

# Islam and Science

**Author:** Salah Zaimeche BA, MA, PhD  
**Chief Editor:** Professor Salim Al-Hassani  
**Production:** Ahmed Salem BSc

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**FSTC Limited**

9 Conyngham Road, Victoria Park, Manchester, M14 5DX, United Kingdom

Web: <http://www.fstc.co.uk> Email: [info@fstc.co.uk](mailto:info@fstc.co.uk)

## ISLAMIC AND SCIENCE

**“Read: In the name of your Lord Who creates, creates man from a clot. Read: And your Lord is the Most Bounteous, Who teaches by the use of the pen, teaches man that which he knew not.”** (Qur'an 96:105)

The crucial, most fundamental, difference between Islamic and secular Western science is that Islam and Muslim Civilisation both reached their apogee in the same centuries. At no other time in their history, and under no other circumstances, have Muslims achieved anything of similar proportion than in that so called golden era (800-1200). Then, once Islam's power retreated in both its eastern part (the taking and sacking of Baghdad by the Mongols in 1258), and its western part (the taking of Cordoba: 1236; Valencia: 1238; and Seville 1248 by the Christian armies in Spain), its civilisation retreated too. From the mid 13<sup>th</sup> onwards, Islamic civilisation only lived in faint outbursts. Its centres of learning, its scholars, its books and libraries having become prey to destruction, it was now unable to mount the coherent, sustained scientific effort achieved in times when the Muslim land was somehow secure and powerful. Another element of difference was that if Western science developed outside a religious frame, Islam, as expressed in numerous Quranic verses and Prophet's sayings, acted as the source of inspiration for such a thrust.<sup>1</sup>

In contrast to Islam, religion and modern Western science seem to meet in the theatre of conflict only. This has origins that are centuries old, during the apogee of Christianity, when burning of dissenting individuals, scores of them scholars (Bruno, Huss, Servetus...), was widespread. The Church banned science but not because of the religious text itself, as Bucaille explains, science instead being hampered by those who claimed to be the Church's servants, and who acted on their own initiatives.<sup>2</sup> Until the so called 'modern times,' to avoid burning at the stake, scientists in Christian Europe had to forsake scientific truth, or recant their views, Galileo being the best example of that. Gradually, though, science and religion were dissociated. In historical terms, the so-called European scientific revolution only took place once the authority of religion had loosened, from the seventeenth century onwards. And by the nineteenth century, 'scientists' could venture with any idea, however antagonistic, including Darwin's evolution theory, which completely denies any Divine role in creation. Today, the separation is total; and to assert that one is a believer in God in learned Western circles is tantamount to heresy. The whole matter had gone full circle.

Today, the separation is not just between Christianity and science, but between religion in general and science. The reason is that the science, which nations and people from the world over seek to acquire, is Western science. That science, is the very science that had risen in conflict with religion, and not the Muslim science that had risen in concert and harmony with religion. This fact, imposed by the dominant science, today's reality, and the absence of historical knowledge, easily drives people into believing that as a rule, science and religion live into conflict. Yet, as in the words of Ali Kettani 'claiming that all religious experiences are the same and projecting the Western experience to the Muslim world results from a serious ignorance of historical realities.'<sup>3</sup> The apparent conflict of science and religion, and their separation in 'watertight compartments,' as put by Sadar,<sup>4</sup> is a uniquely Western creation, the result of hostilities between those who claimed to be custodians of Christianity and those who challenged their power. And he adds that 'to take an inductive leap from what was a particularly European experience and generalise it to an all embracing conflict between science and religion is not just Eurocentric but also poor scholarship.'<sup>5</sup>

Islam, unlike medieval Catholicism, it is observed, 'did nothing to stifle the spirit of scientific enquiry.'<sup>16</sup> And one outcome was that, from 'Basra to Cordoba, great universities arose centuries before the earliest *studium generale* in Christendom;' the library of Cordoba contained 600,000 books, and 'the craftsmanship of the Arab world was on a par with its scholarship.'<sup>17</sup>

It seems, though, that such preceding statements have little relation with reality. First and foremost, the picture offered of Islam, even that given by Muslims, runs against the preceding points. Muslims are depicted very unfavourably on television, magazines, films and daily media. There is a constant bombardment of opinion of well chosen articles, concocted facts, off-putting photographs of Muslims. It is not surprising that in any mind, just the idea that these people and that religion having any link, however faint, with civilisation and science is an impossible fact. 'Historians,' and other opinion makers also stress the dark moments of Islamic history with such skills and high competence that it is as if the Muslims, worse than the Mongols, left only death and destruction in their trail, besides enslaving every being falling under their grips.<sup>8</sup> The Muslim nation itself, lacking in order, power, and organisation, is partly responsible for that poor image, too.

