their forefathers. They are branded heretics and held guilty of apostasy.
- d) The creed professed by the opponents prescribes death or banishment as the punishment for apostasy. The reformers are offered a choice of either a return to the fold or exile, failing which they are threatened with death.
- e) The reformers never advocate violence. Their followers demonstrate steadfastness of such a high degree that they would rather be exiled or killed than recant.
- f) The reformers do not entice people with promises of power and high office: they dispel worldly ambition. They do not lure people with wealth; they inculcate the spirit of sacrifice. The rich who believe consider it their good fortune to give their all in the service of God; the mighty shrug off the trappings of power. It is then that divine providence adjudges them fit to take over temporal power.

This is the process of religious revival of nations that the Quran and the Scriptures reveal. All prophets—from Adam to the Holy Prophet Muhammad—went through these stages. They gave their nations new life by leading them over the path of suffering and sacrifice. They taught love. They inculcated love of hard work, of

sustained effort and incessant action. It is this revolutionary spirit which breathes life into dead nations. This oft-demonstrated and unchanging divine law is in consonance with man's nature, conscience and intellect. It is this law that the Ahmadiyya Community acknowledges.

As can be seen, the Ahmadiyya Muslim Community's concept of revival of religions is not a new-fangled philosophy born of human intellect. It is derived from that continuous and unaltered historical process which is preserved most accurately and truly in the Holy Quran. It is founded on those eternal principles and truths which are the basis of every true religion. For instance, the Quran declares:—

لَا إِكْرَاهَ فِي الدِّينِ قَدْ تَبَيَّنَ الرُّشْدُ مِنَ الْغَيِّ
فَمَنْ يَكْفُرْ بِالطَّاغُوتِ وَيُؤْمِنْ بِاللَّهِ فَقَدْ اسْتَمْسَكَ
بِالْعُرْوَةِ الْوُثْقَىٰ لَا انْفِصَامَ لَهَا وَاللَّهُ سَمِيعٌ عَلِيمٌ

"There should be no compulsion in religion. Surely, right has become distinct from wrong; so whosoever refuses to be led by those who transgress, and believes in Allah, has surely grasped a strong handle which knows no breaking. And Allah is All-Hearing, All-Knowing." (Al-Baqarah, Verse: 257)

يَحْسِرَةٌ عَلَى الْعِبَادِ مَا يَأْتِيهِمْ مِنْ رَسُولٍ إِلَّا كَانُوا بِهِ يَسْتَهْزِئُونَ

"Alas for My servants! there comes not a Messenger to them but they mock at him." (Ya sin, Verse: 31)

إِنَّ اللَّهَ لَا يَغَيِّرُ مَا بِقَوْمٍ حَتَّىٰ يُغَيِّرُوا مَا بِأَنفُسِهِمْ

"Surely Allah changes not the condition of a people until they change that which is in their heart." (Al-Ra'ad, Verse 12)

When the prophet Shu'aib was threatened by his people:—

لَنُخْرِجَنَّكَ يَشْعِيبُ وَالَّذِينَ آمَنُوا مَعَكَ
مِنْ قَرْيَتِنَا أَوْ لَتَعُودَنَّ فِيْ مِلَّتِنَا

"We will drive thee out O Shu'aib, and the believers (that are) with thee, from our town or you shall have to return to our religion."

he merely replied,

أَوَلَوْ كُنَّا كُرْهِيْنَ؟

“Even though we be unwilling?”

(Al-A'raf, Verse 89)

Noah's people, too, threatened him with stoning if he did not desist.

قَالُوا لَئِنْ لَّمْ تَنْتَهِ يُونُحُ لَتَكُونَنَّ مِنَ الْمَرْجُومِيْنَ ۝

“They said, ‘If thou desist not, O Noah, thou shalt surely be one of those who are stoned.’”

(Al-Shuara, Verse 117)

This treatment was not reserved for just a few prophets. The Quran summarises people's attitude to the prophets in these words:

وَقَالَ الَّذِينَ كَفَرُوا لِرُسُلِهِمْ نَنُخْرِجْكُمْ
مِّنْ أَرْضِنَا أَوْ نَتَّعِدَنَّ فِيْ مِثْلِنَا ۝

“And those who disbelieved said to their Messengers, ‘We will surely expel you from our land unless you return to our religion.’”

(Ibrahim, Verse: 14)

Abraham was punished for recanting from the religion of his forefathers and for voicing the truth. The chiefs vented their wrath by declaring:—

قَالُوا حَرِّقُوْهُ وَانصُرُوا آلِهَتَكُمْ إِنْ كُنْتُمْ فَعٰلِيْنَ ۝

“They said? ‘Burn him and help your gods, if at all you mean to do anything.’”

(Al-Anbiya 21, Verse: 69)

Jesus Christ was nailed to the Cross because he disagreed with the Jewish Scribes over the interpretation of the Bible although he avowed openly:—

“Think not that I have come to abolish the law, and the prophets; I have not come to abolish but to fulfil them. For truly, I say to you, till heaven and earth pass away, not an iota, not a dot, will pass from the law until all is accomplished.”

(Mathew: Chapter 5, Verse: 17, 18)

May I remind you that the central difference between Jesus Christ and the Jewish scholars was on the interpretation of the verse “And Elijah went up by a whirlwind into heaven” (2 Kings; Chapter 2, Verse 11). The scholars stuck to the literal and apparent meanings of the verse. They believed that Elijah would descend bodily from

heaven before the advent of Christ. Jesus Christ, on the other hand, asserted that this was an allegory, that the language was symbolic and not literal. He declared that Zacharia's son John was the Elijah who was to descend from heaven. Jesus knew full well that John was born on earth and had certainly not descended from heaven. In answer to the question 'Then why do the Scribes say that first Elijah must come', he replied:—

"Elijah does come and he is to restore all things; but I tell you that Elijah has already come, and they did know him, but did to him whatever they pleased. So also the son of man will suffer at their hands. Then the disciples understood that he was speaking to them of John the Baptist."

(Mathew: Chapter 17, Verse 10-13)

Lastly and above all was the suffering of the Holy Prophet Muhammad (Peace be upon him). In his own words, 'No Prophet suffered as much as I did.'

Therefore, the history of religions teaches us that prophets have always been normal human beings. They do not descend from heaven like the heroes of some mythical tale. They have always suffered trials and tribulations. Their followers gain glory not through the toils of someone else but through their own sweat and blood.



I can call God to witness that as He spoke to Abraham and Isaac and Ishmael and to Jacob and to Joseph and to Moses and to Jesus, son of Mary, and last of all spoke to our Holy Prophet, Peace be on him, in such manner that He vouchsafed to him the most brilliant and excellent revelation, so has He honoured me with His converse. This honour has been bestowed upon me only on account of my obedience to the Holy Prophet, peace be on him. Had I not been one of his followers and had I not obeyed him, I would never have been honoured with God's word even if my good deeds had been piled up as high as the mountains. All prophethood has now come to an end except the Prophethood of Muhammad. No law-bearing Prophet can now arise, but a non-law-bearing prophet can arise provided he is a follower of the Holy Prophet. In this way I am both a follower and a Prophet, and my Prophethood is a reflection of the Prophethood of the Holy Prophet. Apart from that it is nothing. It is the same Prophethood as that of Muhammad which manifested itself in me.

(Tajalliyat Ilahiyyah, p. 24)

THE GULF UNIVERSITY AND SCIENCE IN THE ARAB ISLAMIC COMMONWEALTH

Paper presented by Professor Abdus Salam at the Symposium on the "Future Outlook of the Arabian Gulf University", on 11 May 1983, in Bahrain.

"Allah is He who made (it possible) for you (to acquire) mastery over the ocean; thus (your) craft can ply thereon, with Allah's command" – "Allah is He, who gives you subjection over all that is in Heaven and on Earth: Herein are Allah's signs for a people given to reflection".

(The Holy Quran 45;12/13)

Taffakur and Taskheer (Science and Technology)

I have quoted these verses from the Holy Quran for they speak of the two concepts of "Taffakur" and "Taskheer" together in the same place.

Taffakur is the reflection on, and discovery of, the laws of Nature (science); taskheer is the acquiring of mastery over Nature through technology. Both these, throughout the ages, have been the shared urges of mankind. It is the glory of Islam that the Holy Quran, by repeated injunctions, enjoins their pursuit as bounden obligations on the Muslim community. And as in the verses above, there is the emphasis that taffakur and taskheer (science and technology) are not distinct; they form part of the same spectrum.

Following these injunctions, barely a hundred years after the Prophet's death, the Muslims had made it their task to master the then-known sciences. With feverish haste, but systematically, they translated the entire corpus of the then known knowledge in their religious language, Arabic. Founding institutes of advanced study (Bait-ul-Hikmas) and prestigious universities (like the Nizamiyya), particularly in this part of the world, they acquired an ascendancy in sciences that lasted for the next 600 years.

The Level of Scientific Creation in Islam

A semi-quantitative measure of this is given by George Sarton in his monumental "History of Science". Sarton divides his story of the highest achievement in science into Ages, each lasting 50 years. With each, he associates one central figure: thus, 500 - 450 BC is the Age of Plato, followed by the Ages of Aristotle, Euclid, Archimedes and so on. From 750 to 1100 CE, however, it is an unbroken

succession of the Ages of Jabir, Khwarizmi, Razi, Masudi, Abu l-Wafa, Biruni and Omar Khayam. In those 350 years, Arabs, Turks, Afghans and Persians—chemists, algebraists, clinicians, geographers, mathematicians, physicists and astronomers of the commonwealth of Islam—held the world stage of sciences. Only after 1100 CE, in Sarton's scheme, do the first Western names begin to appear; however, for another 250 years, they only share the honours with men of Islam like Ibn Rushd, Nasir-ur-din Tusi and Ibn Nafis.

To mark the level of this achievement and to emphasise the originality and calibre of science in Islam, I shall take my own subject of physics as an example. Contrary to the views of the Greeks—and I quote from H.J.J. Winter's "Eastern Science"—"Ibn Sina (Avicenna, 980–1037 CE) regarded light as an emission by the luminous sources of particles travelling at finite speed; he understood the nature of heat and force and motion." His contemporary, one of the greatest physicists of all time, Ibn al Haitham (Alhazen, 965–1039 CE), who started work at nearby Basrah and then migrated to Egypt, made experimental contributions of the highest order in optics and "enunciated that a ray of light, in passing through a medium, takes the path which is the easier and 'quicker'." In this he was anticipating Fermat's Principle of Least Time by many centuries. He enunciated the law of inertia, later to become Newton's first law of motion, and described the process of refraction in mechanical terms, by considering the movement of "particles of light" as they passed through the surface of separation of two media, in accordance with the rectangle law of forces (an approach later rediscovered and elaborated by Newton).

