CHAPTER

Three

ISLAM & SCIENCE
الَّذِينَ يَذْكُرُونَ اللّهَ قِيَامًا وَقُعُودًا وَعَلَى جُنُوبِهِمْ وَيَتَفَكَّرُونَ فِي خَلْقِ السَّمَاوَاتِ وَالأَرْضِ رَبَّنَا مَا خَلَقْتَ هَذَا بَاطِلاً سُبْحَانَكَ فَقِنَا عَذَابَ النَّارِ.

“Men who celebrate the praises of Allah, standing, sitting, and lying down on their sides, and contemplate the (wonders of) creation in the heavens and the earth, (With the thought): "Our Lord! Not for naught Hast Thou created (all) this! Glory to Thee! Give us salvation from the penalty of the Fire."

The Holy Quran 3:191

Introduction to Islamic view

There is a fundamental conflict between the religious approach and scientific approach about nature. In Islam, the total world is a unique and transcendent reality that has been created only by God has been operated by him, and one soul attends it;

"and Allah’s is the East and the West. Therefore, wither you turn; thither is Allah’s purpose” The Holy Quran, chapter: 2.115

There is no difference between its exterior and interior, its beginning and end, body and soul. There is a relation among its various parts and to a change in one part, influences all other parts. All creation comes from one center and returns to that center. There are also such beliefs in Hinduism and other Eastern religions. When we use the term "modern", we mean neither contemporary nor up-to-date nor successful in the conquest and domination of the natural world. Rather, for us "modern" means that which is cut off from the transcendent, from the
immutable principles which in reality govern all things and which are made known to man through revelation in its most universal sense.

Ever since the dawn of human life on this planet, man has always sought to understand Nature, his own place in the scheme of creation and the purpose of life itself. In this quest for truth, spanning many centuries and diverse civilizations, organized religions have been based on the sources, claimed by their adherents to be divinely inspired, others have relied solely on human experience.

*Al-Quran*, the main source of the Islamic faith, is a book believed by Muslims to be of a completely Divine origin. Muslims also believe that it contains guidance for all mankind. Since the message of the *Quran* is believed to be for all times, it should be relevant to every age.

1. The basic statement of Islam is: "There is no god other than Allah" (*Quran*: Ch.37 v.35).

2. Everything is created, that is to say given its qualifications, and directed according to these qualifications by Allah and while He wants.

"And who makes (things) according to a measure, then directs" (ch87/v3)

"He said who your Lord, Moses is? He answered, Our Lord is He who giveth all things their qualifications and directed them." (Ch20/v.49, 50)

"Unto Him do all creatures in heaven and earth make petition; every day is He in work." (ch.55/ v.29)

"Then let man look to his food: How He pours water in showers. Then split the earth in clefts, and causes the grain to grow therein, and grapes and green fodder. And the olive and the palm..."(ch.80/ v.25-29)
"Say: He is Allah, the One! Allah is He on whom all depend. He begetteth not nor was begotten. And there is none comparable unto Him." (ch.112)

"They said, burn him, and avenge your gods: If ye do this it will be well. We said O fire, be thou cold, and caused preservation unto Abraham. And they sought to lay a plot against him: but we caused them to be the sufferers." (ch.21/v.68-70)

3. So, according to the Holy Qur'an, nothing can be explained fully when Allah is not taken into account. In other words, everything needs Allah for existing. If you say that anything does not need Allah, or that you can explain something only by a factor which is not Allah, you will have assigned this factor to some extent a property of Allah, which in fact it has not. And anything which does not need Allah is assigned a status similar to Allah, a divine status. Many Quranic verses urge us to reflect and study and to observe the stars and galaxies. They impress upon us the Creator's magnificence, and exhort us to travel and observe the miraculous ness of our organs and of creation. The Qur'an's verses place all of creation before our eyes. Touching upon a multitude of facts, it tells us that;

“Those who truly fear God, among His servants, are those who have knowledge”  (ch: 35/v: 28)

And so encourages us to seek knowledge, to reflect and research. However, it ought to be remembered that the first condition for all such activities is that they comply with the spirit of the Qur'an, lest we begin departing from it.
Our knowledge of science and its facts can and should be used within the limits of Islam, not to impress others or silence their arguments. Our primary aim must be to win the pleasure of God and make sure that our audience understands the points we are making. There is also other traditions that appears importance of knowledge and science in Islam, for example Imam :Ali (A.S) illustrates that "good is not wealth progeny should be much but is that your knowledge should be much your forbearance should be great, and that you should vie with other people in worship of Allah". He also said that "knowledge is venerable estate: good manners are new dresses; and thinking is clear mirror". It is wrong to regard science as superior to religion and to seek to justify substantial Islamic issues and Islam as a whole through modern scientific facts.

It seems that; such attempts show that we have doubts about Islam and thus need science to reinforce our own belief. It is also wrong to accept science or scientific facts as absolute, for such things are subject to change. At best, they only support what the Holy Quran says. In no way can the unchangeable and eternal Quran be confirmed by that which is changeable and temporary. Given this, Muslims should use science only as a tool to awaken sleeping or confused minds.

Even definitely established scientific facts cannot uphold the truths of faith; they can be only instruments to give us ideas or to trigger us to reflect. God, not science, establishes the truths of faith in our conscience, for faith comes only and only by Divine guidance. Those who seek to acquire faith from science may never feel the existence of God within their own consciousness. In reality, they will be nature worshipers, not worshipers of God.
Mankind has often made the assignment that has been mentioned above. To gods such as god of sun, god of water, god of love and so on. These were thought as having partial authority on some parts of the world.

Today the same is true for some mathematical, geometrical, physical concepts and relations. An atheist is probably said: Everything will explain or will be explained by sciences; so there is no need for a god. The first part of this argument is good and strong and the Holy Quran also favors this kind of reasoning. But there is a difference as to the second part: According to Quran, science (or causal thinking) needs Allah in order to explain the existence. Again, as you need Allah to explain the existence, if He is not taken into account; then there must be godlike things that are assigned the post.

Many of the atheists suggest that we create our gods in our minds. But is it not interesting that some prophets also say also the same to their people concerning their gods, according to the Quran: "Hud answered, now shall there suddenly fall upon you from your Lord Vengeance and indignation. Will ye dispute with me concerning the names which ye have named, and your fathers; as to which God hath not revealed unto you any authority?" (ch. 7/ v. 70) and that the atheists also may have given some things (as matter and its parts) the posts of god?

So, the critical question is: "Whether Allah excludes godlike properties (as unity, coordination, execution, knowledge, predictability, absoluteness, creation of new entities and so on) of: Scientific entities (as matter and energy), the media where these exist (dimensions), their states (as order, chaos), relations between all these (as of matter relating to
space or energy; relevant formulates and so on) or whether these latter things leave no place for the existence of an active god.

These really constitute good subjects for debate, especially if you consider verses as "And (He is) who makes (things) according to a measure, then guides (them to their goal)" (ch87/v3) "He said who is your Lord, Moses? He answered, Our Lord is he who giveth all things their properties, and directed them." (Ch20/v.49, 50)

The difference between the two approaches may be resumed so:

According to Islam: “The creatures (includes everything) are given by God, their qualifications (including the physical laws, equations, formulas [we may be unknowing everything, the real is known by Allah]) and they are executed and may be changed by Allah when(ever) He wants.”

The (atheist) scientist says "The properties (including the above mentioned laws and so on) of everything are intrinsic to them and absolute and not subject to change except for any specific conditions"

And therefore, there is no trade-off between Islam and Real-Science, both support each other.

Islam is not only opposed to scientific and technological progress; on the contrary, it encourages it, laying stress only on two points:

1. Scientific, technological and social progress shall not result in man waxing proud and thereby disregarding his Creator.
2. This endeavor and progress shall be utilized to better the condition of men and never be used in propagating sin or to buttress the foundations of cruelty and oppression.

The *Holy Quran* does not aim at explaining certain laws governing the Universe, however; it has an absolutely basic religious objective. The descriptions of Divine Omnipotence are what principally incite man to reflect on the works of Creation.

**Quranic attitude toward science**

The relation between the *Holy Quran* and science is not easily identifiable and there is substantial discord between classical and modern Islamic views on this subject. All sources, both "classical and modern, agree that *the Quran* condones, even encourages the acquisition of science and scientific knowledge, and urges humans to reflect on the natural phenomena as signs of God's creation." Some scientific instruments produced in classical times in the Islamic world were inscribed with Quranic citations. Most Muslims agree that doing science is an act of religious merit, even a collective duty of the Muslim community.

There are however many disagreements traceable to interpretations of the *Holy Quran*. On one hand, we have classical *Quran* commentators who assigned to *the Quran* a separate and autonomous realm of its own. Al-Biruni (973-1048 CE), one of the most celebrated Muslim scientists of the classical period, held that *the Quran* does not interfere in the business of science nor does it infringe on the realm of science. The main arguments presented by this group of Muslims is the possibility of multiple scientific explanations of the natural phenomena, the ever-
changing nature of the science and the considerable differences in the interpretation of the verses that may have a connection to science or the natural phenomena. On the other hand, many contemporary Muslims, both amateurs and intellectuals, have gone as far as arguing that “Islam is a religion of science” urging others to explore the Quran for scientific truths which are now discoverable by Modern science.

