

The Islamic Origins of Modern Science

HARUN YAHYA

Fourteen centuries ago, God sent down the Qur'an as a guide to all humanity.

At the time the Arab society was in a state of complete degeneration, chaos and ignorance. They were a barbarous people who worshipped idols of their own making, believed warfare and bloodshed to be virtuous and were even capable of killing their own children. They had little interest in intellectual matters, let alone a scientific outlook to the natural world.

However, through Islam they learned humanity and civilization. Not only the Arabs but all the communities which accepted Islam escaped the darkness of the age of ignorance and were illuminated by the divine wisdom of the Qur'an. Amongst the faculties the Qur'an brought to humanity was scientific thinking.

The Scientific Paradigm Given in the Qur'an

The genesis of scientific thought is the sense of curiosity. Because people wonder how the universe and nature work, they investigate and become interested in science. But most people lack this curiosity. For them, the important things are not the secrets of the universe and nature but their own small worldly profits and pleasures. In communities where people who think in this way are in charge, science does not develop. Idleness and ignorance rule.

The Arab community before the Qur'an was of this type. But the verses of the Qur'an called upon them to think, to investigate and to use their minds, perhaps for the first time in their lives.

In one of the first revealed verses of the Qur'an, God drew the attention of the Arabs to the camel, a part of their everyday lives:

Have they not looked at the camel how it was created?

And at the sky how it was raised up?

And at the mountains how they were embedded?

And at the earth how it is spread out?

So remind them! You are only a reminder. (Qur'an, 88: 17-21)

In many other verses of the Qur'an, people are instructed to examine nature and learn from it because people can know God only by examining His creations. Because of this, in one verse of the Qur'an Muslims

are defined as people who think about the creation of the heavens and the earth:

Those who remember God, standing, sitting and lying on their sides, and reflect on the creation of the heavens and the earth (saying): Our Lord, You have not created this for nothing. Glory be to You! So safeguard us from the punishment of the Fire. (Qur an, 3: 191)

As a result of this, for a Muslim, taking an interest in science is a very important form of worship. In many verses of the Qur an, God instructs Muslims to investigate the heavens, the earth, living things or their own existence and think about them. When we look at the verses, we find indications of all the main branches of science in the Qur an.

For example, in the Qur an, God encourages the science of astronomy:

He who created the seven heavens in layers. You will not find any flaw in the creation of the All-Merciful. Look again do you see any gaps? (Qur an, 67: 3)

In another verse of the Qur an, God encourages the investigation of astronomy and the composition of the earth that is the science of geology:

Do they not look at the sky above them? How We have made it and adorned it, and there are no flaws in it? And the earth- We have spread it out, and set thereon mountains standing firm, and produced therein every kind of beautiful growth (in pairs) To be observed and commemorated by every devotee turning (to God). (Qur an, 50: 6-8)

In the Qur an, God also encourages the study of botany:

It is He Who sends down water from the sky from which We bring forth growth of every kind, and from that We bring forth the green shoots and from them We bring forth close-packed seeds, and from the spathes of the date palm date clusters hanging down, and gardens of grapes and olives and pomegranates, both similar and dissimilar. Look at their fruits as they bear fruit and ripen. There are Signs in that for people who believe. (Qur an, 6:99)

In another verse of the Qur an, God draws attention to zoology:

You have a lesson in livestock... (Qur an, 16:66)

Here is a Qur anic verse about the sciences of archaeology and anthropology:



An early manuscript of the Qur'an.

Have they not traveled in the earth and seen the final fate of those before them? (Qur an, 30: 9)

In another verse of the Qur an, God draws attention to the proof of God in a person s own body and spirit:

There are certainly Signs in the earth for people with certainty; and in yourselves as well. Do you not then see? (Qur an, 51: 20-21)

As we can see, God recommends all the sciences to Muslims in the Qur an. Because of this the growth of Islam in history meant at the same time the growth of scientific knowledge.