Al Khazini of Merv (12th Century CE) in a remarkable treatise entitled "The Book of the Balance of Wisdom", worked out a theory of universal gravity directed towards the centre of the earth; he was also responsible for the assumption that air has weight and for original work on capillarity. Qutb-ud-Din al Shirazi (1236–1311 CE) and his pupil Kamal-ud-Din gave the first explanation of the rainbow, stated that the speed of light is in inverse ratio to the optical, rather than the material, density of the medium; and that hyperboloidal lenses avoid spherical aberration.

In assessing this work, let us not forget that most of these men were only part-time physicists. They were universalists—physicians, astronomers, lexicographers, poets and even theologians at the same time.

In this recital I have not mentioned al Biruni (973–1048 CE) who, working in Afghanistan, was a great experimenter like his

contemporary Alhazen. He was as modern and as unmedieval in outlook as Galileo, six centuries later, with whom he shares the independent (prior) discovery of the so-called Galilean invariance of the laws of Nature—the liberating statement that the same Laws of Physics apply here on earth and on the starry-orbs in the heavens.

I have mentioned some of the great new ideas in physics due to the Muslims. But like all science, the bulk of the scientific work in Islam is not a record of what these universal luminaries did; it is painstaking, slow accumulation of data, supplemented with critical examination, exposition and commentary on the work of their peers. As Brian Stock has remarked in his perceptive review “Science and Technology and Economic Progress in the Early Middle Ages”, “The most remarkable feature is . . . that science in one form or another was the part-time or full-time occupation of so large a number of intellectuals.” Consider in this respect the following extract from the entry under “Euclid” in Al-Nadim’s “Catalogue of Sciences”, the — “Fihrist”:

“(The Elements) was twice translated by Al-Hajjaj ibn Yusuf ibn Matar: one translation, the first, is known under the name of Harunian, while the other carries the label Ma’munian and is the one to be relied and depended on. Furthermore, Ishaq ibn Hunayn also translated the work, a translation in turn revised by Thabit ibn Qurra al-Harrani. Moreover, Abu ‘Uthman Al-Dimashqi translated several books of this same work; I have seen the tenth in Mosul, in the library of ‘Ali ibn Ahmad al-Imrani (one of whose pupils was Abul-Saqr al-Qabisi, who in turn in our time lectures on the Almagest). Al-Nayrizi also commented upon it, as did al-Karabisi . . . Further, Al-Jawhari . . . wrote a commentary on the whole work from beginning to end. Another commentary on book V was done by al-Mahani . . . Furthermore, Abu Ja’far al-Khazin al-Khurasani . . . composed a commentary on Euclid’s book, as did Abu’l-Wafa, although the latter did not finish his. Then a man by the name of Ibn Rahiwayh al-Arrajani commented on Book X, while Abu ‘l-Qasim al Antaqi commented on the whole work . . . Further, a commentary was made by Sanad ibn ‘Ali . . . and book X was commented upon by Abu Yusuf al-Razi . . .” With this meticulousness, no wonder one of the earliest scientists to worry about Euclid’s axiom of parallels was Nasir-ud-din Tusi.

As Stock remarks: ‘Al-Nadim’s catalogue is complete, However there is one aspect of Mathematics he omitted, this was the practical. Nadim did not say that the diffusion of Hindu-Arabic numerals and the decimal positional system was brought about by

trade. Nor did he mention that Muslim mathematicians, to a much greater degree than the Greeks, interested themselves in everyday problems. Masha' allah, the noted astrologer (d. ca. 815–20 CE), was the author of a treatise on commodity prices. Abu'l-Wafa combined original work on Euclid and Diophantus with books bearing such titles as "What is Necessary from Geometrical Construction for the Artisan." In these works the theory was old but the examples were new. One may doubt that the most refined theory penetrated commercial circles, but commerce stimulated the theorists and oriented them towards the concrete." Such was the temper of the Islamic Society – Basic Sciences as related to their Applications to Life; Taffakur and Taskheer. In this context one may quote Sarton again: "The main, as well as the least obvious, achievement of the middle Ages was the creation of the experimental spirit and this was primarily due to the Muslims down to the 12th century."

In planning for the super University of the Gulf States, we heard yesterday at this meeting an exposition of this new institution as a possible university of technology (taskheer). To-day, I shall be emphasising the other side of the coin; the aspects of taffakur (science), which lie at the heart of all modern technology. I wish to emphasise that in the context of the Arab-Islamic Commonwealth of nations, we must also give the highest priority to the creation of sciences and I wish to outline the steps we need to take, both in regard to the evolution of the super-University at Bahrain as well as outside it, if we are to regain our rightful self-respecting place among the comity of nations. The proposed University in Bahrain is rightly placed to help achieve this pre-eminence in sciences as a pre-condition for pre-eminence in technology. Just as Bahrain has successfully developed the highest traditions in sophisticated banking in a short span of time, I believe it also has a potential to develop sciences, through the establishment of centres of excellence at the proposed University. From ancient times, Bahrain has been at the crossroads of civilizations and cultures with a tradition of nurturing and toleration of new and venturesome ideas – a pre-requisite for the developing of sciences.

The Present Picture of Sciences in Islamic Countries

What is the picture of science and technology in the Islamic Commonwealth? For purposes of identification, the Arab-Islamic peoples fall into six geographical regions. First and foremost are the nine countries of the Arabian Peninsula and the Gulf. The second region consists of the Arab northern tier; Syria, Jordan, Lebanon,

the Palestinian West Bank and Gaza. The third region comprises Turkey, Muslim Central Asia, Iran, Afghanistan and Pakistan. The fourth (most populous) region consists of Bangladesh, Malaysia, Indonesia, (plus the Muslim minorities in India and China). In the fifth region are the Arab countries of North Africa, while the sixth region would comprise the non-Arab African countries. If we consider the present enrollment in scientific and technological education in the 18-23 year age group at the Universities as an index of high scientific potential, the Islamic countries average 2% of the relevant age group compared to the norms of around 12% for the developed countries. A similar ratio of 1:6 prevails also in respect of GNP expenditures on scientific and technological research and development. No detailed statistics of numbers of those engaged in scientific research are available. However, in the Background Paper submitted to the first meeting of the Organization of Islamic Conference, which was held in Islamabad during 10-13 May 1983, a figure of around 45,136 research and development scientists and engineers was given for the entire Islamic world, compared to one and a half million in the USSR and four hundred thousand in Japan.

According to Zahlan, an analysis of these and similar figures reveals that so far as physics is concerned, the Arab-Islamic community is around one tenth in size and one hundredth in scientific creativity in research publication, compared to the international norms. Pakistan, which is one of the most advanced of Islamic countries in physics, has 19 universities, but only 13 Professors of Physics, and a total of 42 Physics Ph. D. teachers and researchers in all its universities—this for a population of 80 millions. To compare, the corresponding numbers at one College at one University in the United Kingdom—the Imperial College of Science and Technology—are 12 Professors and 100 researchers.

These figures are dismal; what makes them more dismal is the unfortunate fact that our scientific effort is isolated from international science. As a measure of this, it is amazing, but true, that with the exception of Egypt, which is a member of sixteen Unions, no other Arab or Islamic country uniformly subscribes to more than five International centres of scientific research have been created or are located within our confines; few international scientific conferences are organized there; very few of us, if living and working in our own countries, are privileged to travel to scientific institutions and meetings outside; such travel, as a rule, is considered wasteful luxury. The situation is a little better in Arab OPEC countries; it is dismal in non-Arab Islamic lands. It was this isolation which prompted me to propose the creation of the International Centre

for Theoretical Physics so that others do not make exiles of themselves if they wish to keep themselves abreast in newer developments in this subject. This Centre belongs to two United Nations Agencies – IAEA and UNESCO; some one hundred and seventy five Arab and Muslim physicists (out of around 1000 from developing countries) are supported at the Centre every year. Of these, 25 are supported by the Kuwait Foundation for Science and Kuwait and Qatar Universities; the rest come with funds provided by IAEA, UNESCO or the benefactions I can secure from Italy or Sweden.

To give an outside observer's assessment, writing in the prestigious scientific journal, "Nature", of 24 March 1983, Francis Giles raises the question "What is wrong with Muslim science?" This is what he says: "At its peak about one thousand years ago, the Muslim world made a remarkable contribution to science, notably mathematics and medicine. Baghdad in its heyday and southern Spain built universities to which thousands flocked: rulers surrounded themselves with scientists and artists. A spirit of freedom allowed Jews, Christians and Muslims to work side by side. Today all this is but a memory.

"Expenditure on science and technology may have increased in recent years though that increase has been, perforce, limited to oil-rich countries Some of these countries are busy fighting wars which cost billions of dollars—no doubt they have little time for science. Trade structures are dominated by imported technology and most countries have economic and scientific systems geared to imitation rather than originality."

"Even the recent wealth provided by oil exports makes relatively little difference since policy and politics, much to the displeasure of many scientists, are closely linked in the Middle East. The region is dominated by dictatorships, benevolent or otherwise. . . further complicating any attempt to allow science to take root indigenously. Not surprisingly the brain drain to industrialized countries continues to debilitate intellectual life throughout the Middle East."

The same issue of "Nature" contains another article on Research Manpower in Israel from which I quote: "The need for a substantial increase in the number of academically trained people to work in research and development is widely accepted. The National Council for Research and Development has urged that their country will need 86,700 such people in 1995; compared with 34,800 in 1974—an increase of 150 per cent." Compare the figure of 34,800 with 45,136

researchers in all Islamic countries (the population ratio is around 200).

The article continues: "In the 1960s Professor Derek de Solla Price of Yale University developed a method for measuring scientific manpower in various countries based on the total of reserachers who had papers published in major professional journals and concluded that in this country there are five times as many scientists as would be expected for its population and gross national product. Price insists that 'the situation is no different today; the country still possesses an enormous reservoir of trained people, something for which she has every reason to be grateful because her scientists and technicians more than compensate for the lack of oil and minerals.'"

The New Gulf University

With this bleak picture of science in the Arab-Islamic Commonwealth, is it any wonder that the prospect of a Super-University in the Arab-Islamic lands excites me, first and foremost, to remedy the situation in the pursuit of the traditional basic sciences of physics, chemistry, mathematics and biology at the highest levels, as a prelude to sciences in application. My vision is that of prestigious universities of science arising—perhaps one in each of the six regions of Islam—the new Gulf University among them—consisting of centres of excellence, second to none in quality in the world, in one or more of the scientific disciplines, experimental and theoretical. These centres would be open internationally, their facilities would be among the finest in the world; the modalities of their operation non-bureaucratic. And there would be guaranteed financial access to these centres and their facilities for all researchers within the Arab-Islamic Commonwealth, so that the poorest faculties in the poorest of the Arab-Islamic countries can also keep in touch with living science through using these facilities.

The men to staff such facilities would come internationally, but in particular from the seventh region of Arab-Islamic science. This region consists, in Zahlan's count, of the twenty thousand researchers from the Arab-Islamic countries who are now working in Europe and America. I have the vision of these men coming to Bahrain and other super universities, at least as part-time associates, to bring about the renaissance of sciences in our Commonwealth through their active contact. This will happen provided we create here the conditions which prevailed in the days of early Islamic science, particularly in this region.