**History of Science in the Islamic World**

When the power of Greek civilization was eclipsed by the Roman Empire, many Greek doctors began to practice medicine for the Roman elite, but sadly the physical sciences were not so well supported. Following the collapse of the Roman Empire, Europe entered the so-called Dark Ages, and almost all scientific research ground to a halt. The rise of Christianity saw the suppression and destruction of most classical Greek philosophy (along with Greek and Roman art, literature and religious iconography) as heretical and pagan. In the Middle East, however, many Greek natural philosophers were able to find support in the newly created Arab Caliphate-Imam- (Empire), and the Islamic scholars built upon previous work in medicine, astronomy and mathematics while developing such new fields as alchemy (chemistry). For example, the scholar Muhammad ibn Musa al-Khwarizmi gave his name to what we now call an algorithm, and the word algebra is derived from al-jabr, the beginning of the name of one of his publications in which he developed a system of solving quadratic equations, thus beginning Al-gebra. The history of science in the Islamic World examines the full range of scientific investigation in the Islamic World, whether performed within a religious or secular context, or for religious or secular motives. From this perspective, it doesn't matter whether the particular
scientist was a Muslim (e.g., al-Khwarizmi), a Sabian (e.g., Thabit ibn Qurra), a Christian (e.g., Hunain ibn Ishaq), or a Jewish (e.g., Hasdai ibn Shaprut), whether he advocated strict adherence to Muslim traditions (e.g. al-Ghazzali) or was he critical of tradition and open to the ideas of foreign philosophers (e.g. Averroës), or whether his patron was a Muslim (e.g., al-Ma'mun) or not (e.g., Hulagu Khan). If he studied natural phenomena and worked within the Islamic world, his work fits the historians' concern with science in the Islamic World, and there is a long story about Muslims improvement in the world that needs extensive independent research.

**Arrival of modern science in Muslim world**

At the beginning of the nineteenth century, modern science arrived in the Muslim world but it wasn't the science itself that affected Muslim scholars. Rather, it "was the transfer of various philosophical currents entangled with science that had a profound effect on the minds of Muslim scientists and intellectuals. Schools like Positivism and Darwinism penetrated the Muslim world and dominated its academic circles and had a noticeable impact on some Islamic theological doctrines "There were different responses to this among the Muslim scholars:

These reactions, in words of Professor Mehdi Golshani\(^2\) were the following:

1. "Some rejected modern science as corrupt foreign thought, considering it incompatible with Islamic teachings, and in their view, the only remedy for the stagnancy of Islamic societies would be the strict following of Islamic teachings."
2. Other thinkers in the Muslim world saw science as the only source of real enlightenment and advocated the complete adoption of modern science. In their view, the only remedy for the stagnation of Muslim societies would be the mastery of modern science and the replacement of the religious worldview by the scientific worldview.

3. The majority of faithful Muslim scientists tried to adapt Islam to the findings of modern science; they can be categorized in the following subgroups: (a) Some Muslim thinkers attempted to justify modern science on religious grounds. Their motivation was to encourage Muslim societies to acquire modern knowledge and to safeguard their societies from the criticism of Orientalists and Muslim intellectuals. (b) Others tried to show that all important scientific discoveries had been predicted in the Qur'an and Islamic tradition and appealed to modern science to explain various aspects of faith. (c) Yet other scholars advocated a re-interpretation of Islam. In their view, one must try to construct a new theology that can establish a viable relation between Islam and modern science. The Indian scholar, Sayyid Ahmad Khan, sought a theology of nature through which one could re-interpret the basic principles of Islam in the light of modern science. (d) Then there were some Muslim scholars who believed that empirical science had reached the same conclusions that prophets had been advocating several thousand years ago. The revelation had only the privilege of prophecy.

4. Finally, some Muslim philosophers separated the findings of modern science from its philosophical attachments. Thus, while they praised the attempts of Western scientists for the discovery of the secrets of nature, they warned against various empiricist and
materialistic interpretations of scientific findings. Scientific knowledge can reveal certain aspects of the physical world, but it should not be identified with the alpha and omega of knowledge. Rather, it has to be integrated into a metaphysical framework—consistent with the Muslim worldview—in which higher levels of knowledge are recognized and the role of science in bringing us closer to God is fulfilled".3

The relation between Islam and science

Islam has its own worldview system including beliefs about "ultimate reality, epistemology, ontology, ethics, purpose, etc". Muslims believe that the Quran is the literal word and the final revelation of God for the guidance of humankind.

Science in the broadest sense refers to any system of knowledge attained by verifiable means, and in a narrower sense to a system of acquiring knowledge based on observation, experimentation, and methodological naturalism, as well as to the organized body of knowledge humans have gained by such research. Scientists maintain that scientific investigation must adhere to the scientific method, a process for evaluating empirical knowledge that explains observable events in nature as results of natural causes, rejecting supernatural notions.

Modern science has greatly influenced thought in the Muslim world. There have been differing reactions to its arrival. Some Muslims have interpreted the Quran so as to support their belief that it makes statements about the universe that have only been discovered by science in modern times. Scientists and philosophers have tried to show logical fallacies in these arguments and some Muslim thinkers have decried
efforts to prove the validity of *the Quran* using modern science, which is constantly changing and reevaluating its assumptions and conclusions.

On the other hand, there are specific references to human development and embryology in the Quran and hadith. Some scholars such as Jabir Ibn Haiyan (Geber) (c. 721–c. 815), Faarabi (870-950), Rumi (1207-1273 CE), Raazi, Aveciena (980-1037), Kharazmi (780-850), Al-Ghazali (1058-1111), Mulla Sadra (c. 1571–1640), Allameh Tabatabaei (1892-1981), Morteza Motahhari (1920-1979) and others have found strong parallels between these statements and the positions of the ancient Greek thinkers such as Aristotle, Hippocrates, and Galen, whose writings were widely available in pre-Islamic Age.

**Improving of science in Islamic world**

The modern advancement of science in the Islamic world can be seen as part of the broader movement of the Islamization of knowledge.

A Muslim engaged in this field is called a Muslim scientist. This is not the same as science as conducted by Muslims in the secular context. However, certain liberal movements in Islam eschew the practice of Islamic science, arguing that science should be considered separate from religion.
Fields

These are some of the fields Islamic scientists have worked with this issues:

Scientific method

During the Middle Ages, Islamic scholars made significant advances in mathematics, medicine, astronomy, engineering, and many other fields. During this time Islamic philosophy developed and was often pivotal in scientific debates—key figures were usually scientists and philosophers.

The prominent Iranian scientist Ibn Al-Haitham used the scientific method to obtain the results in his book *Optics*. In particular, he performed experiments and used the scientific method to show that the intromission theory of vision supported by Aristotle was scientifically correct, and that the emission theory of vision supported by Ptolemy and Euclid was wrong. It is known that Roger Bacon (who is usually erroneously given the credit for having founded the scientific method) was familiar with Ibn Al-Haitham's work.

Science was one of the most powerful areas of the Islamic culture of the period.

Mathematics

A Seljuk manuscript from the 13th century depicts Socrates (*Socrāt*) in discussion with his pupils.

In the history of mathematics, "Islamic mathematics" refers to the mathematics developed by mathematicians of the Islamic culture, from
the beginning of Islam until the 17th century — mostly including Arab and Persian mathematicians, as well as other Muslims and non-Muslims that were a part of the Islamic culture. Islamic mathematics is also known as Arabic mathematics due to most of the texts on Islamic mathematics being written in Arabic. Islamic mathematics is the main aspect of the greater history of Islamic science, and also an important part of the history of mathematics.

Islamic science and mathematics flourished under the Islamic Caliphate (also known as the Arab Empire or Islamic Empire) established across the Middle East, Central Asia, North Africa, Sicily, the Iberian Peninsula, and in parts of France and Pakistan (known as India at the time) in the 8th century. Although most Islamic texts on mathematics were written in Arabic, they were not all written by Arabs, since — much like the status of Greek in the Hellenistic world — Arabic was used as the written language of non-Arab scholars throughout the Islamic world at the time. Many of the most important Islamic mathematicians were Persians.

Recent research paints a new picture of the debt that we owe to Islamic mathematics. Certainly many of the ideas which were previously thought to have been brilliant new conceptions due to European mathematicians of the sixteenth, seventeenth and eighteenth centuries are now known to have been developed by Arabic/Islamic mathematicians around four centuries earlier. In many respects, the mathematics studied today is far closer in style to that of Islamic mathematics than to that of Hellenistic mathematics.
**Medicine**

Prophetic Medicine (al-tibb) was a genre of medical writing intended as an alternative to the Greek-based medical system. It advocated the traditional medical practices of Muhammad's time (those mentioned in the Quran). Al-tibb therapy did not require the patient's undergoing any surgical procedures.

The "Kitab fi al-jadari wa-al-hasbah", with its introduction on measles and smallpox was also very influential in Europe.

In referring to the pre-modern Islamic contribution to embryology, Joseph Needham writes that: "Arabic science, so justly famed for its successes in certain fields such as optics and astronomy, was not of great help to embryology."

**Astrology**

Islamic astrology, in Arabic ilm al-nujumis, is the study of the heavens by early Muslims. In early Arabic sources, ilm al-nujum was used to refer to both astronomy and astrology. In medieval sources, however, a clear distinction was made between ilm al-nujum (science of the stars) and ilm al-falak (science of the celestial orbs), referring to astrology, and ilm al-haya (science of the figure of the heavens), referring to astronomy. Both fields were rooted in Greek, Persian, and Indian traditions. Despite consistent critiques of astrology by scientists and religious scholars, astrological prognostications required a fair amount of exact scientific knowledge and thus gave partial incentive for the study and development of astronomy.
Astronomy

Islamic astronomy closely parallels the genesis of other Islamic sciences in its assimilation of foreign material and the amalgamation of the disparate elements of that material to create a science that was essentially Islamic. These include Indian and Sassanid works in particular. Some Hellenistic texts were also translated and built upon as well.

Islamic interest in astronomy ran parallel to the interest in mathematics. Noteworthy in this regard was the Almagest of Greek-speaking Egyptian scholar Ptolemy (A.D. c. 100 - c. 178). The Almagest was a landmark work in its field, assembling, as Euclid's Elements had previously done with geometrical works, all extant knowledge in the field of astronomy that was known to the author. This work was originally known as The Mathematical Composition, but after it had come to be used as a text in astronomy, it was called The Great Astronomer. The Islamic world called it The Greatest prefixing the Greek work megiste (greatest) with the article al- and it has since been known to the world as Al-megiste or, after popular use in Western translation, Almagest. Ptolemy also produced other works such as, Optics, Harmonica, and some suggest he also wrote Tetrabiblon.