Adding to this whole dire state, and playing the major part in dissociating Islam and science, is the endeavour of some hostile scholars, for instance Renan<sup>9</sup> and Huff,<sup>10</sup> who, whilst recognising the vast, and even unique contribution of Muslim science, hold that such greatness was hampered by Islam, its laws and harsh discipline that stifled progress. The likes of Pirenne, Duhem, Lynn White Jr, and hordes of others only depict Islam and its civilisation in the most abject ways. Pirenne,<sup>11</sup> for instance, and his followers, see in Islam a force of darkness and end to civilisation. Such writers fail to acknowledge, that Muslim science only reached its peak under the banner of Islam, and when Islam was at its heights, and never since. Often, as put by Bucaille 'The totally erroneous statements made about Islam in the West are sometimes the result of ignorance, and sometimes of systematic denigration.'<sup>12</sup>

Ignorance and denigration, indeed, when one becomes aware of how, in fact, Islam is a major tool, if not the major force that has promoted scientific endeavour most effectively. That occurred under many forms. First and foremost, the Quran, repeatedly calls on the believers to seek knowledge, whilst at the same time it makes a number of observations on phenomena that stimulate intellectual effort such as creation, and the planets. Some verses among many work in this sense:

**"Say [unto them, O Muhammad]: Are those who know equal to those who know not? But only men of understanding will pay heed"** (39: 9)

**"In time, we shall show them our signs [ayatina] in the utmost horizons [of the universe] and within their inner selves until it will be manifest unto them that it is the Truth. Doth not thy Lord suffice, since He is Witness over all things."** (41:53)

**"And He has subjected to you, as from Him, all that is in the heavens and on earth: behold, in that are signs indeed for those who reflect."** (45: 13)

The Quran repeatedly uses the expressions: 'Why do they not reflect? Why do they not ponder?' It constantly encourages the use of intellect and invites people to think, investigate and analyse. Muhammad Iqbal argues that by repeatedly reminding mankind to reflect and ponder, the Quran aims to 'awaken in

man the consciousness of that of which nature is regarded as a symbol.<sup>13</sup> And in the words of Al-Faruqi 'God created the world and implanted in it His immutable patterns that make it a cosmos. He designed it in a way calling for wonder: perfect, orderly, malleable, its parts causally and theologically bound to one another... He invited man to study and investigate nature, to make the necessary deduction, and thus recognise, worship, and serve Him'. The Quran calls upon 'this widest possible scholarship, confident that men will find Islam's claims for God and His providence, for nature, for man and history, confirmed. It made a point of faith to discern the patterns of God in nature, an act of piety to articulate those patterns correctly and adequately; and an act of charity to teach them to others.'<sup>14</sup>

There are scores of hadiths (sayings of the Prophet) in which the Prophet Mohammed (pbuh) enjoins Muslims to seek knowledge. Here are a couple.

**"Seek knowledge as far as China"**

**"Seek knowledge from the cradle to the grave."**

**"Seeking Knowledge is a duty upon every Muslim male and female."**

Knowledge in Islam is far from being the threat that others saw with respect to their religion. Muslim scholars also realised that understanding the complexities of the universe, its order, harmony, perfection and functioning, brought people close to God and His message. In the beginning of his *Zij al-Sabi*, Al-Battani<sup>15</sup> holds that the science of stellar bodies is of immense utility because it makes possible the knowledge of the length of the year, the months, and different times and seasons; the lengthening and shortening of day and night, the positions of the sun and the moon as well as their eclipses, and the courses of the planets in their direct and their retrograde motions, the alterations of their forms, and the arrangement of their spheres. This, he asserts, leads people, who reflect deeply and persistently, to the proof of the Oneness of God and to the comprehension of His majesty, immense wisdom, infinite power...<sup>16</sup> Al-Urdi holds that the usefulness of astronomy is immense to those 'who contemplate on stellar marvels and the motions of the heavenly bodies, and that to the reflecting mind there are in these matters remarkable circumstances and solid proofs concerning God's existence.' Astronomy, he holds, 'leads to the science of theology and gives evidence of God's magnificence.'<sup>17</sup> Haji Kalifa, in the seventeenth century, explains that astronomy and anatomy both lead to a better understanding of God.<sup>18</sup> It is thus the perfect association of faith and reason, the two working together instead of the antagonism prevalent elsewhere.