The reasons for Muslim Pre-Eminence in Sciences before 1000CE and for the Subsequent Decline

What were the conditions which helped the Muslims develop sciences at a feverish rate in the 8th, 9th, 10th and 11th centuries? What were the reasons for their pre-eminence? One may think of three: first and foremost, the Muslims were following the repeated injunctions of the Holy Quran and the Holy Prophet. According to Dr. Muhammad Aijazul Khatib of Damascus University, nothing can emphasise the importance of science more than the remark that "in contrast to 250 verses which are legislative, some 750 verses of the Holy Quran—almost one eighth of it—exhort believers to study Nature—to reflect, to make the best use of reason and to make the scientific enterprise an integral part of the Community's life."

The second reason, which is connected with the first, was the status accorded in Islam to men of knowledge and science,—the *alims*. The Holy Quran emphasises the superiority of the *alim*, the man possessed of knowledge and science, by asking: how can those who do not possess these attributes ever be equals to those who do?

The Prophet of Islam said: "The quest for knowledge and science is obligatory upon every Muslim, man and woman." He enjoined his followers to seek "ilm" even if they had to travel to far Cathay in its search. Clearly in the context of China, he was emphasising science and not religious knowledge, besides pointing out the internationalism of the scientific quest.

This brings us to the third reason for the success of the scientific enterprise in Islam: its international character. The Islamic commonwealth itself cut across nations and colour; moreover early Muslim society was very tolerant of men from outside it, and of their ideas.

An aspect of this reverence for the sciences in Islam was the patronage they enjoyed in the Islamic-Arabic Commonwealth. To paraphrase what H.A.R. Gibb has written about Arabic literature to the parallel situation for the sciences: "To a greater extent than elsewhere, the flowering of the sciences in Islam was conditional . . . on the liberality and patronage of those in high positions. Where Muslim society was in decay, science lost vitality and force. But so long as, in one capital or another, princes and ministers found pleasure, profit or reputation in patronising the sciences, the torch was kept burning."

This situation did not last indefinitely, however, and after 1100 CE science in Islam started to decline. By 1350, the decline was

almost complete. Why did we in Islamic lands lose out?

No one knows for certain. There were indeed external causes, like the devastation caused by the Mongols, but, grievous though it was, it was perhaps more in the nature of an interruption. Sixty years after Ghengiz, his grandson Halagu was founding an observatory at Maragha, where Nasir-ud-din Tusi worked. In my view, the demise of living science within the Islamic commonwealth was more due to the internal causes of discouragement to innovation (taqlid) and of isolation of our scientific enterprise.

To emphasise this, consider Imam Ghazzali's (1058–1111 CE) injunctions in the first chapter of his great *Ihaya ulum-ud-din* "The Revival of Religious Learning." Imam Ghazzali laid stress upon the acquiring and creating of those sciences, which are necessary for the development of Islamic society, specifically mentioning mathematics and medical sciences. He designated these sciences as *Farz-e-Kefaya*—an obligation for the whole community, but one which can be discharged on its behalf, by a certain number of its members, otherwise the entire community would consist of transgressors. In his *Al-Munqidh min ad-Dalal* the Imam says, "A grievous crime indeed against religion has been committed by a man who imagines that Islam is defended by the denial of the mathematical sciences, seeing that there is nothing in the revealed truth opposed to these sciences by way of either negation or affirmation, and nothing in these sciences opposed to the truth of religion." These injunctions notwithstanding, soon after Imam Ghazzali wrote, the temper of the age had turned away from science, either to Sufism with its other-worldliness or to a lack of tolerance and taqlid in Sciences as in other fields of learning.

To illustrate this, let me quote from Ibn Khaldun (1332–1406 CE), one of the greatest social historians and one of the brightest intellects of all time in his field. Ibn Khaldun writes, in his *Muqaddima*:

"We have heard of late, that in the land of the Franks, and on the northern shores of the Mediterranean, there is a great cultivation of philosophical sciences. They are said to be studied there again, and to be taught in numerous classes. Existing systematic expositions of them are said to be comprehensive, the people who know them numerous, and the students of them very many Allah knows better, what exists there But it is clear that the problems of physics are of no importance for us in our religious affairs. Therefore, we must leave them alone."

Ibn Khaldun displays little curiosity, no wistfulness. The apathy his words appear to convey led to isolation and, as everyone knows, isolation in the sciences and veneration for authority it engenders, spells intellectual death. In our great days in the 9th and 10th centuries, we had founded, in Baghdad and Cairo, international institutes of advanced studies (Bait-ul-Hikmas), and assembled international concourses of scholars there. But from 1300 CE, no more. Any science that was cultivated was concentrated in religious seminaries, where tradition was valued more than innovation. The very encyclopaedic nature of knowledge and science in Islam was now a hindrance in an age of specialisation. The wholesome faculty of criticism, by which a young researcher questions what he is taught, re-examines it, and brings forth newer concepts, was no longer tolerated or encouraged.

To complete the story, from Ibn Khaldun's days, this intellectual isolation continued—even during the great empires of Islam, the empires of Osmani Turks, of the Iranian Safvis, and of the Indian Mughals. It is not that the sultans and the shah-in-shahs were not cognizant of the technological advances being made by the Europeans; they could hardly have been unaware of the intrusive superiority of the Venetians or the Genoese in the arts of gun-founding, or of the navigational and ship-building skills of the Portuguese who controlled the oceans of the world, including all oceans bordering on Islamic lands, and even the Hajj sea routes. But they seem never to have realized that navigational skills of the Portuguese were not accidental; these had been scientifically developed and sedulously cultivated starting with the research establishment of Sagres set up in 1419 by Prince Henry the Navigator.

But even while they envied and sought the technologies involved, they failed to understand the basic interrelation between science and technology. In 1799, for example, Selim III introduced the modern studies of algebra, trigonometry, mechanics, ballistics and metallurgy into Turkey—and imported French and Swedish teachers—so as to rival the European skills of gun-founding. But he failed to accent basic scientific research in these subjects, and Turkey never caught up with Europe.

Thirty years later, Muhammad Ali in Egypt had his men trained in the arts of surveying and prospecting for coal and gold. But it did not strike him, or his successors, to train Egyptains long-term in the basic sciences of geology. Even to-day, when we have come to recognize that technology is the sustenance and the power, we have not appreciated that there are no short cuts to it, that basic science

and its creation must equally become part of our civilization as a precondition of a mastery of science in application and technology. If one was being Machiavellian, one might discern sinister motives among those who try to sell us the idea encapsulated in the catchphrase “technology transfer” without “science transfer.”

Science Transfer and Technology Transfer

Let me elaborate on this theme, for this is central to what I want to say. I shall illustrate through some historical, as well as recent, examples of how scientific research impinges on modern technology.

My first example is Faraday’s unification of electricity and magnetism, accomplished in the last century. Before Faraday, one thought of the electric and the magnetic forces as two distinct forces with no interrelation between them. Electricity was typified by the phenomenon of thundestroms; magnets were bar-magnets, deflected by the earth’s magnetism. Faraday, experimenting in his basic sciences’ laboratory at the Royal Institution in London’s Piccadilly, discovered an amazing interrelation between these two disparate forces. Move an electrically charged object in the vicinity of a magnet, and the magnet suffers deflection.

The conclusion of this and similar experiments was inescapable and sensational. The magnetic force is not an independent force; electrically charged objects produce electric forces when they are stationary; they give rise to magnetic forces when moved. Electricity and magnetism had been united and unified—this was one of the greatest discoveries in physics of all times. And when Faraday was making his experiments, no one could have imagined that this simple physics discovery in a laboratory in a fashionable and dilettante part of London, would lead to the entire corpus of the electrical power generation.

Just to emphasize how relatively useless Faraday’s work was thought to be by his contemporaries, consider the assessment of one of them, Charles Burney, of the uses of electricity versus music. “Electricity is universally allowed to be a very entertaining and surprising phenomenon, but it has frequently been lamented that it has never yet, with much certainty, been applied to any very useful purpose (while) it is easy to point out the human and important purposes to which music has been applied Many an orphan is cherished by its influence, and the pangs of child-birth are softened and rendered less dangerous. . . .”

The story of unification of electricity with magnetism, continues with Maxwell who immediately followed Faraday. Maxwell asked himself the question: Faraday has shown that moving electric charges produce magnetic forces what would happen if electric charges were accelerated rather than moved with uniform velocity? Maxwell pondered theoretically on this question; he found Faraday's equations were inconsistent—they had to be modified if electric charges were accelerating. By one of the greatest acts of intuition in intellectual history, he supplied the correct modification and discovered, to his amazement, that an accelerating electrically charged object must emit electromagnetic radiation. He could compute the velocity of this radiation—again to his surprise, this velocity turned out to be identical to the velocity of light, then known with fair precision from experiment. Could light be electromagnetic radiation, produced by accelerating electrical charges embedded inside incandescent matter? Could we accelerate electrically charged particles in the laboratory and produce light? Could we verify Maxwell's theory directly in the laboratory?

A few years after Maxwell's death in 1879, Hertz in Germany, carried out such experiments with accelerating electric charges. Every one of Maxwell's predictions was found correct; the spectrum of Maxwell's predicted radiation consisted, not only of light waves, but also, of waves of longer wave length—radio waves—as well as waves of shorter wave length—X-rays. Thus, from a single theoretical calculation done by an obscure professor at the Cavendish Laboratory—a laboratory endowed not by the State, but by a private individual, Lord Cavendish and his family—flowed the marvels of radio, television and the modern communication systems on the one hand as well as the medical facility to see through a human body with X-rays. These discoveries, we in Arab-Islamic lands employ in our service alongwith the rest of mankind, hardly acknowledging the debt humanity owes to that modest physicist, Maxwell, and his solitary calculations. Maxwell's hundredth anniversary fell due in 1979; some six men congregated from the University of Glasgow at his grave and that was all the homage the world paid him.

My next example is that of fission. This is the breaking apart of a heavy overweight nucleus, like uranium, into two or more fragments, when impacted by a slow-moving projectile like a thermal neutron. No one was looking for it—no one suspected it. The great Italian physicist Fermi, working in the dingy laboratories of the Department of Physics at the University of Rome, could have found these fission fragments in the debris deposited in his test tube, for they were there. But he was not looking for such fragments and

missed them. The phenomenon was rediscovered in Germany at the Kaiser Wilhelm Institute for basic sciences in December 1938—not by physicists but by two nuclear chemists, Hahn and Strassman. In their paper, the authors said, “As nuclear chemists who are close to physicists, we are reluctant to take this step that contradicts all previous experiences of nuclear physics.” With this humble announcement began the age of nuclear energy for peace and for war. The equipment, the apparatus used, was so simple, even a humble laboratory in a poor Arab-Muslim country could have afforded it. To-day, in the context of nuclear energy, European, American, Russian, Japanese and Chinese laboratories are experimenting with the phenomenon of fusion—the taming of the energy release in a hydrogen-explosion. These are at present laboratory experiments; as yet not commercial technology. The European nations have together created a joint laboratory—JET—at Culham in the UK. The UN Agency, IAEA, is projecting a joint device for the world; to my knowledge no Arab-Islamic nation has yet asked to join this project. With Russian help, Libya has had the foresight to set up a small Tokamak device in Tripoli for experimentation in this field, but has not yet created the modalities through which teams of experimenters from Arab-Islamic or African countries could come and use this device. The Centre at Trieste regularly provides theoretical workshops for this, led by men from the prestigious laboratories of the world; at present this provides one of the few entries for Arab-Islamic physicists to this field.