The Almagest was a particularly unifying work for its exhaustive lists of sidereal phenomena. He drew up a list of chronological tables of Assyrian, Persian, Greek, and Roman kings for use in reckoning the lapse of time between known astronomical events and fixed dates. In addition to its relevance to calculating accurate calendars, it linked far and foreign cultures together by a common interest in the stars and astrology.
The work of Ptolemy was replicated and refined over the years by Persian and Islamic astronomers and astrologers. The astronomical tables of al-Khwarizmi and of Abu'l-Qasim Maslama b. Ahmad (al-Majriti) served as important sources of information for Latinized European thinkers rediscovering the works of astronomy, where extensive interest in astrology was discouraged.

Modern Islamic philosophy has, in response to challenges of secular science and concerns that secular society is unwilling or unable to limit its uses of "dangerous technology", especially nuclear weapons or biotechnology, begun to look at the origins of science to determine what ethics or limits can or should be imposed, and what goals or visions are appropriate for science\textsuperscript{14}.

**The Miracle of Islamic Improving in Science**

The concept that the sciences are exclusively the products of Western minds remains unquestioned by most individuals. A review of any of the standard texts or encyclopedias regarding the history of science would support this view. As these books are perused, it becomes evident that the only contributors given significant mention are Europeans and/or Americans. It is hardly necessary to repeat the oft-mentioned names: Galileo, Copernicus, Kepler, Bacon, Newton, Da Vinci, Benjamin Franklin, etc. The unavoidable conclusion is that major contributions to the development of the modern sciences by other cultures are minimal. Most texts give little or no mention of the advancements made by ancient Indian, Chinese or, particularly, Muslim scholars.

Western civilization has made invaluable contributions to the development of the sciences. However, so have numerous other cultures.
Unfortunately, Westerners have long been credited with discoveries made many centuries before by Islamic scholars. Thus, many of the basic sciences were invented by non-Europeans. For instance, George Sarton\textsuperscript{15} states that modern Western medicine did not originate from Europe and that it actually arose from the (Islamic) orient.

The data in this section concerning dates, names and topics of Western advances has been derived from three main sources: *World Book Encyclopedia*, *Encyclopedia Britannica* and Isaac Asimov's \textsuperscript{16}book, *Chronology of Science and Discovery*. Supportive data for the accomplishments of Islamic scholars is derived from the miscellaneous references listed in the bibliography of this book, and it was brought here as samples:

**What is taught:** The first mention of man in flight was by Roger Bacon, who drew a flying apparatus. Leonardo da Vinci also conceived of airborne transport and drew several prototypes.

**What should be taught:** Ibn Firnas of Islamic Spain invented, constructed and tested a flying machine in the 800's A.D. Roger Bacon learned of flying machines from Arabic references to Ibn Firnas' machine. The latter's invention antedates Bacon by 500 years and Da Vinci by some 700 years.

**What is taught:** Glass mirrors were first produced in 1291 in Venice.

**What should be taught:** Glass mirrors were in use in Islamic Spain as early as the 11th century. The Venetians learned of the art of fine glass production from Syrian artisans during the 9th and 10th centuries.
What is taught: Until the 14th century, the only type of clock available was the water clock. In 1335, a large mechanical clock was erected in Milan, Italy. This was possibly the first weight-driven clock.

What should be taught: A variety of mechanical clocks were produced by Spanish Muslim engineers, both large and small, and this knowledge was transmitted to Europe through Latin translations of Islamic books on mechanics. These clocks were weight-driven. Designs and illustrations of epi-cyclic and segmental gears were provided. One such clock included a mercury escapement. The latter type was directly copied by Europeans during the 15th century. In addition, during the 9th century, Ibn Firnas of Islamic Spain, according to Will Durant, invented a watch-like device which kept accurate time. The Muslims also constructed a variety of highly accurate astronomical clocks for use in their observatories.

What is taught: In the 17th century, the pendulum was developed by Galileo during his teenage years. He noticed a chandelier swaying as it was being blown by the wind. As a result, he went home and invented the pendulum.

What should be taught: The pendulum was discovered by Ibn Yunus al-Masri during the 10th century, who was the first to study and document its oscillatory motion. Its value for use in clocks was introduced by Muslim physicists during the 15th century.

What is taught: Movable type and the printing press were invented in the West by Johannes Gutenberg of Germany during the 15th century.
**What should be taught:** In 1454, Gutenberg developed the most sophisticated printing press of the middle Ages. However, movable brass type was in use in Islamic Spain 100 years prior, and that is where the West's first printing devices were made.

**What is taught:** Isaac Newton's 17th century study of lenses, light and prisms forms the foundation of the modern science of optics.

**What should be taught:** In the 11th century Al-Haytham determined virtually everything that Newton advanced regarding optics centuries prior and is regarded by numerous authorities as the "founder of optics." There is little doubt that Newton was influenced by him. Al-Haytham was the most quoted physicist of the middle Ages. His works were utilized and quoted by a greater number of European scholars during the 16th and 17th centuries than those of Newton and Galileo combined.

**What is taught:** Isaac Newton, during the 17th century, discovered that white light consists of various rays of colored light.

**What should be taught:** This discovery was made in its entirety by al-Haytham (11th century) and Kamal ad-Din (14th century). Newton did make original discoveries, but this was not one of them.

**What is taught:** The concept of the finite nature of matter was first introduced by Antione Lavoisier during the 18th century. He discovered that, although matter may change its form or shape, its mass always remains the same. Thus, for instance, if water is heated to steam, if salt is dissolved in water or if a piece of wood is burned to ashes, the total mass remains unchanged.
What should be taught: The principles of this discovery were elaborated centuries before by Islamic Persia's great scholar, al-Biruni (d. 1050). Lavoisier was a disciple of the Muslim chemists and physicists and referred to their books frequently.

What is taught: The Greeks were the developers of trigonometry.

What should be taught: Trigonometry remained largely a theoretical science among the Greeks. It was developed to a level of modern perfection by Muslim scholars, although the weight of the credit must be given to al-Battani. The words describing the basic functions of this science, sine, cosine and tangent, are all derived from Arabic terms. Thus, original contributions by the Greeks in trigonometry were minimal.

What is taught: The use of decimal fractions in mathematics was first developed by a Dutchman, Simon Stevin, in 1589. He helped advance the mathematical sciences by replacing the cumbersome fractions, for instance, 1/2, with decimal fractions, for example, 0.5.

What should be taught: Muslim mathematicians were the first to utilize decimals instead of fractions on a large scale. Al-Kashi's book, Key to Arithmetic, was written at the beginning of the 15th century and was the stimulus for the systematic application of decimals to whole numbers and fractions thereof. It is highly probable that Stevin imported the idea to Europe from al-Kashi's work.

What is taught: Kerosene was first produced by an Englishman, Abraham Gesner, in 1853. He distilled it from asphalt.
What should be taught: Muslim chemists produced kerosene as a distillate from petroleum products over 1,000 years prior to Gesner.17

The situation of the modern science

It is clear that modern science is successful in telling us the weight and chemical structure of a red pine leaf, but it is totally irrelevant to what is the meaning of the turning of this leaf to red. The ‘how’ has been explained in modern science, the ‘why’ is not its concern. If you are a physics student and you ask the question, ‘what is the force of gravitation?’ the teacher will tell you the formula, but as to what the nature of this force is, he will tell you it is not a subject for physics. So [science] is very successful in certain fields, but leaves other aspects of reality aside.

Professor Nasr's view

Professor Seyyid Hossein Nasr18 about the relationship between Islam and modern science held that there are several important phenomena that are going on in the Islamic world:

First and most powerful, is the continuous flow and absorption of western science and technology into all existing Islamic countries to the extent that [they] can absorb it. In every single Islamic country, whatever political regime, whatever economic policy, whatever attitude towards the west [they may espouse], whether they are completely pro-western or have demonstrations in the street against the west, the adoption of western science and technology goes on. Which is a very telling fact for the whole of the Islamic world? There are some places where some thought is being given to what is the
consequence of this. Now there are many questions to ask here. First of all is this transfer of science and technology going on successfully? Is it not going on successfully? If it is not successful, what is it not going on successfully? And if it is, why?

The second phenomenon that is going on today is the gradual attempt being made to study both the meaning and the history of Islamic science. It seems that in this field that Muslims should really be ashamed of themselves, to put it mildly.

It is clear that it is not possible to bring all samples of clash between scientific point and some religious scripture here, so we try to investigate about two of most popular points of this clash.

Galileo’s clash with the Church concerning his view of the solar system is probably the most well-known example of the conflict model between science and religion although this particular issue was resolved many years ago. Creationists who maintain that the universe is only thousands of years old, when there is overwhelming evidence of its great antiquity, give credence to the idea that science and religion are invariably opposed. On the other side, well-known scientists who assert that science leaves no room for religion, also support this model.

It is important to note that most of the scientists, who laid the basis for the scientific age, including Boyle, Copernicus, Faraday, Galileo, Kepler, Maxwell, and Newton, believed in a personal God who revealed Himself in the Scriptures and answered prayer. For many people, therefore, there must be other plausible ways of relating science and religion.
Marx’s view and Islamic reaction

On the 13 day 1367, Imam Khomeini sent a letter to Gorbachev, leader of Union of Socialist Soviet Republics, illustrated about Islam and invited him to accept it. He wrote that:

“Mr. Gorbachev!

With a rather freedom for religious ceremonies in some Republics, you showed not regarding religion as an opiate to society. Indeed, can we call the religious which saves Iran against superpowers, an opiate? Is the religious that wants justice and freedom for people, an opiate?\(^\text{19}\)"

The concept of religion may be viewed from two perspectives: the human or the Divine. The followers of the great world religions take religion to be God-revealed principles, values and commandments and therefore do not, in explaining the origin of religion, refer to man. By contrast, the modern Western imputes the origin of religion to man and then seeks to explain it away according to the different science of man — anthropology or sociology or psychology.

In order to illustrate the differences of opinion that arise among those who, from within ignorance or from limitations, offer their definition of a matter, Jalal al-Din al-Rumi (1207-1273 CE), a famous Muslim scientist of the 13th century, made this analogy: some blind persons encounter an elephant and, on touching different parts of the animal’s body, offer their partial, inept and contradictory definitions of an elephant: one finds it to be a heavy, thick column, another a
hard, flexible pipe, and so on. This is what those who try to explain the origin of religion have achieved in the West. Just as the anthropologists drew different conclusions, sociologists also put forward different opinions about the origin of religion.