The Scientific Renaissance of the Middle East

As we have mentioned, when the Prophet Mohammed (pbh) began to preach Islam, the Arabs were a community of ignorant, superstitious tribes. However, thanks to the light of the Qur an they were rescued from superstition and began to follow the path of reason. As a result of this, one of the most astonishing developments in world history took place and in a few decades Islam, which emerged from the small town of Medina, spread from Africa to Central Asia. The Arabs, who previously could not even rule a single city in harmony, came to be rulers of a world empire.

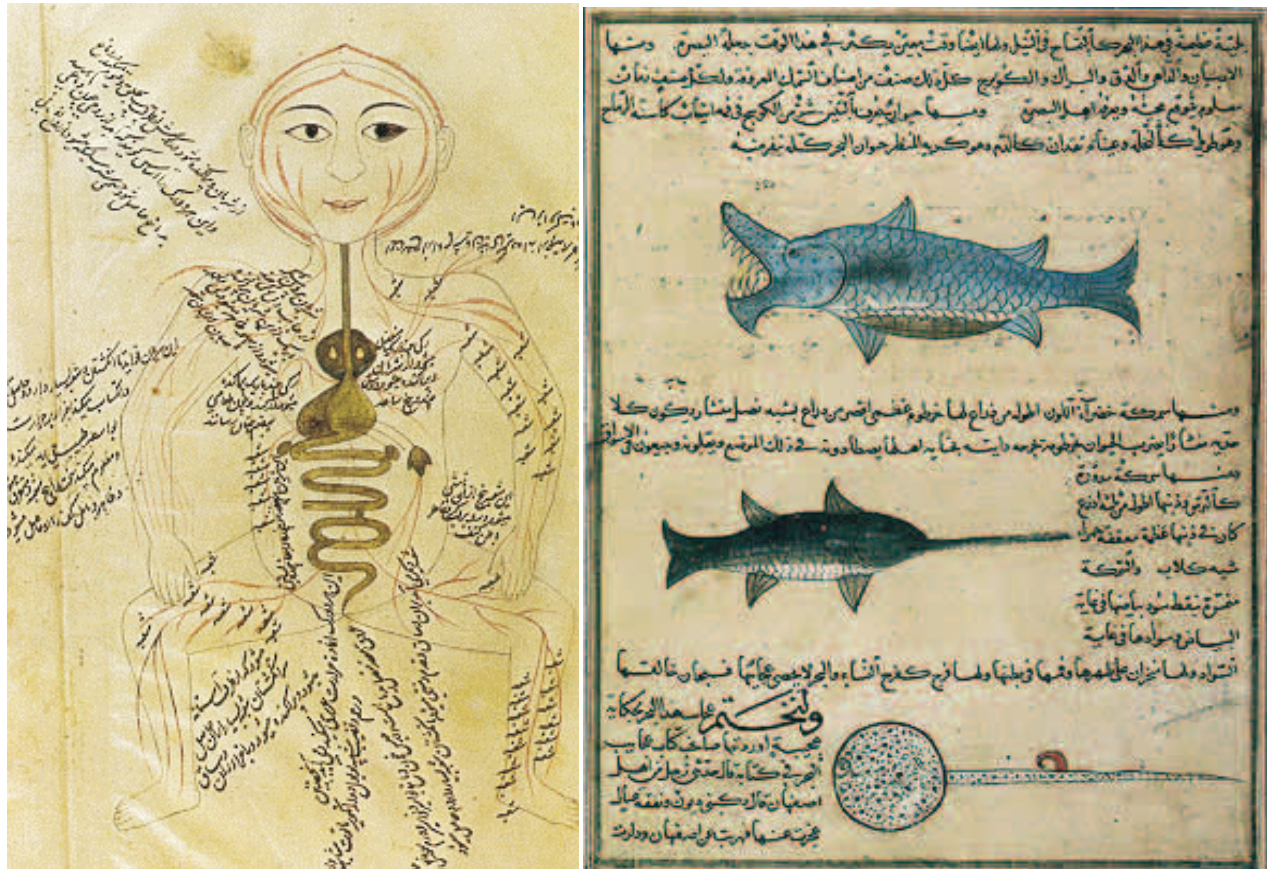
One of the most important facets of this empire was that it provided the stage for a scientific development previously unmatched in history. At a time when Europe was living through the Dark Ages, the Islamic world created the greatest legacy of scientific knowledge seen in history to that date. The sciences of medicine, geometry, algebra, astronomy and even sociology were developed systematically for the first time.