My next example is in the area of biotechnology. As is well-known, the modern advances in genetics started with the unravelling of the genetic code by Watson and Crick. In the synthesis it has provided in giving the basis for all known life, this has been one of the most synthesising discoveries of the 20th century, possibly of all times.

This great discovery in biology was made at Cambridge in April 1953 by two contemporaries of mine, one American, the other British—working at the Cavendish Laboratory for basic physics. One of my American pupils for Ph. D. in theoretical physics, Walter Gilbert, with whom I worked on dispersion phenomena, was a neighbour of the genetic code’s American co-discoverer, J.D. Watson, in Cambridge. When Gilbert left me in 1956, after his Ph.D., both he and Watson went back to Harvard. The next time I saw my pupil, Gilbert, was in 1961 in the US. Assuming that he was still working on some problem on theoretical physics, I asked him what he was up to. He was somewhat sheepish; he said, “I am sorry,

you will be ashamed of me; I am spending my time growing bacteria.” Watson had seduced him for genetics. Gilbert soon discovered a most elegant technique for deciphering the genetic code. For this work, he received the Nobel Prize in Chemistry in 1980. In 1981 he left his chair at Harvard to found a company which exploits, among others, techniques of genetic manipulation to manufacture human insulin. This company is called Biogen and is registered in Switzerland. It went public recently. Apparently, Gilbert’s first investment in the company (of which he is President) was of US \$4000; this is currently worth more than 14 million dollars.

Notice the mutuality of science and technology. Notice that the greatest discovery in molecular biology is made in a laboratory for physics, by men trained in the use of X-rays with fairly modest equipment. Notice Gilbert’s transition from research in theoretical physics to fundamental genetics and then to practical genetic engineering. The point I am trying to make is twofold: first, science and technology go hand in hand in modern times; second there is a premium placed on excellence and brain power in our rival civilisations. We must ask ourselves: do we provide like opportunities for our best young men, nurturing their talents for our civilisation, or do we leave them to wither away, or if they are strongly committed to science, to migrate and enrich the countries of Europe and America with their talents and their contributions?

Perhaps my examples appear too distant for comfort, though the biotechnological example is not all that far-fetched. Perhaps the intervening centuries of neglect of sciences have lured into us a feeling that we can never catch up in the creation of sciences, and that we need not even try. I started in my first example with Faraday’s and Maxwell’s unification of two of the fundamental forces of nature—of electricity with magnetism—in the last century. I said, from this unification flowed the age of electric power and next, the age of wireless communications. When a hundred years after Maxwell, in the nineteen sixties, my colleagues at Harvard, Glasgow and Weinberg, and myself independently took the next step of postulating a unification of two further forces of nature—of electromagnetism with the weak nuclear force of radioactivity—even the London “Economist” took note and counselled perceptive businessmen not to ignore the likely economic consequences of this new unification.

Our theory had been indirectly confirmed through its consequences for diverse phenomena in nuclear and atomic physics by 1978. This year, in January, the great joint European experimental

laboratory at Geneva provided the direct confirmation of our theory. We had predicted the existence of three mediators of the weak nuclear force W^+ , W^- and Z^0 s. We had specified their expected masses as a consequence of the unification. The January experiment showed that W^+ and W^- indeed do exist, with precisely the predicted masses. This week the last particle, the Z^0 , has also been identified among the products of the collisions of protons and anti-protons in the 6 km accelerator at CERN. To obtain a beam of anti-protons the laboratory had to invent a new principle of "stochastic cooling" of anti-protons and to execute this idea with a technical brilliance of the highest order at a cost of around 50 million dollars. This same laboratory is now engaged in building a new accelerator of 27 kms circumference under the Jura mountains of Geneva for further experimentation with our theory. This will cost them half a billion dollars and will be completed by 1987. So far the only comment on these discoveries made by an Arab-Islamic journal was last month; this journal, published from London, accused me of following in my research on the unification of these fundamental forces, "the heretical Sufi doctrine of Wahdat-ul-Wujud"!

This journal has sagely counselled that we in Islam should not concern ourselves with advances in science. We should concentrate on imitative technology, assuming someone will sell it to us. This is what the Japanese are supposed to have done. We forget that the Japanese have already won four Nobel Prizes in science—three in physics and one in chemistry. Their base in fundamental sciences is as strong, or in some cases, stronger than in the West. We forget that it was this unspoken and unsung base on which they have built their innovative successes in technology. We forget that an accelerator like the one at CERN, develops sophisticated modern technology at its furthest limit. I am not advocating that we should build a CERN for Islamic countries. However, I cannot feel but envious that a relatively poor country like Greece has joined CERN, paying a subscription according to the standard GNP formula. I cannot rejoice that Turkey, or the Gulf countries, or Iran, or Pakistan seem to show no ambition to join this fount of science and get their men catapulted into the forefront of the latest technological expertise. Working with CERN accelerators brings at the least this reward to a nation, as Greece has had the perception to realise.

Let me close this part of my discussion about the mutual interrelation of science and technology with an example, nearer home, from the field of solar energy. This is a field where research is being carried out by the Universities in the Gulf as well as in the North African and Middle Asian universities of the Islamic countries.

The basic problems, for example, with the development of cheaper photovoltaic devices, are material sciences problems. Solar energy is collected, and converted by materials that are optically or photo-electrically suitable. An optical convertor must use as little material as possible; how little is determined by the penetration depth of the solar light, and the drift-length of the "excited state" on which the conversion is based. One can easily determine that the parameters entering these basic processes lead to thicknesses of material of the order of 1 micrometer. This then is the domain of thin films. Such films are cheap to make, but there is no way to make them with the perfection of a single crystal. Thin films are polycrystalline or amorphous. And they carry a large density of defects. Up to now it is these defects which have limited the thin film devices to low conversion efficiencies. Thus, before any technological amelioration can come, one must solve the problems of basic solid state physics, of classifying the major defect phenomena, their effect on electron dynamics and problems of catalysis of the growth mechanism that makes these defects harmless.

What I am saying is that efficient photovoltaics do not depend on the engineers' tinkering with solid state materials; the problem is one of solid state physics. And it is this problem of basic science which the Japanese solid state physicists have set themselves to solve systematically, before their counterparts in the USA or Europe. The Japanese will win this prize, not only because they are the more meticulous technologists, but also because they are the systematic physicists, with scientific facilities which, in many cases, are superior to what their rivals possess. The point I am making is that what the University of the Gulf will need, if it wishes in the long run to develop first rate research on photovoltaics, is a basic physics surface laboratory, in addition to technological support. The same sentiment was endorsed by the London "Economist" which, in its issue of 27 September 1980, has this to say on the cherished mastery of solar energy: "If solar energy is to provide the solution to the world's fuel crisis, that solution will not emerge from low-technology rooftop radiators—(which) rely on nineteenth century (science). A breakthrough (will) come from applying quantum physics, biochemistry or other sciences of the twentieth century. To-day's technology-based industries all depend on new science."

I hope I have convinced you that in the conditions of to-day there can be no high technology without first-rate science. I suspect some of us believe that technology is neutral, while science is value-loaded; modern science can lead to rationalism, or even apostasy —

that scientifically trained men among us will "deny the metaphysical presuppositions of our culture." To such thinking, all I can say is—Do not fight the battles of yesterday when in the 9th and the 10th centuries the so-called "rational natural philosophers", with their irrational and dogmatic faith in the cosmological concepts they had inherited from Aristotle, found difficulties in reconciling their concepts with their faith.

These battles were even more fiercely waged among the Christian schoolmen of the Middle Ages. This was inevitable as Maurice Bucaille has shown in his perceptive work "The Bible, the Koran and Science." The problems which concerned the schoolmen were mainly problems of cosmology and metaphysics: "Is the world located in an immobile place; does anything lie beyond it; is there more than one world; are the planets and stars carried around in physical spheres? Does God move the *primum mobile* directly and actively as an efficient cause, or only as a final or ultimate cause? Are all the heavens moved by one mover or several? Are the spheres moved by intelligences, or by some principle inherent in matter? Do celestial movers experience exhaustion or fatigue? Are all the spheres of the same nature? Are they concentric with the earth as common centre, or is it necessary to assume eccentric and epicyclic orbs? What was the nature of celestial matter? Was it like terrestrial matter in possessing an inherent substantial form and inherent qualities such as being hot, cold, moist and dry? The answers sought were either from an interpretation of the scriptures or from the authority of Aristotle". No wonder when Galileo tried, first, to classify those among the problems which belonged to the domain of Physics, and then to find answers just to this class through physics experimentation, he was persecuted. Restitution for this is being made now three hundred and fifty years later.

I attended a special ceremony the day before yesterday in the Vatican when His Holiness the Pope, in the presence of 33 Nobel Laureates and 300 other scientists, declared: "The Church's experience, during the Galileo affair and after it, has led to a more mature attitude . . . The Church itself learns by experience and reflection and she now understands better the meaning that must be given to freedom of research . . . one of the most noble attributes of man . . . It is through research that man attains to Truth . . . This is why the Church is convinced that there can be no real contradiction between science and faith . . . (However), it is only through humble and assiduous study that (the Church) learns to dissociate the essentials of the faith from the scientific systems of a given age, specially when a culturally influenced reading of the Bible seemed to be linked to an obligatory cosmogony."

In his remarks, the Pope stressed the maturity which the Church had reached in dealing with science; he could also have emphasised the converse phenomenon, the recognition by the scientists from Galileo's times onwards, of the limitations of their disciplines—the recognition that there are questions which are beyond the ken of science. We may speculate about them, but there may be no way to verify empirically our speculations. And this empirical verification is the essence of science. We are humbler today than, for example, Ibn Rushd was. Ibn Rushd was a physician of great originality with major contributions in the study of fevers and of the retina; this is his claim to immortality in Sciences. However in a different discipline—cosmology—he accepted the speculations of Aristotle, without recognizing that these were speculations which future experiments may falsify. The scientist of today knows when and where he is speculating; he would claim no finality for the associated modes of thought. And even about accepted facts, we recognize that newer facts may be discovered which, without falsifying the earlier discoveries, may lead to generalisations; in turn, necessitating revolutionary changes in our concepts and our “world-view.” In Physics, this happened in the beginning of this century with the discovery of relativity and quantum theory. It could happen again; when our present constructs could appear as limiting cases of newer concepts, still more comprehensive, still more embracing.