In chapter Two we have seen that religion according to Marx (1818-1883), is the opiate of the masses, will inevitably become a thing of the past. He also illustrated that revolution would be created by the alliance of middle class intellect and labor.

For criticism of this viewpoint according to Islam, we have to pay attention to the point that they (positivists, Marx and the others) say that religion is a means contrived by mankind to cover up problems that man could not solve but which, with further advances in civilization, will one day be solved and so, they ask, will religion no longer be needed? They argue that religion was put together as a sort of outpouring of man’s feeling of powerlessness in the world or of his feelings of relief and gratitude when rescued from powerlessness.

Sometimes “Religion is the sigh of the oppressed creature” is included. If we compare these with the full quotation, it is clear that a great deal more is being said than what most people are aware of.

In the above quotation Marx is saying that the purpose of religion is to create illusory fantasies for the poor. Economic realities prevent them from finding true happiness in this life, so religion tells them that this is OK because they will find true happiness in the next life. Although this is a criticism of religion, Marx is not without sympathy: people are in distress and religion provides solace, just as people who are physically injured receive relief from opiate-based
drugs. For all its problems, religion doesn’t matter so much. It is not the real problem. Religion is a set of ideas, and ideas are expressions of material realities. Religion can be a sign of an illness, not the illness itself.

Still, it would be a mistake to think that Marx is uncritical towards religion — it may try to provide heart, but it fails. For Marx, the problem lies in the obvious fact that an opiate drug fails to fix a physical injury — it merely helps you forget pain and suffering. This may be fine up to a point, but only as long as we are also trying to solve the underlying problems causing the pain. Similarly, religion does not fix the underlying causes of people’s pain and suffering — instead, it helps them forget why they are suffering and gets them to look forward to an imaginary future when the pain will cease.

Marx did not make religion the primary enemy of workers and communists, regardless of what might have been done by 20th century communists. Had Marx regarded religion as a more serious enemy, he would have devoted more time to it in his writings. Instead, he focused on economic and political structures that in his mind served to oppress people.

For this reason, some Marxists could be sympathetic to religion. Karl Kautsky, in his Foundations of Christianity, wrote that early Christianity was, in some respects, a proletarian revolution against privileged Roman oppressors.

Marx’s relationship with and ideas about religion are more complex than most realize. He argues that religion is not so much an independent “thing” in society but, rather, a reflection or creation of
other, more fundamental “things” like economic relationships. That is not the only way of looking at religion, but it can provide some interesting illumination on the social conditions.

Whatever one’s final conclusion about the accuracy or validity of Marx’s ideas on religion, we should recognize that he provided an invaluable service by forcing people to take a hard look at the social web in which religion always occurs. Because of his work, it has become impossible to study religion without also exploring its ties to various social and economic forces, but his viewpoint can not answer to all cases, also people’s spiritual lives can no longer be assumed to be totally independent of their material lives. There is another historical example that shows religion has potentiality to create social reforming toward social justice and goodness:

In 1891, the Tobacco concession was awarded to the British by Nasereddin Shah Qajar (Iranian King); however, the following turns of events fold the British attempt to follow through.

Nasereddin Shah liked traveling to Europe so much and used to travel there for three times. In his last trip dated 1889 he traveled to Britain. Due to Shah’s extravagance during the trip which was encouraged by Aminossoltan, Nasereddin Shah’s chancellor, he was left with no money for spending and leading his Epicurean life style. Therefore, he gave the concession of Tobacco products to a British called Major Talbot and in turn received some money to enjoy his extravagance.

Talbot was one of the advisors to the British Prime Minister. The two sides sat around the table of negotiations in Berating City
where Talbot through bribing the courtiers such as Aminossoltan could win the agreement of the Shah on the issue. The promised price was 25,000 Liras. After the Shah’s return, Talbot came to Iran to get the project started. According to the agreement, the company called Regie was to pay 15,000 Liras yearly to Iran and enjoy the possession of Tobacco product plantation and sale concession. It implied the fact that the products were cheaply bought and expensively sold.

After the agreement was signed, the staff of the British company came to Iran and they went to different cities of Iran. However; people did not let them in. The people of the major cities like Shiraz, Tabriz, Isfahan and Tehran showed opposition reactions. Finally for these reasons Ayatollah Mirza Shirazi issued the abolition of tobacco concession and Britain could not succeed in this action.

Brigadier General Sir Percy Sykes, wrote the following passage in his book, History of Persia (3rd edition, printed 1930), regarding the futile formation of the Tobacco Corporation in Iran.

"Less fortunate than the Imperial Bank of Persia was the fate of the Tobacco Regie. This ill-judged concession gave full control over the production, sale, and export of all tobacco in Persia. In return for these rights a sum of £15,000 was to be paid annually to the Shah; in addition, after the working expenses and 5 per cent had been set aside, His Majesty was to receive one quarter of the profits. The concession affected the position of tobacco growers, sellers, and smokers alike; and in Persia both men and women smoke regularly. Its gross unfairness was aggravated by the fact that many of the employees were drawn from a somewhat low class and by the lack of tact
displayed in dealing with Persian rights. In short, first public indignation and then fanaticism was aroused. Haji Mirza Hasan Shirazi, the leading Mujtahid, placed an interdict on smoking, and the order was obeyed throughout the land, the royal palace being no exception. Finally, after disturbances had broken out and intense hostility had been displayed towards Europeans, the Shah cancelled the concession and agreed to pay compensation to the extent of half million sterling. This sum was borrowed from the Imperial Bank of Persia and may be considered to constitute the beginning of the Persian National Debt.”

The Issue of Tobacco Sanction by Ayatollah Shirazi

Ayatollah Shirazi wrote a letter to Shah and asked him to abolish the concession but he ignored Mirza’s order. Thus Mirza issued a fatwa:

"In the name of God, the beneficent, the merciful; Today, the use of tobacco is the same to war with Imam Mahdi, that means not allowed."

This fatwa caused a semi-revolution movement among people; they stop using tobacco, the tobacco shops close and everybody break the hookahs. They stop dealing with Regie Corporation. This continued till an announcement was stuck to city walls: “according to Ayatollah Mirza Shirazi, up 48 hours the concession must be abolished or people would get ready for jihad on Monday.”

Shah resorted to force and tried to threaten the scholars and people by exiling. The manager of Regie Company asked Aminossoltan to persuade the scholars and even wanted him to exile
Mirza Ashtiani, the great Marja’ in Tehran. Shah wrote to Mirza Ashtiani: “stay in Tehran and use hookah or leave here.”

Mirza asked for a day to be prepared. The next day morning, Monday people went protesting in the streets and headed toward Mirza’s house. Shah sent somebody there and asked Mirza about his conditions to stop this story. Mirza Ashtiani replied: “we want the concession to be abolished and the foreigners lose access to our sources.”

However, the protests continued and a number of people were killed and injured. Mirza told people to go back to their works.

Aminossoltan brought Shah’s verdict about the abolition to Mirza Shirazi. He said the Fatwa is valid till Mirza Ashtiani’s letter about this abolition is sent to me. When he saw the announcement on the abolition, declared his fatwa is finished20.

On Tuesday, there was an announcement that people are allowed to use hookah and tobacco. On 5 April 1891, Shah signed the abolition of the Tobacco concession officially. After that, in Iranian history, it has been called as Tobacco revolution, which shows power of religion and we could not consider that as opiate.

Islam and Evolution (Darwinian Theory)

What is Islam's view on evolution? There are many theories of evolution. Some of them are acceptable according to Islam, while there are others that are not acceptable. If by evolution one means the development and growth that Allah Almighty has placed in the nature
of His creation, then this is acceptable and the Qur'an itself talks about it. According to Islamic view; human beings are a special creation of Allah. Allah created the body of Adam and his wife Eve from the solid and their soul from himself, and then through them created many men and women.

It could not accept the theory that says that all living organisms came from matter and man evolved from lower living organisms. There is a link between the human body and other living organisms, but this does not prove that one is evolved from the other. Does that mean that the prophet Adam also looked like them? In your question, if 'evolution' implies that man is actually an evolved form of a certain other creature, then Islam does not affirm such a standpoint. Darwin’s theory of Evolution has influenced the minds of people and their character has been influenced as well. Such people do not believe in divine morals and values. They do not believe in God, soul and Hereafter. Islam says that God has created this universe and Humans with a specified goal. The evolutionists’ claim that the universe started from “first atom” and life started from “first cell”. Who created the atom and cell, the evolutionists cannot answer. Inanimate matter must have produced a living cell as a result of coincidence in the belief of the evolutionists. Many modern biologists have rejected this claim. The great evolutionists like Russian biologist Alexander Oparin and American chemist Stanley Miller experimented to prove that a living cell could originate by coincidence but failed and they admitted their failure. Oparin in “Origin of Life” and Stanley Miller in “Molecular Evolution of life” discuss it in detail. Jeffery Bada in his book “Earth” admits: “we still face the biggest unsolved problem that we had when we entered the twentieth century: how did life originate on earth.”21
The conditions required for the formation of cell are too great in quantity to be explained away by coincidences. The DNA molecule is so complex that it cannot be accidental or coincidental. Mechanism of evolution has been also rejected. No deer becomes horse and no ape becomes man. It is a fallacious theory having no historical and scientific evidence.

There is another Islamic viewpoint for Human Embryonic Development:\textsuperscript{22}:

We created man from an extract of clay. Then we made him as a drop in a place of settlement, firmly fixed. Then we made the drop into an alaqah (leech, suspended thing, and blood clot), then we made the alaqah into a mudghah (chewed substance)... \textit{(Quran, 23:12-14)}

Literally, the Arabic word alaqah has three meanings: (1) leech, (2) suspended thing, and (3) blood clot.