The Quran, itself, as seen by some eminent scholars, is so rich depository of science, prompting Bucaille to state that knowledge of science of an 'encyclopaedic' range is needed to assess such vast scientific wealth.<sup>19</sup> Bucaille also states that whilst the Quran contains so much of the scientific, it is also impossible for the scientist to find inconsistencies in it, in contradiction of science. And whilst scientific truths are very regularly questioned, and abandoned, the truths in the Quran are permanent and unchangeable. From the site on the web at <http://www.sharif.org.uk/science0.htm> can be gleaned some very useful extracts on that particular subject, most particularly that relevant to water. Thus it is said under the heading **Verses Containing General Statements** are verses that are intended to lead 'man to meditate on the Beneficence of God towards His creatures,' and include also statements that are relevant to modern science. Thus in:

(sura 2, verse 22):

**"(God) is the One who made the earth a couch for you and the heavens an edifice, and sent down water from the sky. He brought forth therewith fruits for your sustenance. Do**

**not join equals with God when you know."**

(sura 2, verse 164):

**"Behold! In the creation of the heavens and the earth,  
In the disparity of night and day,  
In the ship which runs upon the sea for the profit of mankind,  
In the water which God sent down from the sky thereby reviving the earth after its  
death,  
In the beasts of all kinds He scatters therein,  
In the change of the winds and the subjected clouds between the sky and earth,  
Here are Signs for people who are wise."**

(sura 13, verse 3):

**"(God) is the One who spread out the earth and set therein mountains standing firm and  
rivers. For every fruit He placed two of a pair. He covers the day with the night. Verily in  
this there are Signs for people who reflect."**

(sura 20, verses 53 and 54):

**"(God is) the One Who has made for you the earth like a cradle and inserted roads into it  
for you. He sent water down from the sky and thereby We brought forth pairs of plants,  
each separate from the other. Eat! Pasture your cattle! Verily in this are Signs for people  
endued with intelligence."**

(sura 79, verses 30-33):

**"After that (God) made the earth into a spheroid. Therefrom He drew out its water and  
its pasture. And the mountains He has anchored. Goods for you and for your cattle."**

In these verses is shown the role and benefit of water in sustaining life on earth. The reference in the Qur'an however, as is pointed out by the author, goes far beyond this geographical detail.

*"According to scientific knowledge the character the Earth has of a planet that is rich in water is unique to the solar system, and this is exactly what is highlighted in the Qur'an. Without water, the Earth would be a dead planet like the Moon. The Qur'an gives first place to water among the natural phenomena of the Earth that it refers to. The water cycle is described with remarkable accuracy in the Qur'an. When the verses of the Qur'an concerning the role of water in man's existence are read in succession today, they all appear to us to express ideas that are quite obvious. The reason for this is simple: in our day and age, we all, to a lesser or greater extent, know about the water cycle in nature."*

Besides the influence of Quran, Hadith and Muslim Scholars, the relationship between Islam and scientific change is also observable at another level, so little grasped by many. For a society, or its individuals, to achieve any stride, any progress, any accomplishment, whatever its nature, in peace or at war, economic or personal, they require a strong incentive. Islam provided such impetus in the era 800-1200, and whenever the people seized it after. Whenever they did not, they fell into the obscurity that has since shrouded them. Islam, moreover, makes self-improvement of the individual and the betterment of society part of religious

duty, inspiring individuals in all manners and forms. That also included knowledge. Thus, throughout the Muslim land, the search for knowledge and science was undertaken in an effort to improve society as a form of worship. The development of medicine, the construction and provision of hospitals, the building of hundreds of libraries and madrassas, the erection of beautiful gardens and green parks, and so much else, made the Muslim land an oasis of light in a darker surrounding. Islam's stress on excellence and search of perfection was also crucial to the thrust of civilisation. This explains the high standards in the knowledge of the sky and stars, extreme precision in surgery and ophthalmology, and accuracy in map making. It explains why the Muslims developed the experimentation method, mathematics and physics, and extremely accurate instruments. This is also why Muslim gardens, libraries and hospitals were run to standards unequalled today in much of the Muslim world. And this is why the Muslims wrote books that cared so much for the detail and were so precise, that hardly few Muslim writers would equal these days.