But even to know the limitations of our sciences, one must be part of living science; otherwise one will continue fighting yesterday's philosophical battles today. Our men, through their demonstrated ability, must belong to that aristocracy of creators of science, where one is respected and all doors are opened if one deserves to belong to it. Like all aspects of human activity, what the Arab—Islamic Commonwealth needs are men—an elite class of them—who have shared in the pride of having created some parts of science. Our youth are craving to meet this challenge; it is this challenge which makes them migrate to Western universities and institutions. Trust them; they do possess the highest potential. If the new University of the Gulf will provide them with opportunities to create science—and this, by definition, is the function of a University—they will never leave. And after providing them with these facilities, do not hustle them. It takes a decade or more of stability to build traditions of living science.

Steps Needed to Excel in Sciences

So then, how can we turn the pages of history back, and excel in science and technology once again? How can the new Gulf

University ensure this excellence and attract these men back again?

In keeping with the obligations laid on us by the Holy Quran and the Holy Prophet, our society as a whole, and our youth in particular, must develop a passionate commitment toward bringing about a renaissance of the sciences. We must impart hard scientific training to more than half of our manpower; we must pursue basic and applied sciences, with 1–2 per cent of our GNP spent on research and development, with at least a quarter to one third of this on pure sciences.

This was done in the USSR. This was done in Japan, after the 19th century Meiji revolution. And this is what is being undertaken today—in a planned manner, at a frantic speed—by the People's Republic of China, with defined targets in space sciences, genetics, microelectronics, high energy physics, agriculture, and in the control of thermonuclear energy. There is a clear recognition in these societies that basic science is relevant science, that the frontier of today is tomorrow's application and that one must remain at the frontier. They have realised that there is only one path to gaining ascendancy in science and technology—master science as a whole.

These societies are not seduced by slogans of “Japanese” or “Chinese” or “Indian” science. They do not feel that the acquiring of science and technology will destroy their cultural traditions: they do not insult their own traditions by believing that these are so fragile. In this context, one may recall that the GNP of the Islamic-Arabic nations exceeds that of China, while their human resources are not significantly smaller. And China has a lead of no more than a decade or so in the sciences over the lands of Islam.

Earlier, I spoke of patronage for the sciences. One vital aspect of this is the sense of security and continuity that a scientist—scholar must be accorded for his work. Like all humans, a scientist or technologist can only give of his best if he knows he will have security, respect and equality of opportunity for his work, and is shielded from all forms of discrimination, sectarian and political.

I have referred throughout to a commonwealth of science for the Islamic and the Arab countries, even if there may be no political commonwealth of these countries yet in sight. Such a commonwealth of science was a reality in the great days of Islamic science, when central Asians like Ibn Sina and Al Biruni would naturally write in Arabic. In those days, their contemporary (and my brother in physics), Ibn al Haitham, could migrate from his native Basra in the dominions of the Abbasi caliph to the court of his rival, the Fatimi caliph, and be sure of receiving respect and homage— despite the

political and sectarian differences that were no less acute then than they are today.

This commonwealth of science needs conscious articulation, and recognition once again, spiritually and physically, by both, us the scientists and by our governments.

To-day we, the scientists from the Islamic countries, constitute a very small community—one hundredth to one tenth in size, in scientific resources, and in scientific creativity, compared to the international norms. We need to band together, to pool our resources, to feel and work as a community. We need the articulation of a compact conferring of immunity for, say, the next 25 years, during which those within this commonwealth of sciences, this Ummat-ul-Ilm, would not be discriminated against on sectarian or national grounds.

To summarise, the renaissance of the sciences within an Islamic and Arab commonwealth is contingent upon five cardinal preconditions: passionate commitment, generous patronage, provision of security, absence of discrimination, and self-governance and internationalisation of our scientific enterprises.

What steps can the New Gulf University take to nucleate and sustain such an Ummat-ul-Ilm?

Assuming that this will be a post-graduate University, it will strive, first and foremost, to create centres of research of international standards in basic sciences. These could emphasise mathematics, experimental solid state physics of micro-electronics and communications systems, and biotechnology, besides the regional disciplines of marine and desert sciences. The University will actively strive to link to it, through these centres, the best brains internationally, and in particular those from the Arab-Islamic Commonwealth. To facilitate these latter linkages, there will be Federation Agreements with institutes and groups of researchers in the six regions of the Arab-Islamic Commonwealth. The funds for the stay and the travel of teams of such researchers will be provided by the Gulf University. This is the pattern we follow in Trieste (Table 1) where we have Federation links with 83 institutes in developing countries—47 of these in the Arab-Islamic world—where we assign to researchers at each institute 40–120 days of visits at our expense. We have, in addition, for eminent individual researchers, a scheme of personal Associateships based on merit; at any one time we have 200 Associates, each appointed for a six year term. During these six years an Associate may come to the Centre thrice at times of his choosing, with a minimum stay of six and a maximum stay of twelve

weeks. We pay the Associate's fare and his expenses in Trieste, but no salary. There are no formalities. The Associate simply writes to say he is arriving. Such a scheme would be particularly valuable for men from the Arab-Islamic Commonwealth now working in the seventh region I mentioned – Europe and USA. These are the men whose presence at the campus of the Bahrain University will enrich it intellectually; they will bring it the newer ideas, newer techniques, newer trusts, with a minimum of delay. If the Gulf University can become a second home for these men, with a minimum of formality, it will have achieved a great deal.

I have mentioned an international laboratory in material sciences for Bahrain, with specialisation in microelectronics and modern electronic communications, including space satellite communication, to help also with the banking communications needed at Bahrain. Such a laboratory was in fact proposed for the University of Jeddah. The idea was to emphasise science transfer in addition to technology transfer and to create international laboratories, in the fields of material sciences, including surface physics and a laboratory with a synchrotron radiation light source. The facilities created would have been of the highest possible international order; the laboratories would have been open to teams of international researchers, who would congregate and work at Jeddah, just as they congregate now at the great laboratories in Hamburg, Geneva or Paris.

The project apparently has not matured, mainly, I believe, because it had sponsorship of a single rather than a consortium of Universities. I would hope that the project can be revived for the new Super Gulf University, thereby making it accessible to researchers internationally, and particularly of all the Gulf, as well as all the other universities in the Arab and Islamic countries.

I have also mentioned a super laboratory at Bahrain for biotechnology. In this context let me mention that the UNIDO organisation at Vienna is sponsoring an International Centre for this subject, like the Centre at Trieste. A competition is being organised for its location; six locations have offered facilities—these are Pakistan, India, Cuba, Thailand, Belgium and Italy. No Arab country has offered a location. If Lahore, in Pakistan, wins the competition, the UNIDO International Centre at Lahore would naturally have close links with the Gulf University facility at Bahrain.

Finally, I have emphasised an international centre for mathematics, with ramifications in computing sciences. As we all know the modern tradition in mathematics originated at the institutes

in the Gulf Region, particularly in Baghdad in the 8th, 9th, 10th and 11th centuries, with the creation of algebra, trigonometry and analytical geometry. I do not see why we cannot create the same conditions of excellence to-day in mathematics and make Bahrain a world crossroads for this subject. As you probably know, one of the leading mathematicians in the world—currently a Professor at Oxford—who was awarded the most prestigious honour any one can aspire to in mathematics (the Fields Medal) is of Arab descent. I do not see why such men should not hold joint appointments between their European places of work and Bahrain and build up a modern school of Mathematics here.

Conclusions

Let me conclude. Why am I so passionately advocating our engaging in this enterprise of creating knowledge? This is not just because Allah has endowed us with the urge to know, this is not just because in the conditions of to-day knowledge is power and science in application the major instrument of material progress; it is also because as part of the international world community, one feels that lash of contempt for us—unspoken, but still there—of those who create knowledge.

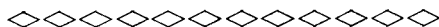
I can still recall a Nobel Prize Winner in Physics some years ago, from a European country, say this to me: “Salam, do you really think we have an obligation to succour, aid and keep alive those nations, who have never created or added one iota to man’s stock of knowledge?” And even if he had not said this, my self-respect suffers a terrible hurt whenever I enter a hospital and find that almost every potent life-saving medicament of to-day, from penicillin to interferon, has been created without our share of inputs from any of us in the Third World, or from the Arab-Islamic lands. The 20th century has been a century of great synthesis in science—the synthesis represented by quantum theory, relativity and unification theories in physics, by the Big Bang idea in cosmology, by the genetic code in biology, by ideas of plate tectonics in geology. Likewise in technology, with the conquest of space and the harnessing of atomic power. Just as in the 16th century when the European man discovered new continents and occupied them, the frontiers of science are being conquered one after another. Do you not feel as passionately as I do that our men in Arab-Islamic lands should also be in the vanguard of making these conquests?

I wish to conclude with two appeals—one to those responsible for creating the new University, and particularly, to the scientists

among them: and the second to our rulers. First the science administrators. There are few scientists in our area, on whom you can build. This, however, would not be so if we could band together in an Ummat-ul-Ilm and create a genuine community for all Arab-Islamic lands. Believe me our situation is not that desperate, particularly if conditions are created to associate those from our lands working in the Seventh Region of Europe and USA, with our enterprise. I can only say, for all our present weaknesses, let us not be the less ambitious. Let our plans for our institution building be audacious. With ambition, and with involvement, will come competence, for this is Allah's promise to all those who strive.

And finally, I wish to appeal to those responsible for our affairs and for funding this University and other projects I have spoken about. Science is important because of the underlying understanding it provides of the world around us and of Allah's design; it is important because of the material benefits its discoveries can give us and finally because of its universality. It is a vehicle of co-operation of all mankind and in particular for the Arab and Islamic nations. We owe a debt to international science, which in all self-respect, we must discharge. However, the scientific enterprise cannot flourish without your generous patronage as in the past centuries of Islam. I am now living and working in a small City of one quarter of one million inhabitants. In this City is a Bank—Cassa di Risparmio—which donated 1.5 million dollars for the building in which the International Centre which I created is housed. This City has now pledged from its regional resources, 40 million dollars for the proposed UNIDO Centre for Biotechnology. I feel amazed at their perceptiveness, their love of science and eventually of technology. Shall our cities and banks not rival this example? The international norms of one to two per cent of GNP I have been speaking about would mean expenditures of no more than two to four billion dollars annually for the Arab and the same amount for the rest of the Islamic world on research and development, one quarter to one third of this spent on pure sciences. In 1973, the Pakistan Government, on my suggestion, requested the Islamic Summit in Lahore to create at least one Foundation for Science for all lands of Islam equal in size to the Ford Foundation, with a capital of one billion dollars. Eight years later, in 1981, such a Foundation was at last created but with just 50 millions promised and six million dollars paid up so far. I am sure a banking community like that at Manama alone could rival Ford's benefaction if we really are serious about Science. And this region has rich traditions in this respect. Imam Ghazzali, you may recall, paid a rich tribute in the 11th century, to the land of

Iraq, when he said: "There is no country in which it is easier for a scholar to make a provision for his children." This was at the time when he was planning to become a recluse and to cut himself off from the world. We need not one such but a number of Science Foundations as in the West, run by the scientists themselves; we need international higher centres of learning within and without our universities, providing generous and tolerant continuity, for our men and their ideas. Let no future Gibb record that in the fifteenth century of the Hijra, the scientists were there but there was a dearth of merchants and princes with their generous patronage to provide for the facilities needed for their work.