In comparing a leech to an embryo in the alaqah stage, we find similarity between the two as we can see in figure 1. Also, the embryo at this stage obtains nourishment from the blood of the mother, similar to the leech, which feeds on the blood of others.
Figure 3.1: Drawings illustrating the similarities in appearance between a leech and a human embryo at the alaqah stage. (Leech drawing from Human Development as Described in the Quran and Sunnah,

The second meaning of the word alaqah is “suspended thing.” This is what we can see in figures 2 and 3, the suspension of the embryo, during the alaqah stage, in the womb of the mother.

Figure 3.2: We can see in this diagram the suspension of an embryo during the alaqah stage in the womb (uterus) of the mother.

Figure 3.3: In this photomicrograph, we can see the suspension of an embryo (marked B) during the alaqah stage (about 15 days old) in the womb of the mother. The actual size of the embryo is about 0.6 mm.
The third meaning of the word alaqah is “blood clot.” We find that the external appearance of the embryo and its sacs during the alaqah stage is similar to that of a blood clot. This is due to the presence of relatively large amounts of blood present in the embryo during this stage (see figure 4). Also during this stage, the blood in the embryo does not circulate until the end of the third week. Thus, the embryo at this stage is like a clot of blood.

Figure 3. 4: Diagram of the primitive cardiovascular system in an embryo during the alaqah stage. The external appearance of the embryo and its sacs is similar to that of a blood clot, due to the presence of relatively large amounts of blood present in the embryo.

So the three meanings of the word alaqah correspond accurately to the descriptions of the embryo at the alaqah stage.

The next stage mentioned in the verse is the mudghah stage. The Arabic word mudghah means “chewed substance.” If one were to take a piece of gum and chew it in his or her mouth and then compare it with an embryo at the mudghah stage, we would conclude that the embryo at the mudghah stage acquires the appearance of a chewed substance. This is because of the somites at the back of the embryo.
that “somewhat resemble teethmarks in a chewed substance.” (See figures 5 and 6).

Figure 3.5: Photograph of an embryo at the *mudghah* stage (28 days old). The embryo at this stage acquires the appearance of a chewed substance, because the somites at the back of the embryo somewhat resemble teeth marks in a chewed substance. The actual size of the embryo is 4 mm. (*The Developing Human*, Moore and Persaud, 5th ed., p. 82, from Professor Hideo Nishimura, Kyoto University, Kyoto, Japan.)

Figure 3.6: When comparing the appearance of an embryo at the *mudghah* stage with a piece of gum that has been chewed, we find
similarity between the two. A) Drawing of an embryo at the mudghah stage. We can see here the somites at the back of the embryo that look like teeth marks. *(The Developing Human, Moore and Persaud, 5th ed., p. 79.)* B) Photograph of a piece of gum that has been chewed.

How could Prophet Muhammad have possibly known all this 1400 years ago, when scientists have only recently discovered this using advanced equipment and powerful microscopes which did not exist at that time? Hamm and Leeuwenhoek were the first scientists to observe human sperm cells (spermatozoa) using an improved microscope in 1677 (more than 1000 years after Prophet Muhammad). They mistakenly thought that the sperm cell contained a miniature preformed human being that grew when it was deposited in the female genital tract.

Professor Emeritus Keith L. Moore is one of the world’s most prominent scientists in the fields of anatomy and embryology and is the author of the book entitled *The Developing Human*, which has been translated into eight languages. This book is a scientific reference work and was chosen by a special committee in the United States as the best book authored by one person. Dr. Keith Moore is Professor Emeritus of Anatomy and Cell Biology at the University of Toronto, Toronto, Canada. There, he was Associate Dean of Basic Sciences in the Faculty of Medicine and for 8 years was the Chairman of the Department of Anatomy. In 1984, he received the most distinguished award presented in the field of anatomy in Canada, the J.C.B. Grant Award from the Canadian Association of Anatomists. He has directed many international associations, such as the Canadian
and American Association of Anatomists and the Council of the Union of Biological Sciences.

In 1981, during the Seventh Medical Conference in Dammam, Saudi Arabia, Professor Moore said: “It has been a great pleasure for me to help clarify statements in the Quran about human development. It is clear to me that these statements must have come to Muhammad from God, because almost all of this knowledge was not discovered until many centuries later. This proves to me that Muhammad must have been a messenger of God.”

Darwin was well aware that his theory faced lots of problems. He confessed these in his book in the chapter 'Difficulties of the Theory'. These difficulties primarily consisted of the fossil record, complex organs of living things that could not possibly be explained by coincidence (e.g. the eye), and the instincts of living beings. Darwin hoped that these difficulties would be overcome by new discoveries; yet this did not stop him from coming up with a number of very inadequate explanations for some. The American physicist Lipson made the following comment on the 'difficulties' of Darwin:

“On reading The Origin of Species, I found that Darwin was much less sure himself than he is often represented to be; the chapter entitled 'Difficulties of the Theory' for example, shows considerable self-doubt. As a physicist, I was particularly intrigued by his comments on how the eye would have arisen.”

Lamarck and Darwin believed in the transferring of traits of one species to the other. They maintain that living creatures passed on the traits they acquired during lifetime to the next generation. Giraffes
evolved from antelopes and bear transformed into whales. However, the laws of inheritance discovered by Gregor Mendel (1822 – 1884) and verified by the science of genetics have nullified the theory of evolutionary mechanism. Neo-Darwinism advances the Modern synthetic Theory”. Mutations, i.e.; genetic disorders do not cause living beings to develop on the contrary they are always harmful. The fossil record theory of Darwin, which was a basic contention, has been rejected on scientific grounds. According to this theory, every living species has sprung from a predecessor. No “Transitional Forms” have yet been uncovered. On the contrary, the British Paleontologist, Drerk V. Ager in “The Nature of the Fossil Record” admits that the fossil records show not gradual evolution but the sudden explosion of one group at the expense of another. This is just the opposite of Darwin’s assumptions. Douglas J. Futuyma, an eminent evolutionist biologist in his book, “Science of Trail” announces organism as the creation of some omnipotent intelligence. Fossils show, writes Harun Yahua, in his book, “The Importance of Conscience in the Quran”, that living beings emerged fully developed and in a perfect state on the earth. That means that the Origin of Species, contrary to Darwin’s suppositions, is not evolution, but creation.” On the wonders of creation the Quran in Sura Rehman aptly announces: “He has created man. He has taught him an intelligent speech.” Then in the same Sura in verse 13 God announce; “Then which of the favors of your Lord will ye deny.”

Darwinism maintains that living things were not created but came into being by chance. Darwinism, materialism and communism believe in matter, not in spirit. Darwin himself regarded his theory
based on assumptions. The above discussions on Darwinism can be reviewed under three basic topics:

1- The Darwinism theory cannot scientifically explain how life originated on Earth.

2- No scientific finding shows that the “evolutionary mechanism” proposed by the theory has any evolutionary power at all.

3- The fossil record provided proves the exact opposite of what the theory suggests.

According to the Qur'an, Adam (pbuh) - the first man - was a direct creation of God, as a man. The Qur'an does not support that Adam evolved from another species.

However, it may be of some interest to note that in Al-Sajadah 32: 7 - 9, the Qur'an has referred to three different stages involved in the creation of man in such words that a slightly varied version of 'evolution' may be derived from it. The Qur'an says:

He, who perfected everything that He created - He started the creation of man from clay then he inculcated in him [i.e. man] the potential to reproduce through a drop of humble fluid then He embellished and fashioned him in due proportion; and breathed into him of His spirit and [thereby] developed in you [the abilities of] listening, vision and feeling.

The above verses clearly tell us that in the beginning man was created from clay. The words 'creation from clay', obviously, does not necessitate that God created an effigy of man from clay and then gave
life to it. It may, as we know, imply that in the beginning man came into existence out of the earth. In other words, God inculcated in earth - mixed with water - the potential to produce life. Over centuries or even millennia, the life-bearing potential of the earth materialized and a species quite similar to, yet somewhat different from man was born. This was the first stage in the creation of man, as is evidenced by the words: "He started the creation of man from clay".

In the second stage, the potential of reproducing life - of bearing offspring - through sexual contact between the male and the female genders was inculcated in this species. This stage is mentioned in the words: "then he inculcated in him the potential to reproduce through a drop of humble fluid".

In the third stage, the species was physically fashioned into proportion and with that God also breathed into it of His spirit, which developed in it the abilities of listening, vision and feeling. The words: "then He embellished and fashioned him in due proportion; and breathed into him of His spirit and [thereby] developed in you [the abilities of] listening, vision and feeling", point to this final stage in the development of the human species.

It may be interpreted from the above explanation that it was only the first pair of near-humans - i.e. Adam and Eve - who went through the three stages explained above. That is Adam's (and Eve's) creation was initiated from clay - that is they were produced through the life-generation potential inculcated in the earth. Later on, the potential of reproduction through sexual contact was inculcated in Adam (and Eve). In the third stage, Adam (as well as Eve) was
physically fashioned into due proportion and God breathed into them of His spirit and thereby developed the higher sapiential abilities in them.

The Renaissance led to the separation of philosophy from theology, reason from faith, and mysticism from gnosis. (The latter term S.H.Nasr uses not to designate a secret knowledge based on mystic revelation but to refer broadly to "illuminated knowledge.") In medieval times Christianity, like Islam, was steeped in tradition. But as the West emphasized the rigid logic of Aristotelian thinking, the sense of the sacred diminished. By the seventeenth century the science of the cosmos was secularized. The scientific revolution mechanized the Western worldview, and, with the appearance of the nineteenth-century sociologist Auguste Comte, led to examining the person and society as elements that could be measured with the aim of manipulation and predictability.

Believing in Darwin's prophecy, evolutionist paleontologists have been digging up fossils and searching for missing links all over the world since the middle of the 19th century. Despite their best efforts, no transitional forms have yet been uncovered. All the fossils unearthed in excavations have shown that, contrary to the beliefs of evolutionists, life appeared on earth all of a sudden and fully-formed. Trying to prove their theory, evolutionists have instead unwittingly caused it to collapse.