Great centers of religious learning were also centers of knowledge and scientific development. Such formal centers began during the Abbasid period (750-1258 A.D.) when thousands of mosque schools were established. In the tenth century Baghdad had some 300 schools. Alexandria in the fourteenth century had 12,000 students. It was in the tenth



Muslim scholars in Baghdad, the world's scientific capital of the time.

century that the formal concept of the Madrassah (school) was developed in Baghdad. The Madrassah had a curriculum and full-time and part-time teachers, many of whom were women. Rich and poor alike received free education. From there Maktabat (libraries) were developed and foreign books acquired. The two most famous are Bait al-Hikmah in Baghdad (ca. 820) and Dar al-Ilm in Cairo (ca. 998). Universities such as Al-Azhar (969 A.D.) were also established long before those in Europe. The Islamic world created the first universities — and even hospitals — in the world.



Islamic scientific manuscripts of the Medieval Age; meticulous studies on human anatomy and zoology.

This fact may be very surprising to modern Westerners, who generally have a different kind of picture about Islam in their minds. But this picture emerges from ignorance about the origins and history of the Islamic civilization. Those who get rid of this ignorance and several prejudices acknowledge the true nature of Islam. One example of these is a recent documentary film by PBS, titled *Islam: The Empire of Faith*, in which the commentator rightly states that:

In the unfolding of history, Islamic civilization has been one of humanity's grandest achievements... For the West, much of the history of Islam has been obscured behind a veil of fear and misunderstanding. Yet Islam's hidden history in deeply and surprisingly interwoven with Western civilization... It was they (Muslim scholars) who sewed the seeds of the Renaissance, 600 years before the birth of Leonardo da Vinci. From the way we heal the sick to the

numerals we use for counting, cultures across the globe have been shaped by the Islamic civilization.¹

In an article published in Salon.com, a prominent voice of the liberal American media, author George Rafael writes in an article titled "A Is For Arabs" that;

From algebra and coffee to guitars, optics and universities... the West owes to the People of the Crescent Moon... A millennium ago, while the West was shrouded in darkness, Islam enjoyed a golden age. Lighting in the streets of Cordoba when London was a barbarous pit; religious tolerance in Toledo while pogroms raged from York to Vienna. As custodians of our classical legacy, Arabs were midwives to our Renaissance. Their influence, however alien it might seem, has always been with us, whether it's a cup of steaming hot Joe or the algorithms in computer programs.²

The Open-Mindedness of Islam

What allowed Muslims to create such an advanced scientific culture was derived from the faculties of the Islamic understanding. One of them was, as we have noted, the motive to learn about the universe and nature according to the Qur'anic principles. Another one was open-mindedness. Both the Qur'anic wisdom and the Prophetic teaching gave Muslims a global outlook to the world, trespassing all cultural barriers. In the Qur'an, God states:

Mankind! We created you from a male and female, and made you into peoples and tribes so that you might come to know each other..." (Qur'an, 49:13)

This verse clearly encourages cultural relationships between different nations and communities. In another verse of the Qur'an it is stated that "Both East and West belong to Allah" (2:115), thus Muslims should see the world in a universalist and cosmopolitan vision.