God has promised me that till the Day of Judgement He will continue to manifest my blessings so much so that kings will seek blessings from my garments.

Twenty years ago, I was informed by God that I would be denied and that people would not accept me but that God would accept me and would manifest my truth through powerful assaults.

God has promised me that for the purpose of repeating the light of my blessings, a person will be raised from among my progeny into whom God will breathe the blessings of the Holy Spirit. He will be characterized by inner purity and will have a close holy relationship with God. He will be a manifestation of the true and the High as if God had descended from Heaven.

The time is coming and is near when God will spread far and wide the acceptance of this Movement. It will spread in the East and West and the North and the South and Islam will be synonymous with this Movement. This is not said by any man. This is revelation from God for Whom nothing is impossible.

(Tohfa Golarviah, p. 90)

The Promised Messiah

FROM OUR ARCHIVES

We are introducing a new feature in the Review of Religions under the above Caption. This is not an innovation nor a practice which could alienate us from many of the classic present-day values. We believe in ethical evolution and are fully convinced that the future holds the key for the emancipation of the human race. But our past also treasures some beloved memories for which we were proud then, are proud now and would even be prouder a century hence. More important! we would be digging deep into the old files of our Magazine to reproduce articles such as possess a pertinent relevance in the present times.

The present article is about Gotama Buddha, a great Indian Prophet. He probably represented the first outpost of the spiritual glory and prophetic righteousness in the dim past of the Indian sub-continent. Very little is known about him, his friends and companions and the era that he graced with his presence. There is not the slightest doubt that Buddha was one of the great Chosen Ones of God, who had preached the Unity of God to the goddesses-ridden and primitive Indian multitudes. All true religions inculcate belief in the Oneness of God and submission to His Will. Buddha's teachings were no exception to this rule. Despite the oft repeated assertion of some theologians that he was an atheist, the one central and indisputable fact which emerges from a perusal of the Gotamic Scriptures, is that Buddha was never a slave of his environments. He led a very austere and lonely life untill he saw the 'Light' in the Jungles of Bihar. He did not say much about the life beyond the grave. His was an injunction of silence against oppression and injustice. The 'Nirvana' or the doctrine of self-annihilation was perhaps a fore-runner for the Christian belief in the turning round of the 'other cheek also.' May be this provides a clue to the striking similarity in gotamic and christian themes.

It is not the intention here to discuss in detail the Buddhist theory of 'Nirvana.' The essence of this teaching is perhaps but one step from the sublime to the absurd.

(A. R. Mughal)

GOTAMA THE BUDDHA A GREAT INDIAN PROPHET

(Ch. Ali Muhammad B.A., B.T.)

Gotama the Buddha is universally acknowledged as the founder of a great religion called Buddhism which holds sway over the continent of Asia from the Pamir Plateau to the far-off Japanese islands. Buddhism as a religion has influenced the lives of millions and millions of people of the continent ever since its inception 2,500 years ago. The founder of this great religion, who was born of good and noble royal family of Kapila Vastu, North Bihar, India, being deified by his followers, is now placed upon a high pedestal among the gods and goddesses of Buddhist mythology. The story woven about the life of Buddha from the cradle to the grave is all a myth and it is rather difficult to sift the truth from falsehood which surrounds the personality of this great man of India. The religion of Buddhism as it exists to-day is a labyrinth of perplexities and intricacies. The teachings of present-day Buddhism centre round the doctrine of Nirvana or self-annihilation and deliverance from pain. Belief in God and the worship of Him find no place in modern Buddhism and this belief is characteristic of all the works on Buddhism by Buddhist as well as non-Buddhist writers.

The aim of the present article is to show that Gotama Buddha, the great founder of Buddhism was not only a believer in the existence of God, but he was the first and foremost of all the believers of his time, in other words he was a prophet of God and as such, he did teach about the existence of God, about His worship and about the nature of the relations between man and God, his Creator.

Now, judging from the prevalence of Buddhist ideology as it exists to-day, the hypothesis, that Gotama was a Prophet of God, seems to be a paradox because soon after the death of the Founder, his followers fell out among themselves and the true spirit of their Master's teachings was lost on them. Does not Gotama himself say that after his death five precious gems would be lost — one of them being his teachings. Says he,

“A time will come when this Buddhist Raja will declare whoever remembers even four lines about Buddha may come forth and get Rs. 1,000 in reward’. But none will get it even after the repeated beat of drum in the city.”

Buddhism and Christianity

There is a striking resemblance between Buddhism and Christianity so far their teachings are concerned. Christianity, as it came in contact with Greek philosophy in Rome, lost its original pristine purity and Christian ministers of religion moulded its teachings in order to suit their pagan master's belief; similarly Buddhism in India was greatly influenced by Greek and Brahmanic philosophy. It was due to the contact of Greek and Hindu philosophy that Buddhism became a polytheistic religion of the East and Gotama came to be worshipped throughout the length and breadth of India and in the Greek principalities of Central Asia.

In order to arrive at the original and real teachings of Gotama, one turns in vain over the pages of modern books on Buddhism. The popular language in which Gotama taught and preached to the people was the Prakrit, Pali. The Pali script was there but it was not frequently made use of. No books, therefore, were written in Gotama's time, all he said was committed to memory by his disciples. For three hundred years all his teachings remained confined to the memory of the Buddhist preachers till Emperor Asoka who embraced Buddhism, caused them to be engraved on stone pillars or caves in the Pali script. These engravings were the earliest books in stone that preserved to a certain extent, the teachings of Gotama and it was only in the sixth century after him that the Buddha's teachings were produced in black and white. During the long span of six centuries much of the pristine purity of his teachings was lost, there being various interpolations, additions and subtractions; thus the beautiful face of his teachings was distorted and disfigured.

It was during the closing years of the nineteenth century that the brother Prophet, Ahmad of Qadian, made the wonderful discovery that Gotama, the Great Founder of Buddhism, was indeed a Prophet of God. He announced that the belief, that Gotama did not believe in God and that he never mentioned God in his teachings is a scandal, a blasphemy. It is an allegation pure and simple and is basically untrue. The basis of his claim he said, rests on the following verses of the Holy Quran:

"And there is not a people to whom a warner has not been sent." (35 : 25)

"And there has been a guide for every people." (13 : 8)

"And We did raise among every people a messenger preaching worship Allah and shun the Evil One." (16 : 37)

On the strength of the above mentioned verses of the Holy Quran Prophet Ahmad argued that the Indian nation as such cannot be an exception to the rule. It must have been blessed with the appearance of one or more prophets. It is no wonder, therefore, that Gotama, Rama and Krishna were the prophets of God raised to redeem the Indian people.

He further argued that the love, devotion and esteem in which followers of Gotama hold him even to this day, is in itself, a strong argument to show that Gotama was the Messenger of God for it is sheer impossibility that a false prophet with all his tall pretensions to prophethood should succeed in commanding the love and respect of his followers for generations together. If this be so, what criterion there is between a true and a false prophet. Hazrat Ahmad says:—

“We do not doubt the claims to prophethood of prophets that were raised among nations. We hold the belief that the various prophets that have appeared among the different nations of the world were the true prophets of God for the very reason that millions of people have bowed down to them and held them in high esteem and respect for centuries together.”

This is the reason why we Ahmadi Muslims, believe Gotama, Rama and Krishna to be the prophets of God, and as such Buddha cannot be supposed to be an atheist; on the contrary he was an humble servant of God who was sent to teach the unity of God and draw the Indian people to His worship.

In order to prove the truth of our assertion we must, of necessity, resort to and scan Buddhist ‘Tripitakas’. Thanks to the efforts of some of the European writers who have carried out valuable research in the Buddhist lore and disclosed hidden secrets to public gaze. English translations of some important books, are now within our easy reach. Of the Buddhist books, known as ‘Tripitakas’ or three baskets, the second one i.e. the Digha Nikaya and the Majjhim Nikaya contain a series of dialogues between Gotama, the Buddha and a young Brahman, Vasethha by the well known English scholar I.W. Rhys Davids and are known as “Dialogues of the Buddha” which form part of the second volume of prof. Max Muller’s “Sacred Books of the Buddhists”. As the story goes Vesethha and his companion Bharadvaga were discussing as to whose spiritual guru had the ability to lead to God. When they could not arrive at a definite conclusion they decided to refer the matter to Gotama the Buddha who happened to be residing in the vicinity. Then the young Brahman Vasethha and the young Brahman Bharadvaga went to the place where the Exalted One was, where they exchanged with him the

usual greetings and compliments of politeness and courtesy , and sat down beside him.

And while they were thus seated the young Brahman Vasethha said to the Exalted One:

‘As we, Gotama, were taking exercise and walking up and down, there sprung up a conversation between us on which is the true path and which the false.’

I said thus:

“This is the straight path, this is the direct way which makes for salvation, and leads him who acts according to it, into a state of union with Brahma (God). I mean that which has been announced by the Brahman Pokkharasedi.’

Bharadvaga said thus:

“This is the straight path, this is the direct way which makes for salvation, and leads him, who acts according to it into a state of union with Brahma (God). I mean that which has been announced by the Brahman Tarukkha.”

‘Regarding this matter, Gotama, there is a strife, a dispute, a difference of opinion between us.’

‘Just, Gotama, as near a village or a town there are many and various paths, yet they all meet together in the village — just in that way are all the various paths taught by various Brahmans. Are all these saving paths? Are they all paths which will lead him, who acts according to them, into a state of union with Brahma’?

‘Do you say that they all lead a right Vasethha?’ ‘I say, so, Gotama.’

‘But yet, Vasethha, is there a single one of the Brahmans versed in the Three Vedas who has ever seen Brahma face to face’?

No, indeed, Gotama.

‘Or is there then Vesethha, single one of the pupils of the teachers of the Brahmans versed in the Three Vedas who has seen Brahma (God) face to face’?

‘No, indeed, Gotama’!

Or is there then, Vesethha, a single one of the Brahmans up to the seventh generation who has seen Brahma face to face’?

‘No, indeed, Gotama’!