A famous British paleontologist, Derek V. Ager, admits this fact even though he is an evolutionist:
The point emerges that if we examine the fossil record in detail, whether at the level of orders or of species, we find-over and over again-not gradual evolution, but the sudden explosion of one group at the expense of another.\textsuperscript{24}

Concerning the Darwin’s theory, S.H. Nasr attacks what he calls the "hypothesis" of evolution. He uses the term not to mean modifications within a particular species (which do occur, he says, as a species adapts itself to changed natural conditions) but the belief that through natural processes one species is actually transformed into another. Nasr passionately criticizes this on a wide variety of grounds -- metaphysical, cosmological, religious, logical, mathematical, physical, biological, and paleontological -- building arguments too complex to recapitulate here. His central concern is that what he calls "the deification of historical process" has become so powerful that in many souls it has replaced religion and veils the archetypal realities.\textsuperscript{25}

Among his arguments is the contention that there is a remarkable unanimity that humankind descends from a celestial archetype but does not ascend from the ape or any other creature. Hinduism, Jainism, Buddhism, Islam, and many other traditions do demonstrate awareness that other creatures have preceded humankind on earth and that the earth's geological configuration has changed. For example, over a thousand years ago Muslim scientists knew that sea shells on top of mountains meant that mountains had turned into seas and seas into mountains, and that land animals had preceded humans on earth. But no sacred scriptures, whether they speak of creation in six days or of cosmic cycles enduring over vast expanses of time, speak of higher life forms as evolving from lower ones.
However, contrary to the above interpretation, another theory that may be developed on the basis of the information given in the referred verses may be as follows:

- Man's creation, in the first stage, was initiated by the production of a like species from the earth. In this stage, a number of near-human pairs - male and female - were produced directly from the earth.
- In the second stage, the near-human pairs were inculcated with the ability of reproducing life through sexual interaction between the male and the female gender of the species.
- In the third stage, one of the directly produced pairs (as in the first stage) - i.e. Adam and Eve - were physically fashioned into due proportion and were inculcated with the advanced human abilities. It was at this stage that Adam and Eve became complete humans.
- Over subsequent centuries, the other directly produced pairs (in the first stage) and their offspring became extinct. The only pair that survived, through its offspring was that of Adam and Eve.
- The whole human race that populates the planet is the offspring of the one directly produced pair, which was physically fashioned into due proportion and inculcated with the advanced human faculties.

In view of the information provided by the Qur'an and the human knowledge that has developed over time, one may ascribe to any explanation that seems correct to him. However, if the latter theory is accepted to be correct, it also helps explain the existence of the slightly different fossil bones. It seems that these bones are of the near-humans that, in contrast to Adam and Eve and their subsequent generations, were not physically fashioned into proportion or
inculcated with the advanced human faculties and which became extinct over time.

It should be stressed here that the above is a development of a somewhat detailed scenario, on the basis of some vague indications of the Qur'an and the general knowledge that has become available to man. The scenario may or may not be completely accurate.

And finally it should be stressed also, as we know Darwin’s theory is opposed of Christianity scriptures as we see the same in Islamic scriptures, but in the Bible the emphasizes on creation by God is more. For instance we can not see in Holly Quran that God created all animals, the earth and sky directly but in Bible we can, so whether evolution theory is opposed of the creation of Adam and Eve and scriptures or not? It should be stated that it is not contrast of religion.

In fact there are different interpretations:

1-The evolution theory is opposed of Quranic scriptures especially in Adam and Eve story.

2-There is no contrasting because of some interpretations indicated that some men or similar to him, was living before Adam.

3- According to religious language, it could be said that these verses want to state that this Adam is created by God and who belong to him, it means they don’t want to explain the details of creation.

4-Suppose this is different of scriptures; we can response there is contrast between this theory and Christianity scripture not all religion.
Summery of chapter *Three*

- Islam is not only not opposed to scientific and technological progress, on the contrary, it encourages it, laying stress only on two points:
  1. Scientific, technological and social progress shall not result in man waxing proud and thereby disregarding his Creator.
  2. This endeavor and progress shall be utilized to better the condition of men and never be used in propagating sin or to buttress the foundations of cruelty and oppression.

- *The Qur'an* does not aim at explaining certain laws governing the Universe, however; it has an absolutely basic religious objective. The descriptions of Divine Omnipotence are what principally incite man to reflect on the works of Creation.

- Even definitely established scientific facts cannot uphold the truths of faith; they can be only instruments to give us ideas or to trigger us to reflect. God, not science, establishes the truths of faith in our conscience, for faith comes only by Divine guidance. Those who seek to acquire faith from science may never feel the existence of God within their own consciousness. In reality, they will be nature worshipers, not worshipers of God.

- It is clear that it could not bring all sample of clash between scientific point and some religious scripture here, so we try to investigate about two of most popular point of this clash.

- Galileo’s clash with the Church concerning his view of the solar system is probably the most well known example of the conflict
model between science and religion. Although this particular issue was resolved many years ago, creationists who maintain that the universe is only thousands of years old, when there is overwhelming evidence of its great antiquity, give credence to the idea that science and religion are invariably opposed. On the other side, well-known scientists who assert that science leaves no room for religion also support this model.

- Marx argues that religion is not so much an independent “thing” in society but, rather, a reflection or creation of other, more fundamental “things” like economic relationships. That’s not the only way of looking at religion, but it can provide some interesting illumination on the social.

- According to Marx it has become impossible to study religion without also exploring its ties to various social and economic forces, but his viewpoint can not answer to all cases, also people’s spiritual lives can no longer be assumed to be totally independent of their material lives. For Marx, the problem lies in the obvious fact that an opiate drug fails to fix a physical injury — it merely helps you forget pain and suffering. For this reason, some Marxists could be sympathetic to religion.

- There are many theories of evolution. Some of them are acceptable according to Islam, while there are others that are not acceptable. If by evolution one means the development and growth that Allah Almighty has placed in the nature of His creation, then this is acceptable. Darwin’s theory of Evolution has influenced the minds of people and their character has been influenced as well. Such people do not believe in divine morals and values. They do not believe in God, soul and Hereafter.
- It should be stressed also, as we know Darwin’s theory is opposed of Christianity scriptures as we see the same in Islamic scriptures, but in the Bible the emphasis on creation by God is more and direct. For instance we can not see in Holly Qur’an that God created all animals, the earth and sky directly but in Bible we can. So whether evolution theory is opposed of the creation of Adam and Eve and scriptures or not depend on the interpretations of the scriptures. It should be stated that it is not contrast of religion.

- As a last point, many of the Islamic philosophers like Allameh Tabatabaei (1892-1981) believe that modern science can be used for interpretation of Quran.
FOOTNOTES


3. Professor Mehdi Golshani (Persian: مهدی گلشنی b. 1939 Isfahan, Iran) is a contemporary Iranian theoretical physicist and Philosophy. He received his B.Sc. in Physics from Tehran University in 1959 and his Ph.D. in Physics with a specialization in particle physics in 1969 from the University of California, Berkeley. The title of his doctoral dissertation is "Electron impact excitation of heavily ionized atoms". Golshani is a distinguished lecturer and researcher. His main research areas include Foundational physics, particle physics, physical cosmology and philosophical implications of quantum mechanics. He is a known thinker for his writings on science, religion and their interrelation. It has been said that Golshani wants to be a Muslim scientist and thinker who has deep roots in both science and religion. He has been among the winners of the first year of the Templeton Science & Religion course program [Progress in Theology, September 1995, Volume 3, Number 3, and Page 7] and also among the Former Judges of The Templeton Prize. Golshani is the founder and chairman of the Faculty of the Philosophy of science at the Sharif University of Technology. He is also director of Institute of Humanities and Cultural Studies, Tehran, Iran, and Professor of Sharif University of Technology, Physics Department and Senior Fellow of Institute for Studies in Theoretical Physics and Mathematics (IPM), School of Physics. Golshani is a member of American Association of Physics Teachers - Center for Theology and Natural Science and Senior Associate of International Centre for Theoretical Physics, Trieste, Italy. He is also Member of Philosophy of Science Association, Michigan, USA and European Society for the Study of Science and Theology. See: Golshani, Mehdi. *Holy Quran and the Sciences of Nature*. Paperback ed. Studies in Contemporary Philosophical Th., 1997. Golshani, Mehdi. *Can Science Dispense with Religion?* Hardcover ed. I. H. C. S., 1998.

4. Abu Musa Jabir ibn Hayyan (Arabic: جابر بن حيان) (c.721–c.815), known also by his Latinised name Geber, was a prominent Islamic alchemist, pharmacist, philosopher, astronomer, and physicist. Jabir was born in Tus, Khorasan, in Iran, Jabir's father's profession may have contributed greatly to his interest in alchemy. In Kufa he became a student of the celebrated Islamic teacher and sixth Imam Ja'far al-Sadiq (a.s). He has also been referred to as "the father of chemistry" by Europeans. His ethnic background is not clear; although most sources state he was an Arab, others describe him as Persian. Ibn Hayyan is widely credited with the introduction of the experimental method into alchemy, and with the invention of numerous important processes still used in modern
chemistry today, such as the syntheses of hydrochloric and nitric acids, distillation, and crystallisation. His original works are highly esoteric and probably coded, though nobody today knows what the code is. On the surface, his alchemical career revolved around an elaborate chemical numerology based on consonants in the Arabic names of substances and the concept of takwin, the artificial creation of life in the alchemical laboratory.