The same faith that propelled Muslims to spread Islam to the lands, also drove Muslims to spread learning and knowledge. And, of course, when most individuals, or the whole of society, are motivated for betterment, and are animated by such faith and fervour to create, search and invent, no surprise if science, scientists, schools, books and excellence burst in a huge, unequalled explosion as they did under Islam. Just a glimpse at George Sarton's Introduction to the history of science, enlightens on the thousands of Muslim scientists and their science, which taught the world.<sup>20</sup>

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## References

- <sup>1</sup> See amongst others the excellent article (although including the usual unwelcome expressions of 'glorious' and 'father' (of a science) at:  
<http://www.bris.ac.uk/Depts/Union/IslamicSoc/Islam%20and%20Science%20Essay%203.htm>
- <sup>2</sup> Maurice Bucaille; *The Bible, The Quran and Science*, Trslt from French by A.D. Pannell & the author. 7th edition (revised). Publisher Seghers; 24 Avenue Marceau 75008-Paris (1993). pp 125-6.
- <sup>3</sup> Ali Kettani: 'Science and Technology in Islam, The underlying value System,' in Z. Sardar ed: *The Touch of Midas; Science, values and environment in Islam and the West*, Manchester University Press, 1984; pp 66-90. p. 66
- <sup>4</sup> M. Husain Sadar 'Science and Islam: is there a conflict? in: *The Touch of Midas*, op cit, pp 15-25; at p. 15.
- <sup>5</sup> Ibid.
- <sup>6</sup> T.K Derry and T.I Williams: *A Short History of Technology*, Oxford Clarendon Press, 1960. pp. 28-9.
- <sup>7</sup> Ibid.
- <sup>8</sup> One only needs to look at the principal site dealing with Islamic history on the web at the Internet Medieval Source Book at <http://www.fordham.edu/halsall/source/.html> by Paul Halsall of Fordham University; to have an idea on the near perfect choice of extracts and articles on how to give another image of Islamic history; totally in contradiction with the real one.
- <sup>9</sup> E. Renan, who in *Oeuvres Completes*, Paris, Calmann-Levy, 1947, Vol. 2, for instance, recognises Islam as a backward force, the negation of Europe and progress at once; a heavy chain locking science.
- <sup>10</sup> Toby. E. Huff: *The Rise of early Modern Science*. Cambridge University Press, 1993.
- <sup>11</sup> H.Pirenne: *Mohammed and Charlemagne*; London, 1939.
- <sup>7</sup> M. Bucaille: *The Bible*, op cit, Introduction, p. 1.
- <sup>13</sup> Muhammad Iqbal, *Reconstruction of the Religious Thought in Islam*, Ashraf, Lahore, 1971 reprint, p.14; quoted by M.H. Sadar: *Science and Islam*, op cit, p. 22.

<sup>14</sup> Ismail.R. al-Faruqi and Lois.L. al-Faruqi: *The Cultural Atlas of Islam*; Mc Millan Publishing Company, New York, 1986; p 321.

<sup>15</sup> Al-Battani in A. Sayili: *The Observatory in Islam*; Publications of the Turkish Historical Society, Series VII, No 38, Ankara, 1960. p. 15.

<sup>16</sup> Ibid.

<sup>17</sup> Muayyad al-Din al-Urdi: *Kitab al-Hay'a*, ms., Konya, Yusuf Aga Library, No 6829, p. 1b, in A. Sayili, *The Observatory in Islam*; op cit, p. 17.

<sup>18</sup> Haji Khalifa: *Sehsuvaroglu*, p. 151, in A. Sayili: *the observatory*, op cit, p. 19.

<sup>19</sup> M. Bucaille: *The Bible, The Quran and Science*; Trsltd from the French by A.D. Pannel and the author; p.129. In relation to this issue of the Quran and science, it is again highly crucial to raise the important point that whilst seeing the relations between the Quran and science in such competent manner as done by Dr Bucaille, is to be praised, it is also prudent to assert that the Quran has a much wider significance than this. It is also un-advisable for any human to get on the task and see Quranic and scientific links wherever, and above all to do it incompetently, and ending up misleading the public.

<sup>20</sup> Sarton, George, *Introduction to the history of science*, 3 Vols, Baltimore: The Williams and Wilkins Co., 1927-1948. Published for the Carnegie Institute of Washington, D.C.

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