‘Well, then, Vasethha, those ancient Rishis or the Brahmans versed in the Three Vedas, the authors of the verses, the utterers

of the verses, whose ancient form of words so chanted, uttered, or composed, the Brahmins of to-day chant over again or repeat; intoning or reciting exactly as has been intoned or recited to wit, Atthaka, Vamaka, Vamadeva, Vessamitta, Yamataggi, Angirasa, Bharadvaga, Vasethha, Kassapa, and Bhagu did even they speak thus, saying:-

“We know it, we have seen it, where Brahma is, whence Brahma is, whither Brahma is”?

‘Not so Gotama’!

‘Then you say, Vasethha, that none of the Brahmins, or of their teachers, or of their pupils, even up to the seventh generation, has ever seen Brahma face to face. And that even the Rishis of old, the authors and utterers of the verse, of the ancient form of words which the Brahmins of to-day so carefully intone and recite precisely as they have been handed down . . even they did not pretend to know or to have seen where or whence or whither Brahma is. So that the Brahmins versed in the Three Vedas have, forsooth, said thus:-

“What we know not, what we have not seen, to a state of union with that we can show the way, and can say: This is the straight path, this is the direct way which makes for salvation and leads him, who acts according to it, into a state of union with Brahma!”

When he had thus spoken, the young Brahmin Vasethha said to the Blessed One:

‘It has been told me, Gotama, that the Samana Gotama knows the way to the state of union with Brahma.’

‘What do you think, Vasethha, is not Manasakata near to this spot, not distant from this spot?’

‘Just so Gotama. Manasakata is near to, is not far from here’.

‘Now what think you, Vasethha, suppose there were a man born in Manasakata, and people should ask him, who never till that time had left Manasakata, which was the way to Manasakata. Would that man, born and brought up in Manasakata, be in any doubt or difficulty?’

‘Certainly not, Gotama; and why? If the man had been born and brought up on Manasakata, every road that leads to Manasakata would be perfectly familiar to him’.

‘That man, Vasethha, born and brought up at Manasakata might, if he were asked the way to Manasakata, fall into doubt and difficulty, but to the Tathagata, when asked touching the path which

leads to the world of Brahma, (Kingdom of God) there can be neither doubt nor difficulty. For Brahma, I know, Vasethha, and the world of Brahma, and the path which leadeth unto it. Yea, I know it even as one who has entered the Brahma-world and has been born within it'!

Just so has it been told me Gotama, even that the Samna Gotama knows the way to a state of union with Brahma (God). It is well; Let the venerable Gotama be pleased to show the way to a state of union with Brahma, let the venerable Gotama save the Brahman race'.

The above dialogue clearly gives us to understand that Gotama was a firm believer in the existence of God, that he was thoroughly acquainted with the ways of God, because he was born and bred, as it were, in the world of Barhma (kingdom of God). His training and education were conducted on lines peculiar to the chosen ones of God who have to redeem the world on coming of age. It is a pity that a great reformer who preached the absolute unity of God should be declared a God himself and worshipped like the One true God.

That he was a true Messenger of God sent for the redemption of the world like Abraham, Moses and Jesus, the following quotation may be cited here with advantage:

'Know, Vasethha, that (from time to time) a Tathagata (Messenger) is born into the world, an Arahata, a fully awakened one, abounding in wisdom and goodness, happy, with knowledge of the worlds, unsurpassed as a guide to mortals, willing to be led, a teacher of gods and men. A Blessed One a Buddha, he, by himself, thoroughly understands, and sees, as it were face to face this universe — including the worlds above with gods, the Maras, and the Brahmas; and the world below with its Samanas and Brahmans, its princes and peoples; and he then makes his knowledge known to others. The truth doth he proclaim both in the letter and in the spirit, lovely in its origin, lovely in its progress, lovely in its consummation: the higher life doth he make known, in all its purity and in all its perfectness'.¹

The last quotation throws a flood of light on the assumption that Gotama was a Messenger of God, a Tathagata, an Arahata. He proclaimed the Truth 'lovely in its origin and lovely in its consummation' to the people of this world. He made known the higher (heavenly) life to the people because he himself had known the kingdom of heaven whence he had come.

(Review of Religions Nov. 1962)

AL-BIRUNI A GREAT MUSLIM SCIENTIST

According to Professor Edward Sachau, the greatest authority on the works of Al-Biruni, Sheikh Abu Rihan Mohammad Al-Biruni was the greatest intellectual who ever lived on the face of the earth. The well-known historian of science Mr. George Sarton remarks: "He was one of the greatest scientists of Islam and, all considered, one of the greatest of all times". He occupies a very prominent place in the history of Arab culture and in the real sense of the word is the first Muslim to write a systematic account of India of his times. As is well-known Al-Biruni was in the employment of Sultan Mahmud of Ghazna and visited India in his entourage during the Sultan's raids on that country.

Al-Biruni was born in the suburbs of Khwarizm, the modern Khiva, now the capital of the Uzbekistan Republic of the U.S.S.R., in 973 A.D. Because he was not born in the city itself he became to be known by his surname "Al-Biruni" i.e., an outsider, and this sobriquet persisted, while people almost forgot his real name Abu-Rihan. The land around Khiva in those days was not a semi-desert as modern maps depict the Uzbekistan Republic, but was widely irrigated by numerous canals. The rich alluvial soil produced luxurious crops of cotton, rice, maize and other useful grains. Commerce and trade flourished and communication with the border districts was easy and frequent.

Al-Biruni lived at a time when the Baghdad Caliphate was in its last throes, an epoch comparable to the last days of the Moghuls in India. The authority of the Caliph, like that of the last Mughul Emperor, was limited to the palace. The great universities, which played an important part in the history and literature of the Arabs a hundred years later, had not come into existence. The courts of the ruling chiefs were the only centres of learning, as all the accomplished scholars of the day gravitated to them in the hope of receiving patronage and freedom from want, to carry on their literary activities. Consequently the fall of a dynasty or even its temporary eclipse meant a dissipation of the Court and the dispersal of the scholars who were left to shift for themselves. When Al-Biruni was born the Samanid dynasty had come into power in his home province of Trans-Oxania. During their halcyon days Bokhara and Samarkand became great centres of civilisation and culture. The poet Hafiz Shirazi sings of the prosperity and affluence of these two towns even four hundred years later.

SOJOURN AT JURJAN

Political changes in his native country soon compelled Al-Biruni to leave Khiva and at the age of 22 he migrated to Jurjan. But by this time he had learnt much of astronomy, mathematics, mathematical

geography, chronology, physics and chemistry. The quotations in his works from Greek writers and philosophers like Homer and Plato prove that he had studied their works in the original Greek, and Sir Henry Elliot in his "History of India" tells of his having executed several translations from the Greek. It was here at Jurjan that he wrote his book "Asar-ul-Baqia" or the Chronology of nations which he dedicated to the ruler of Jurjan "Kabus" in 1000 A.D. from a quotation in this book it appears that straitened circumstances compelled Al-Biruni to seek his fortune in Jurjan. The contradictory writings on the measurement of the earth had exercised his mind for a long time. During his stay in India, at a place Nandna by name, some 200 miles to the North-West of Lahore, he at last succeeded in measuring the circumference of the earth by determining the dip of the horizon from a high mountain. The results he obtained were spectacular and are the most correct up to modern times.

ASAR-UL-BAQIA

Before he left Jurjan it appears that Al-Biruni had composed a small catechism of geometry, arithmetic, astronomy and astrology called "Al-Tafhim al-Awail al-Sanaat al-Tanjim". In this book there is no mention of his abortive attempt to measure the arc of the earth which he did at Jurjan. Tafhim also showed that he was not yet familiar with the great works of his contemporaries. Nor had he at that time any knowledge of the Indian metric system which he so remarkably treats in his other great work al-Qanun al-Masudi.

Asar-ul-Baqia is a learned work on the chronology of different nations. Written in 1000 A.D. it deals chiefly with the calendars and eras of the world as known to the author.

KITAB-UL-HIND

One of his other works called Kitab-ul-Hind contains an account of the language, religion, philosophy, customs and manners, literature, chronology, astrology, astronomy and peculiar superstitions of the Hindus. It also treats the geographical and physical conditions of the country.

... Among his scientific contributions are an explanation of the working of natural springs by the hydrostatic principle and the description of several monstrosities including what we call the Siamese Twins. He also composed a Materia Medica entitled Kitab-ul-Saydana or the Book of Drugs. In physics his greatest achievement is the almost accurate determination of the specific gravity of 18 precious metals and stones. A voluminous unedited book on precious stones by him is still extant in manuscript form in the Escorial Library at Beirut. "It contains a description of a great number of stones and metals from the natural, commercial and medical points of view." His unedited works can help in explaining many passages relating to Indian and Chinese medicinal stones and herbs so frequently mentioned in early Arabic works on medicine.

AL-QANUN AL-MASUDI

The greatest work of Al-Biruni is, however, his Qanun al-Masudi dedicated to the son of Sultan Mahmud who succeeded him to the throne of Ghazna in 1031 A.D. This is a book mainly on astronomy and has always been recognised as the standard book of reference in the East. It is meant for advanced scholars of trigonometry and mathematics as is evident from the complete absence of glossaries and commentaries. Dr. Zia-ud-Din Ahmad thinks that Nasir-ud-Din Tusi could not have written his own monumental work on Trigonometry had he not had the advantage of first reading Al-Biruni's Qanun. Unfortunately no complete translation of this book has yet been possible. The late Dr. Zia-ud-Din, himself an Oxford Wrangler, made two unsuccessful attempts to render this highly technical work into English. This book still awaits a great Arabic philologist and equally great mathematician, well acquainted with ancient astronomy, to edit and publish it. A Turkish scholar has published an annotated Arabic text but no translation in any western language except German has been done. Relevant portions from Patanjali on mathematics and astronomy, which Al-Biruni had earlier translated into Arabic have been incorporated in the Qanun Masudi. The language used by him in this mature work is very *terse* and highly technical inasmuch as sometimes he is extremely difficult to follow. His great command of Arabic and his digestion of Indian mathematical works, which are mostly in prose-verse, led him to use extremely condensed language. In this book he differed from Ptolemy, the great Alexandrian mathematician who flourished in the second century of the Christian era, in the determination of the circumference of the circle. He, however, displays great respect for the Alexandrian astronomer and sometimes expounds his method by adding his own criticism. His observations on the inclination of the moon's orbit make fascinating reading.

In this book he says that the numerals came from the most beautiful form of the Indian figures. He does not, however, give the exact form nor mention the part of the country where they were in use. Most probably it was Multan which town apart from being the seat of Government and the centre of culture was also Al-Biruni's headquarters. He has also noted peculiarities connected with the game of chess and deals with several questions of mathematical geography. He gives an account of the trisection of the angle which cannot be done with ruler and compass alone. These problems were so characteristic that they came to be known after his name as Al-Birunic problems.

A TIRELESS WORKER

Al-Biruni was an indefatigable worker. He never had a pen out of his hand nor his eyes off a book. He was very modest in living and only collected the bare necessities of life on the two off-days sufficient to last him for the whole of the year. He is credited with writing a total of 114 books of which only 27 are now existent mostly in manuscript form.