5. Abū Nasr Muhammad ibn al-Farakh al-Fārābī (Persian: محمد فرایبی) or Abū Naṣr al-Fārābī (in some sources, known as Muhammad ibn Muhammad ibn Tarkhan ibn Uzalagh al-Farabi), also known in the West as Alpharabius, Al-Farabi, Farabi, and Abunaser (b. 870, d. between 14 December 950 and 12 January 951 CE) was an Islamic philosopher and one of the greatest scientists and philosophers of his time. The main influence on al-Farabi's philosophy was the neo-Aristotelian tradition of Alexandria. A prolific writer, he is credited with over one hundred works. In contrast to al-Kindi, who considered the subject of metaphysics to be God, al-Farabi believed that it was concerned primarily with being *qua* being (that is, being in of itself), and this is related to God only to the extent that God is a principal of absolute being. Al-Kindi's view was, however, a common misconception regarding Greek philosophy amongst Muslim intellectuals at the time, and it was for this reason that Avicenna remarked that he did not understand Aristotle's Metaphysics properly until he had read a prolegomena written by al-Farabi. The practical application of philosophy is a major concern expressed by al-Farabi in many of his works, and while the majority of his philosophical output has been influenced by Aristotelian thought, his practical philosophy is unmistakably based on that of Plato. In a similar manner to Republic (Plato), al-Farabi emphasizes that philosophy is both a theoretical and practical discipline; labeling those philosophers who do not apply their erudition to practical pursuits as "futile philosophers". The ideal society, he says, is one directed towards the realization of "true happiness" (which can be taken to mean philosophical enlightenment) and as such, the ideal philosopher must hone all the necessary arts of rhetoric and poetics to communicate abstract truths to the ordinary people, as well as having achieved enlightenment himself. Al-Farabi compares the philosopher's role in relation to society with a physician in relation to the body; the body's health is affected by the "balance of its humours" just as the city's is determined by the moral habits of its people. The philosopher's duty, he says, is to establish a "virtuous" society by healing the souls of the people, establishing justice and guiding them towards "true happiness". Of course, al-Farabi realizes that such a society is rare and will require a very specific set of historical circumstances in order to be realized, which means very few societies will ever be able to attain this goal. He divides those "vicious" societies, which have fallen short of the ideal "virtuous" society, into three categories: ignorant, wicked and errant. *Ignorant* societies have, for whatever reason, failed to comprehend the purpose of human existence, and have supplanted the pursuit of happiness for another (inferior) goal, whether this be
wealth, sensual gratification or power. It is interesting to note that democratic societies also fall into this category, as they too lack any guiding principal. Both wicked and errant societies have understood the true human end, but they have failed to follow it. The former because they have willfully abandoned it, and the latter because their leaders have deceived and misguided them. Al-Farabi also makes mention of "weeds" in the virtuous society; those people who try to undermine its progress towards the true human end. Henry Corbin, who considers al-Farabi to be a crypto-Shi'ite, says that his ideas should be understood as a "prophetic philosophy" instead of being interpreted politically.


6 - مولانا جلال الدين محمد رومي, Turkish: Mevlânâ Celâleddin Mehmed Rumi, also known as Mawlānā Jalāl ad-Dīn Muhammad Balkhī (Persian: مولانا جلال الدين محمد بالخی), but known to the English-speaking world simply as Rumi, (1207–1273 CE) was a 13th century Persian (Tâjîk) poet, jurist, and theologian. His name literally means "Majesty of Religion", Jalal means "majesty" and Din means "religion". Rumi was born in Balkh (then a city of Greater Khorasan in Persia, now part of Afghanistan) and died in Konya (in present-day Turkey). His birthplace and native tongue indicate a Persian heritage. He also wrote his poetry in Persian and his works are widely read in Iran, Afghanistan, Tajikistan, and in translation in Turkey, Azerbaijan, the US, and South Asia. He lived most of his life and produced his works under the Seljuk Empire. Rumi's importance is considered to transcend national and ethnic borders. Throughout the centuries he has had a significant influence on Persian as well as Urdu and Turkish literatures. His poems are widely read in the Persian speaking countries of Iran, Afghanistan and Tajikistan and have been widely translated into many of the world's languages in various formats. After Rumi's death, his followers founded the Mevlevi Order, better known as the "Whirling Dervishes", who believe in performing their worship in the form of dance and music ceremony called the sema.


7 - أبو بكر محمد بن زكريا رازى Zakaria ye Razi; Arabic: بكر محمد بن زكريا الرازي, Latin: Rhazes or Rasis). According to al-Biruni he was born in Rayy, Iran in the year 865 AD (251 AH), and died there in 925 AD (313 AH). Razi was a versatile Persian physician, philosopher, and scholar who made fundamental and enduring contributions to the fields of medicine, alchemy, and philosophy, recorded in over 184 books and articles in various
fields of science, his most important accomplishment being the discovery of alcohol. He was well versed in Greek medical knowledge and added substantially to it from his own observations.


8 - Avicenna (Latinized from Arab Ibn Sina; full name Abū 'Alī al-Husayn ibn 'Abd Allāh ibn Sīnā al-Balkhī; ḥusayn ibn abd allah ibn sina; born 980, dead 1037) was a Persian physician and a philosopher, scientist. Avicenna, whose name means "the son of Sina", was of Persian (Tājīk) ethnicity. He was born in 980 (370 AH) in Afshana near Bukhara in Persia (now part of Uzbekistan) and died in 1037 (428 AH) in Hamadan (now in Iran). Avicenna authored some 450 books on a wide range of subjects, many of which concentrated on philosophy and medicine. His most famous works are The Book of Healing and The Canon of Medicine, which was for almost five centuries a standard medical text at many European universities. Avicenna's medical system was based on that of Galen which he combined with Aristotelian metaphysics as well as traditional Persian and Arab lore.

→from the Encyclopedia Britannica & Ibn Sina from the Encyclopedia of Islam.

9 - Muḥammad ibn Mūsā al-Khwārizmī (Arabic: محمد بن موسى الخوارزمي) was a Persian (in 780 He was born around nd geographerastrologer a, astronomer, mathematician Khwārizmī now ) 850 and died around (Uzbekistan, Khiva. He worked most of his life as a scholar in the House of Wisdom in Baghdad. His Algebra was the first book on the systematic solution of linear and quadratic equations. Consequently he is considered to be the father of algebra, a title he shares with Diophantus. Latin translations of his Arithmetic, on the Indian numerals, introduced the decimal positional number system to the Western world in the 12th century. He revised and updated Ptolemy's Geography as well as writing several works on astronomy and astrology. His contributions not only made a great impact on mathematics, but on our language as well. The word algebra is derived from al-jabr, one of the two operations used to solve quadratic equations, as described in his book. The words algorithm and algorithm stem from algoritmi, the Latinization of his name. His name is also the origin of the Spanish word guarismo and of the Portuguese word algarismo, both meaning digit.


10 - Abu Hämed Mohammad ibn Mohammad al-Ghazzālī (1058-1111) (Persian: ابو حامد محمد ابن محمد غزالي), known as Algazel to the western medieval world, born and died in Tus, in the Khorasan province of Persia (modern day Iran). He was a Muslim theologian, philosopher, and mystic of Persian origin and remains as one of the most celebrated scholars in the history of Islamic thought.
Al-Ghazali contributed significantly to the development of a systematic view of Sufism and its integration and acceptance in mainstream Islam. He was a scholar of orthodox Islam, belonging to the Shafi’i school of legal thought of Sunnite Islam and to the Asharite school of theology.


11 - Mulla Sadra (ملاصادرا; also spelt Molla Sadra or Mollasadra) also called Sadr al-Din al-Shirazi (c. 1571–1640) was a Persian philosopher, who led the Iranian cultural renaissance in the 17th century.

The foremost representative of the illuminationist, or Ishraghi school of philosopher-mystics, he is commonly regarded by Iranians as the greatest philosopher their country has ever produced. His school of philosophy is called Transcendent Theosophy or al-hikmat al-muta’liyah. Born in Shiraz, Iran, the son of a notable Shirazi family, Mulla Sadra completed his education at Isfahan, which was the leading cultural and intellectual center of his day. He was trained under the supervision of Mir Damad. After his studies with scholars there, he produced several works, the most famous of which was his Asfar (Journeys). Asfar contains the bulk of his philosophy, which was influenced by a personal mysticism bordering on the ascetic, that he experienced during a fifteen-year retreat at Kahak, a village near Qom, Iran. Expounding his theory of nature, Mulla Sadra argued that the entire universe – except God and his knowledge – was originated both eternally and temporally. Nature, he asserted, is the substance of all things and is the cause for all movement. Thus, nature is permanent and furnishes the continuing link between the eternal and the originated. Much of his philosophy was also existentialist in nature. Toward the end of his life, Mulla Sadra returned to Shiraz to teach. His teachings however, were considered heretical by the orthodox Shiite theologians of his day, who persecuted him, though his powerful family connections permitted him to continue to write. He died in Basra, on a pilgrimage to Mecca, and was buried in present day Iraq.


12 - Allameh Seyyed Muhammad Husayn Tabataba’i (محمد حسین طباطبائی علامه سید) (1892-1981) is one of the most prominent thinkers of contemporary Shia Islam. He is famous for the historical landmark work *Tafsir al-Mizan*. Tabatabaei was a philosopher, a prolific writer, and an inspiring teacher to his students who devoted much of his life to non-political Islamic studies. Many of his
students were among the ideological founders of the Islamic Republic of Iran, namely Morteza Motahhari, Dr. Beheshti, Dr. Mohammad Mofatteh, Ayatollah Javadi Amoli and Ayatollah Mesbah. Others like Nasr and Hasanzadeh Amuli remained and continued their studies in the intellectual non-political sphere. His other major philosophical work is a voluminous commentary of *Asfār al-`arba`e`eh*, the magnum opus of Mulla Sadra who was the last of the great Persian (Iranian) Muslim thinkers of the medieval age. Apart from these he also wrote extensively on philosophical topics. His humanist approach is underlined by his three books on: the nature of man - before the world, in this world, and after this world. His philosophy is focused upon the sociological treatment of human problems. His two other works, *Bidāyat al-hikmah* and *Nihāyat al-hikmah*, are considered among works of high order in Islamic philosophy.

13 Ayatollah Morteza Motahhari (مرتضی مطهری; February 3, 1920 – May 1, 1979) was an Iranian scholar, cleric, University lecturer, and politician. Motahhari is considered among the important influences on the ideologies of the Islamic Republic, and was a co-founder of Hosseiniye Ershad and the Militant Clergy Association (*Jāme’e-ye Rowhāniyat-e Mobārez*). Motahhari also was the person who formed the Council of Revolution of Iran, according to an order from Ayatollah Khomeini, who was his teacher during the Shah's reign. Motahhari also wrote several books on Islam, Iran, and historical topics. He taught philosophy at Tehran University. "Teachers Day" in Iran is celebrated on Ordibehesht 12 (2 May), the Persian date on which Motahhari was assassinated after leaving a late meeting at the house of Yadollah Sahabi. He was assassinated by gunshot, from a member of the Furqan Militia Group. Mottahari is the father in law of Iran's top nuclear negotiator Ali Larijani. It was by Motahhari's advice that Larijani switched from Computer Science to western philosophy for graduate school. In honor of Mottahari, a major street in Tehran was named after him shortly after the Iranian revolution in 1979 -.