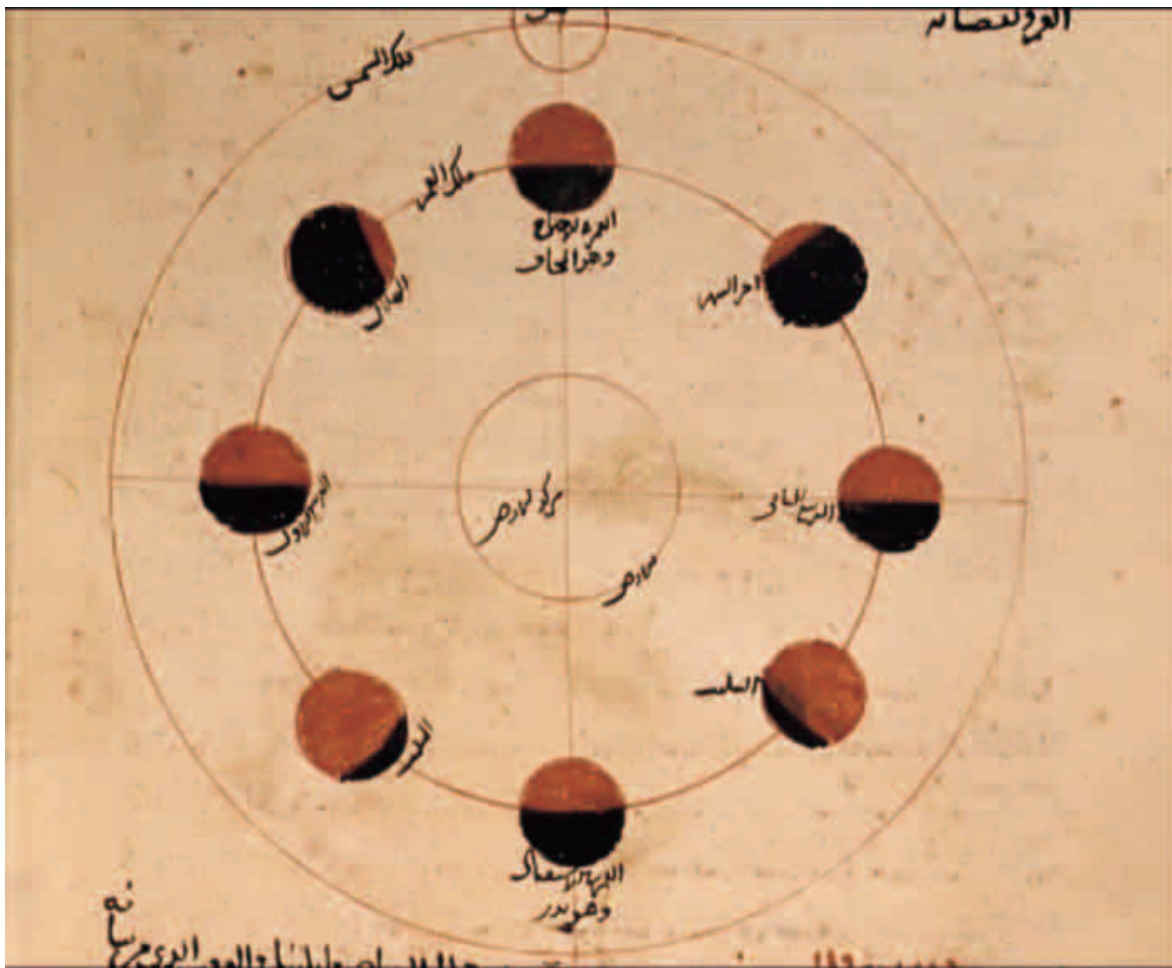
The hadiths, or sayings, of the Prophet also encourage this vision. In two popular hadiths, the Prophet calls Muslims to "get knowledge from everywhere, even it is from China" (China being the symbol of the most remote cultures) and declares that "wisdom is the lost property of the Muslims; he takes it from wherever he finds". This means that Muslims should be very pragmatic and broadminded in adapting and using the cultural and scientific achievements of non-Muslims; those non-Muslims are also creatures and servants of God, even they might not recognize so. The "People of The Book", i.e. Christians and Jews, are even much more compatible, since they believe in God and stick to moral code He revealed to man.