BOOK REVIEW

ISLAM AND CHRISTIANITY

Author: W. Montgomery Watt

Publishers: Routledge and Kegan Paul (London)

A Dialogue Between Muslims and Christians

'The good Christian is not the one who can refute other religions, but one who can affirm the truth in them and go further.' This is the guiding principle adopted in the writing of this book by the author who once stated, "I am not a Muslim in the usual sense, though I hope I am a 'Muslim' as 'one surrendered to God'".

The author has tended to emphasize the similarities between the two religions—Islam and Christianity, with a high degree of objectivity and open-mindedness. With religious plurism in the present age, improved communication, expansion of trade, coupled with a world wide increase in population, Muslim and Christian contacts have become frequent. Millions of Muslims are now residing in Western Europe alone. In this situation the author suggests, a dialogue between Muslims and Christians becomes important. This may occur in the form of seminars or in every day conversations with neighbours. The 'defences' constructed by the religious bigotry of presenting other religions as inferior to one's own must be demolished.

The foreword by His Excellency Sheikh Ahmed Zaki Yamani, Oil Minister of Saudi Arabia gives credence to the sincerity and open-mindedness with which the author has attempted to compare the teachings of both religions. Sheikh Yamani has very rightly pointed out that there are areas of fundamental principles where no amount of logical discourse can bring the two sides nearer to each other and where therefore the existence of an impasse must be recognised. However as the Sheikh explains, in the expanse of human conduct and behaviour Muslims and Christians can find that they are at one.

Out of the eight Chapters of the book, Chapter three, on "The names and attributes of God" and Chapter four, "Scriptures as the word of God" are the most interesting to read.

Muslims believe in the absolute unity of God and the Quran regards 'shirk' as an unpardonable sin. The doctrine of the Trinity may be quite different and distinct from tritheism as explained by the author yet the godhead of Jesus Christ in one or the other form

is deeply rooted in the Christian religion. The Holy Quran refutes it in the following terms:

“And when Allah will say, ‘O Jesus, son of Mary, didst thou say to men, ‘Take me and my mother for two gods besides Allah’, he will answer, ‘Holy art Thou, I could never say that to which I had no right. If I had said it, Thou wouldst have surely known it. Thou knowest what is in my mind and I know not what is in Thy mind. It is only Thou Who art the Knower of hidden things.’” (5:117)

In Chapter four, on “Scriptures as the Word of God” the author has discussed the nature of revelation and the manner in which God communicates to human beings, as well as the influence that both, the language and the people play to whom certain teachings are sent. He expresses the opinion of certain Western scholars who allege that apparent inaccuracies are to be found in the Holy Quran. However, he argues that these inconsistencies should be regarded as being expressed in terms of mistaken views present among the people of Mecca and Madina of that period. Examples he quotes are Mary, mother of Jesus being addressed as “sister of Aaron” and denial of crucifixion of Jesus Christ. The point that the writer omits is that the message of the Quran was not intended for a few bedouins living in Mecca and Madina. It was addressed to all people for all times.

The fact is that Imran and Aaron were respectively the father and brother of Moses. Curiously enough, Moses had a sister called Mariam. In their ignorance of Arabic idiom and Quranic style, the critics think that the Holy Quran had confused Mary, mother of Jesus, with Mary (Mariam) sister of Moses. The Israelites used to name their children after their deceased Prophets and Saints. It should be noted that Mary had been called sister of Aaron and not sister of Moses, the reason being that priesthood was an exclusive prerogative of descendants of Aaron. In the Semitic languages the word “father”, “Mother” and “brother” are used broadly and do not necessarily imply the blood relationship.

As for the denial of crucifixion as alleged by the Western scholars, the Quran refutes both, the Christians and the Jews by saying that Jesus was although put on the Cross but did not die there. ‘He was made to appear like the one crucified’, says the Quran.

The learned Professor has discussed the story of Adam and Eve, the virgin birth, the resurrection and miracles of Jesus. In this regard he has come with a solution of understanding the nature of these happenings. He says that the stories are to be accepted with sophis-

ticated naivety or transcendental metahistorical or divine factors. The miracles like feeding thousands of people with a few loaves, or ending a storm with a word of command, should be taken in metaphorical sense. The feeding of multitudes is a sign that Jesus is the bread of life, who is capable of satisfying man's spiritual hunger. The stilling of storm also means bringing peace to storm-tossed human beings.

Professor Watt's work must be studied with positive and objective view. He has tried to remove many misunderstandings prevailing in the minds of Western scholars about Islam. The sincerity and objectiveness can be ascertained from the following expression. He writes:

"Muhammad claimed to receive messages from God and conveyed these to his contemporaries. On the basis of these messages a religious community developed, claiming to serve God, numbering some thousands in Muhammad's lifetime and now having several million members. The quality of life in this community has been on the whole satisfactory for the members. Many men and women in this community have attained to saintliness of life, and countless ordinary people have been enabled to live decent and moderately happy lives in difficult circumstances. These points lead to the conclusion that the view of reality presented in the Quran is true and from God, and that therefore Muhammad is a genuine prophet."

M. A. SAQI



Had my claim been put forward on my own, you would have been free to reject me, but if God's Holy Prophet bears witness for me in his prophecies and God manifests His Signs in my support, then do not wrong yourselves by rejecting me. Say not that you are Muslims and have no need of accepting any Messiah.

I tell you truly that he who accepts me accepts Him who had prophesied about me thirteen hundred years in advance, and had indicated the time of my appearance, and had specified my function; and he who rejects me rejects Him who had commanded that I should be accepted.

(Ayyamus Sulh, p. 93)

The Promised Messiah

LETTERS TO THE EDITOR

Dear Sir,

It is a pleasure to write comments on the most attractive copies of Review of Religions so kindly sent to me. My comments are, "Well Done!" The motto of "go ahead" of Ahmadiyya Movement as given to us by Hazrat Mirza Nasir Ahmad Khalifatul Masih III (May Allah be pleased with him) will, by the Grace of Allah, hold good for ever. I sincerely wish that every new issue of this wonderful Magazine may testify to the truth of the afore-mentioned motto. I could not lay my fingers on any lapse in the form or contents of these issues. Scholarly written articles by carefully selected contributors speak high of the editorial staff. Most inspiring sermons and thought provoking guidance generated by Hazrat Mirza Tahir Ahmad Khalifatul Masih IV (May Allah assist him in all his undertakings) have given a new lease of life to the rank and file of this highly blessed community representing *Nashat-i-Thania* of Islam. Let every one of us bow down, body and soul, before our beloved God Who has enriched us with the treasures of faith and dedication through His Holy Messenger and Prophet Hazrat Muhammad (peace and blessings of Allah be upon him) Khatamul Anbiya and Rahmatun-Lil-Aalamin. In our time the promised manifestation of the Holy Prophet of Islam appeared in the person of Hazrat Mirza Ghulam Ahmad, the Promised Messiah and Imam Mehdi (peace be on him) who was given the keys of those treasures and after him in the person of his beloved Khalifas (Successors) who have injected new spirit in the veins of those who follow them. The Messianic utterances of *Qum-be-Iznillah* blown through the trumpets of truth and guidance carried by their followers are once again working miracles of raising the dead from the graves. Let those who have eyes see and those who have ears hear.

Let the modern scientists and technologists know that the atom of faith is much stronger than the physical atom discovered by them because the masters of the atom of faith are under the umbrella of God, the Protector whereas the masters of physical atom are vulnerable to the attacks of their opposite forces holding similar atoms and have no umbrella of any kind. The crux of our preaching is to give the widest possible publicity to this message and our organs particularly Review of Religions can play more

effective part in this respect.

May Allah grant you success in your undertaking. Ameen.

With best wishes and kindest regards.

Yours fraternally,

Rabwah

Major (Retd.) Abdul Hamid

XXXXXXXXXXXXXXXXXXXX

Dear Sir,

In his letter to the Review of Religions of December, 1983 Hezo Cane of Milwaukee raises the question as to why there is no book comparable to the New Testament gospels which is concerned with Jeuss' long stay in Kashmir.

There are few points which might help to shed some light on this question. Firstly it is important to remember that Jesus was not a law-bearing prophet. We read:

Think not that I come to destroy the law, or the prophets. I am not come to destroy but to fulfil. For verily I say unto you till heaven and earth pass one jot or one tittle shall in no wise pass from the law, till all be fulfilled. Matt: 5.17

The disciples were instructed to preach to the twelve tribes of Israel and not to take the message of Christ to others:

These twelve Jesus sent forth and commanded them saying go not into the way of the Gentiles and into any city of the Samaritans enter ye not; but go rather to the lost sheep of the house of Israel. Matt: 10-56.

It appears that the early evangelists, failing to have much of an impact on the Jewish people addressed themselves to a wider audience. There was thus a need for written account of the life of Jesus Christ to be kept. Although not much is known about the very first versions of the Gospels it is known that some modifications have taken place taking into account the communities to which the evangelists were preaching to. It is believed that Mark wrote for a Roman audience, Matthew and Luke wrote for people in Syria and Johns' communities were based in Asia Minor. Keeping together some written accounts would thus be important for taking the story of

Jesus to bigger audiences.

When Jesus had found the ten tribes of Israel who had migrated to Kashmir, and preached his message to them, his mission had been fulfilled. Thus there was no need for an account such as the New Testament to be kept as such. However, there certainly exists mention of Jesus in Kashmir in historical writings of the time. More may be discovered in time.

Yours sincerely,

Kings College,
University of London,
London U.K.

Mansur A. Saqi

THE TREE OF AHMADIYYAT

You have said
And it will be
But who and who
Will share this tree?

The seed is sown
And it will grow
Its mighty grandeur
It will show

Down and deep
Will go the root
Up in the skies
The branches will shoot

Let me pray
For me and mine
Whatever the weather
Rain or shine

All the time
We should be
Under the shade
Of this tree.

Naseem Saifi



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The REVIEW of RELIGIONS

The Review of Religions is the oldest magazine of its kind published in the English language in the Indo-Pakistan Sub-Continent. Its first issue was published in 1902 and it has been continuously published since.

It bears the distinction that it was initiated under the direction of Hazrat Mirza Ghulam Ahmad of Qadian, the Promised Messiah himself.

During more than eighty-one years the message of Islam has been conveyed through this magazine to hundreds of readers and many fortunate persons have recognised the truth of Islam and accepted it through studying it.

The articles published in it deal not only with the doctrines and teachings of Islam but also set forth a comparative appreciation of the teachings of other faiths.

One of its outstanding features is the refutations of the criticism of Islamic teachings by orientalists and non-muslim scholars.

It also presents solutions in the light of Islamic teachings of the problems with which the Islamic world is from time to time confronted.

A study of this magazine is indispensable for the appreciation of the doctrines of the Ahmadiyya Movement and the teachings of its holy Founder.



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