15 George Sarton Published 1927 Published for the Carnegie Institution of Washington by the Williams&Wilkins, Co Original from the University of Michigan Digitized Jun 9, 2006.

16 Issa Isaac Asimov, Howard Freedman, Published 2005, University Press of Mississippi ISBN 1578067383

17 See: *Encyclopaedia Britannica* under the heading, Petroleum, and www.islaam.net.

18 Professor Syed Hossein Nasr (Persian: نصر سید حسین) was born in Tehran (1933). After receiving his early education in Iran, Nasr studied physics and mathematics at Massachusetts Institute of Technology (MIT) and received his doctorate from Harvard University in 1958 with specialization
In Islamic cosmology and science. From 1958 until 1979, he was professor of the history of science and philosophy at Tehran University.

In 1962 and 1965, he was visiting professor at Harvard University and in 1964-65 the first Agha Khan Professor of Islamic studies at the American University of Beirut. He was the founder and first president of the Iranian Academy of Philosophy. In 1979, he migrated to the United States and taught at several American universities before finally joining the George Washington University, Washington DC in 1984 where he is currently the University Professor of Islamic Studies. In 1981, Nasr gave the Gifford lectures at the University of Edinburgh, which was published the same year as Knowledge and the Sacred. In 1999 he was chosen to be the first Muslim scholar to receive the Templeton Religion and Science Course Award. Most recently, a volume on Nasr in the Library of Living Philosophers Series has been edited, which includes several studies on his views of science.

Nasr has written a number of books and articles on the relation between religion and science in general and Islam and science in particular. His doctoral dissertation, which appeared first in 1964 under the title An Introduction to Islamic Cosmological Doctrines, is the first modern book devoted to the study of Islamic cosmology. In the Introduction, Nasr discusses three prominent figures of Islamic science and their approach to the study of nature. His next book Science and Civilization in Islam, first published in 1968, brought the concept of ‘Islamic science’ to the fore with full force. In this work, Nasr discussed the meaning of science within the context of Islamic religious worldview and analyzed the achievements of Islamic scientific tradition in such fields as medicine, astronomy, mathematics, algebra, chemistry, physics, geography, and natural history. The book is based on the original sources and remains one of the best compendia of science in the Islamic civilization.

Nasr’s next work in the field of Islamic science is a huge scholarly enterprise that has unfortunately remained incomplete. An Annotated Bibliography of Islamic Science, compiled in three volumes with William Chittick, is a tour de force presentation of the available material on the history of Islamic science in Western languages. The first volume appeared in 1975, the third in 1991.

Nasr’s most famous work on Islamic science is Islamic Science: An Illustrated Study (1976). It is the first of its kind in presenting Islamic science, its philosophical premises, its history and development with beautiful visual material, pictures, and diagrams. In addition, Nasr has dealt with the relation between Islam and science in his other writings such as Islamic Life and Thought (1981), The Young Muslim’s Guide to the Modern World (1993), and The Islamic Intellectual History in Persia (1994).
Nasr has also been a pioneering figure on the relation between religion, science, and the environmental crisis. His early work The Encounter of Man and Nature: The Spiritual Crisis of Modern Man, first appeared in 1968, was one of the first books to predict the disastrous consequences of the environmental crisis. The book is a philosophical critique of the modern conception of nature as inert matter to be conquered and usurped by modern science and technology. This is also the first book in which Nasr takes up the challenge of modern science and its secular outlook. The second important book to appear in this line of writings is Religion and the Order of Nature, published in 1996, in which Nasr gives an account of the rise of modern science on the one hand, and the critique of secular and reductionist philosophies concerning nature, on the other. The book also attempts to revive the sacred notion of nature and traditional cosmology with which Nasr has been occupied throughout his intellectual career. As a prominent spokesman of the traditionalist school, Nasr has also dealt with science in its traditional and sacred sense. In this regard, Knowledge and the Sacred (1981) and The Need for a Sacred Science (1993) are the two most important books in which Nasr has tried to revive scientia sacra by showing the underlying unity and interrelatedness of the transmitted, intellectual, and physical sciences under the umbrella of metaphysics.

In his intellectual career, Nasr has dealt with all of the major aspects of the relation between religion and science. The Islamic sciences of nature, just like their traditional Christian or Hindu counterparts, look upon the order of nature as vestigia Dei or signs of God (ayat Allah), pointing to the Divine origin of things. This suggests that the order of nature has an essential telos, which makes it both sacred and essentially meaningful. Within this framework, the natural order is construed as having an intrinsic intelligibility that can be discovered and grasped by the intellect (al-'aql). The analytical function of logical reasoning is complemented by the synthesizing power of the intellect. The natural phenomena, dissected and analyzed into their constitutive elements by reason, are integrated into a coherent whole by the intellect that occupies a higher epistemological position because of its intuitive and synthetic ability. Thus Nasr presents a holistic view of the universe and a holistic epistemology for its scientific study.

The teleological nature of the Islamic sciences of nature also envisages a hierarchic order in nature. To explain this, Nasr uses the metaphysical language of traditional Islamic philosophy, whose first premise is to make a distinction between the Principle, i.e., God in His aspect of absoluteness, and manifestation, i.e., the world of creation. Just as the generation of the world of multiplicity from the One implies an ontological hierarchy, various levels of existence are also structured in hierarchic units, the cosmos being a special case in point. Since every level of reality has its own meaning and place in the total economy of Divine creation, none of them can be reduced to one single element, viz., and the so-called ultimate building block of things. According to Nasr, it is the teleological and hierarchic view of the universe that has prevented the Islamic sciences of nature from falling into the trap of reductionism and materialism.
In a similar way, the Muslim scientists, nearly all of them also accomplished philosophers, developed highly advanced methods of scientific experimentation without giving in to physicalism and/or scientism. For Nasr, the greatest achievement and relevance of Islamic scientific tradition lies not merely in its ability to find the direction of the Ka‘bah but in its comprehensive outlook based on the metaphysical principles of Islam. In this regard, Islamic science is not just science developed and cultivated by people who happened to be Muslim. Rather, it is the scientific study of natural phenomena within the matrix of the worldview of the Islamic revelation.

The second aspect of Nasr’s work on religion and science pertains to the critique of modern science. Nasr has been one of the most outspoken critics of Western secular science and its effect on the non-Western world. In a number of studies, he has shown that the roots of modern science are traceable to a set of philosophical assumptions that mark the demarcation line between the medieval Christian and the modern West.

Taking the Scientific Revolution of the 16th and 17th centuries to be a turning point in the history of Europe, Nasr focuses on the process of the gradual demise of Christian thought and the rise of the secular view of the universe, and argues that the rise of modern science is not the result of some groundbreaking discoveries in scientific measurement and instruments but rather of a radical change in the worldview of modern man that emerged in Europe after the 16th century. To substantiate this claim, Nasr identifies six dominant traits of modern science.

The first is the secular view of the universe that sees no traces of the Divine in the natural order on the one hand, and denies any telos or purpose to the universe on the other. Consequently, the teleological view of the universe, shared by all traditional civilizations, is rejected by modern science.

The second is the mechanization of the world-picture upon the model of machines and clocks—the favorite image of the deists of the 18th and 19th centuries. Since modern science and philosophy claim to explain everything away in terms of scientific and rational analysis, the universe had to be constructed as a machine so that it would lend itself to the precise methods of analysis and measurement of modern physical sciences.

The third is rationalism and empiricism as the only reliable methods of arriving at truth. In spite of deep contradictions between the two, the secular and reductionist methods of philosophical analysis are shared by both schools.

The fourth is the legacy of Cartesian dualism that presupposes a complete separation between res cogitans and res extensa, viz., between the knowing subject and the object to be known. One of the conspicuous results of this separation is the epistemological and spiritual alienation of man.
from his natural environment and, in fact, from everything that may become the object of his knowledge.

The fifth is what Nasr calls the "Promethean view of man", which construes man as the measure of all things, and which Nasr contrasts with what he calls the "Pontifical man", i.e., man as a bridge between heaven and earth.

The last trait of modern secular science is the exploitation of nature as a source of power and domination, which was the driving force behind the Industrial Revolution and the rise of capitalism. Taken together, these six postulates constitute the philosophical framework of modern secular science, which has led to scientism and demise of the sacred view of the cosmos on the one hand, and to such modern disasters as the environmental crisis and nuclear warfare on the other.

In so far as the relationship between religion and science is concerned, Nasr is opposed to the modernist-puritanical view that an ethical dimension grafted to the practice of science will undo the misdeeds of modern secular science. Instead of confining the role of religion and ethics to the level of policy decisions, Nasr proposes a radical deconstruction of the philosophical foundations of modern science and attempts to revive the religious view of the universe. A sound metaphysical framework rooted in the perennial teachings of the great religions of the world is, for Nasr, a sine qua non for an authentic and veritable relationship between religion and science.

19- www.tebyan.net

20- Ayatollah Haj Mirza Mohammad Hasan Shirazi was one of Shi’ite scientists. In 1248 AH, as a youth, he left his hometown for Shiraz City where he studied both rational and traditional sciences. In 1295 AH, he left for the sacred thresholds in Iraq where he enjoyed Sheikh Morteza Ansari’s guidance. In 1291 AH, he settled down in Samarra and he taught till he passed away in 1312 AH. His body was taken to Najaf Ashraf and buried there. The historic verdict of this honorable clergyman on Tobacco abolishing nipped the disaster of the year 1309 AH in the bud.


22- See: Modified from Integrated Principles of Zoology, Hickman and others. Embryo drawing from The Developing Human, Moore and Persaud, 5th Ed, p. 73.