In the rise of Islamic science, the role of this open-mindedness is very clear to see. John Esposito of the Georgetown University, one of the most prominent Western experts on Islam, makes the following comment:

The genesis of Islamic civilization was indeed a collaborative effort, incorporating the learning and wisdom of many cultures and languages. As in government administration, Christians and Jews, who had been the intellectual and bureaucratic backbone of the Persian and Byzantine empires, participated in the process as

well as Muslims. This "ecumenical" effort was evident at the Caliph al-Mamun's (reigned 813-33) House of Wisdom and at the translation center headed by the renowned scholar Hunayn ibn Isaq, a Nestorian Christian. This period of translation and assimilation was followed by one of Muslim intellectual and artistic creativity. Muslims ceased to be disciples and became masters, in process producing Islamic civilization, dominated by the Arabic language and Islam's view of life... Major contributions were made in many fields: literature and philosophy, algebra and geometry, science and medicine, art and architecture... Great urban cultural centers in Cordoba, Baghdad, Cairo, Nishapur, and Palermo emerged and eclipsed Christian Europe, mired in Dark Ages.³

According to one of the great Muslim scholars of our time, Seyyed Hossein Nasr, Islamic science was "the first science of a truly international nature in human history".⁴



Another Medieval Muslim manuscript describing the planetary motion.

Yet Muslims did not only incorporate other cultures, but developed their own. Some commentators neglect this and try to link the Islamic scientific development solely to the influence of the Ancient Greece or Far East. But the real source of Islamic science was the experimentation and observations of Muslim scientists.

In his book *The Middle East*, Professor Bernard Lewis, an undoubted expert in Middle Eastern history, explains it as follows:

The achievement of medieval Islamic science is not limited to the preservation of Greek learning, nor to the incorporation in the corpus of elements from the more ancient and more distant East. This heritage which medieval Islamic scientists handed on to the modern world was immensely enriched by their own efforts and contributions. Greek science, on the whole rather tended to be theoretical. Medieval Middle Eastern science was much more practical, and in such fields as medicine, chemistry, astronomy and agronomy, the classical heritage was clarified and supplemented by the experiments and observations of the medieval Middle East.⁵

As noted by Westerners, this advanced scientific culture of the Islamic world paved the way for the Western Renaissance. Muslim scientists acted in the knowledge that their investigation of God's creation was a path through which they could get to know Him. Esposito stresses that "Muslim scientists, who were often philosophers or mystics as well, viewed physical universe from within their Islamic worldview and context as a manifestation of the presence of God, the Creator and the source and unity and harmony in nature."⁶ With the transfer of this paradigm and its accumulation of knowledge to the Western world, the advance of the West began.

The Theist Origins of Western Science

Medieval Europe was ruled by the dogmatic regime of the Catholic Church. The Church opposed freedom of thought and pressured scientists. People could be punished by the Inquisition simply for holding different beliefs or ideas. Their books were burned and they themselves were executed. The pressure on research in the Middle Ages is often referred to in history books, but some interpret the situation wrongly and claim that the scientists who clashed with the Church were against religion.

The truth is the exact opposite the scientists who opposed the bigotry of the church were religious believers. They were not against religion, but against the harsh clericalism of the time.

For example, the famous astronomer Galileo, whom the Church wanted to punish because he stated that the world rotated, said, "I render infinite thanks to God for being so kind as to make me alone the first observer of marvels kept hidden in obscurity for all previous centuries."⁷

The other scientists who established modern science were all religious.

Kepler, regarded as the founder of modern astronomy, told those who asked him why he busied himself with science, "I had the intention of becoming a theologian... but now I see how God is, by my endeavors, also glorified in astronomy, for 'heavens declare the glory of God'".⁸

As for Newton, one of the greatest scientists in history, he explained the reason underlying his zeal for scientific endeavor by saying:

...He (God) is eternal and infinite, omnipotent and omniscient; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity; he governs all things, and knows all things that are or can be done. We know him only by his most wise and excellent contrivances of things... [W]e revere and adore him as his servants ⁹

The great genius Pascal, the father of modern mathematics, said that: But by faith we know His (God's) existence; in glory we shall know His nature. ¹⁰

Many other founders of modern Western science were also strong believers. For example:

- Von Helmholtz, one of the leading figures in modern chemistry and the inventor of the thermometer, declared that science was a part of faith.
- George Cuvier, the founder of modern paleontology, regarded fossils as surviving proofs of the Creation and taught that living species had been created by God.
- Carl Linnaeus, who first systematized scientific classification, believed in the Creation and stated that the natural order was a significant proof of God's existence.
- Gregor Mendel, the founder of genetics, and also a monk, believed in Creation and opposed the evolutionary theories of his time, such as Darwinism and Lamarckism.
- Louis Pasteur, the greatest name in the history of microbiology, proved that life could not be created in inert matter and taught that life was a miracle of God.
- The famous German physicist Max Planck said that the Creator of the universe was God and stressed that faith was a necessary quality of scientists.
- Albert Einstein, regarded as the most important scientist of the twentieth century, believed that science could not be godless and said, science without religion is lame.

A large number of other scientists who guided modern scientific progress were religious people who believed in God. These scientists served science with the intention of discovering the universe that God had created a paradigm that was first developed and implemented in the Islamic world and then incorporated into the West. All these theist scientists thought about the creation of the heavens and the earth and investigated in the awareness of God as God decreed in the Qur'an and the Bible. The birth of science and its development were the result of this awareness.

During the nineteenth century, however, this awareness was replaced by a misconception called materialism.

The Rise and Fall of the Materialist Deviation

The nineteenth century was a period that witnessed the greatest errors in human history. These errors began with the imposition on European thought of materialist philosophy, an ancient Greek teaching.

The greatest error of this period was Darwin's theory of evolution. Before the birth of Darwinism,

biology was accepted as a branch of science that provided evidence of the existence of God. In his book *Natural Theology*, the famous author William Paley maintained that, to the extent that every clock proves the existence of a clockmaker, natural designs prove the existence of God.

However, Darwin rejected this truth in his theory of evolution. By distorting the truth to fit materialist philosophy, he claimed that all living things were the result of blind natural causes. In this way he created an artificial antagonism between religion and science.

In their book *The Messianic Legacy*, English authors Michael Baigent, Richard Leigh and Henry Lincoln have this to say on the subject:

For Isaac Newton, a century and a half before Darwin, science was not separate from religion but, on the contrary, an aspect of religion, and ultimately subservient to it. But the science of Darwin's time became precisely that, divorcing itself from the context in which it had previously existed and establishing itself as a rival absolute, an alternative repository of meaning. As a result, religion and science were no longer working in concert, but rather stood opposed to each other, and humanity was increasingly forced to choose between them.¹¹

Not only biology, but also branches of sciences such as psychology and sociology were twisted according to materialist philosophy. Astronomy was distorted according to the materialist dogmas of ancient pagan Greece; a metaphysical faith in an "eternal cosmos" came to be the norm. The new aim of science was to confirm materialist philosophy.

These incorrect ideas have dragged the scientific world into a dead end for the past 150 years. Tens of thousands of scientists from different branches worked in the hope of being able to prove Darwinism or other materialist theories.

But they were disappointed.

The scientific evidence showed the exact opposite of the conclusion they wanted to reach. That is, it confirmed the truth of Creation. Today the world of science is astonished by this truth. When nature is examined it emerges that there is a complex plan and design in every detail and this has cut away the foundations of materialist philosophy.

For example, the extraordinary structure of DNA shows scientists that it is not the result of blind chance or natural laws. The DNA in a single human cell contains enough information to fill a whole 900-volume encyclopedia. Gene Myers, a scientist from the Celera company which administers the Human Genome Project, says this:

What really astounds me is the architecture of life. The system is extremely complex. It's like it was designed. There's a huge intelligence there.¹²

This astonishment affects the whole scientific world. Scientists are viewing with surprise the invalidity of the materialist philosophy and Darwinism which they were taught as truth, and some of them are declaring this openly. In his book *Darwin's Black Box*, biochemist Michael Behe, one of the leading critics of

Darwinism, describes the situation of the scientific world as follows:

Over the past four decades modern biochemistry has uncovered the secrets of the cell. The progress has been hard won. It has required tens of thousands of people to dedicate the better parts of their lives to the tedious work of the laboratory

The result of these cumulative efforts to investigate the cell to investigate life at the molecular level is a loud, clear, piercing cry of "design!" The result is so unambiguous and so significant that it must be ranked as one of the greatest achievements in the history of science

But, no bottles have been uncorked, no hands clapped. Why does the scientific community not greedily embrace its startling discovery? The dilemma is that while one side of the [issue] is labeled intelligent design, the other side must be labeled God.¹³

The same situation exists in astronomy. The astronomy of the twentieth century has demolished the materialist theories of the nineteenth. First with the Big Bang theory, it emerged that the universe had a beginning, the moment of Creation. Since then it has been realized that in the universe there is an extraordinarily delicate balance which protects human life a concept known as the anthropic principle.

For these reasons, in the world of physics and astronomy atheism is in rapid decline. As American physicist Robert Griffiths jokingly remarks: "If we need an atheist for a debate, I go to the philosophy department. The physics department isn't much use."¹⁴

In short, in our day and age materialist philosophy is collapsing. Science is rediscovering certain very important facts rejected by materialist philosophy and in this way a new concept of science is being born. The Intelligent Design theory, which has been on a successful rise in the United States during the past 10 years, is a leading part of this new scientific concept. Those who accept this theory stress that Darwinism was the greatest error in the history of science and that there is an intelligent design in nature that gives evidence of Creation.

Conclusion

God created the entire universe, and the whole of creation shows humanity the signs of God. Science is the method of investigating what has been created, so conflict between religion and science provided that religion is guided only by Divine revelation is out of the question.

On the contrary, history shows that theism has been the main motive and paradigm for scientific progress. The two greatest scientific achievements in world history the Islamic scientific endeavor of the Medieval Age and the Christian scientific leap of the modern era stemmed from faith in God. Moreover, the latter borrowed a great deal of knowledge, method and vision from the former. The wisdom of the Qur'an first enlightened the Islamic world and then shed light even to the non-Muslim Europe. If something went wrong in the Islamic world, this was because Muslims turned away from the sincerity, wisdom and open-mindedness

God teaches in the Qur an.

The materialist paradigm is a deviation from this pattern. It arose in the 19th century, reached its peak in the mid-20th century and is on the brink of collapse today. No matter how arrogant and seemingly self-confident its supporters are, the materialist dogma and its main pillar, Darwinism, will inevitably perish in the upcoming decades.

And science will return to its authentic and true paradigm: A search for the discovery and definition of the great design and harmony in the natural world, the artifact of God.

¹ Jonathan Grupper (series writer), *Islam: Empire of Faith*, A Documentary by Gardner Films, in association with PBS, 2001

² George Rafael "A is for Arabs", www.Salon.com, Jan. 8, 2002; <http://www.salon.com/books/feature/2002/01/08/alphabet/>

³ John L. Esposito, *Islam: The Straight Path*, Oxford University Press, 1991, s. 52-53

⁴ Quoted in Weiss and Green, p. 187

⁵ Bernard Lewis, *The Middle East*, 1998, p. 266

⁶ John L. Esposito, *Islam: The Straight Path*, s. 54

⁷ Galileo Galilei, quoted in: Mike Wilson, *The Foolishness of the Cross*, *Focus Magazine*

⁸ Johannes Kepler, quoted in: J.H. Tiner, *Johannes Kepler-Giant of Faith and Science* (Milford, Michigan: Mott Media, 1977), p. 197

⁹ Sir Isaac Newton, *Mathematical Principles of Natural Philosophy*, Translated by Andrew Motte, Revised by Florian Cajori, Great Books of the Western World 34, Robert Maynard Hutchins, Editor in chief, William Benton, Chicago, 1952:273-74

¹⁰ Blaise Pascal, *Pensees*, No. 233

¹¹ Michael Baigent, Richard Leigh, Henry Lincoln, *The Messianic Legacy*, Gorgi Books, London: 1991, p.177-178

¹² *San Francisco Chronicle*, 19 February, 2001

¹³ Michael J.Behe, *Darwin's Black Box*, New York: Free Press, 1996, p.231-232

¹⁴ Hugh Ross, *The Creator and the Cosmos*, p. 123