

Science, Technology, and Religion IV

The Trouble with the New “Islamic Science”

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The history of Islam’s relation to science has largely been one of harmony. It offers no real parallel to the occasional bouts of suspicion toward science that the Christian world experienced. Today, many Muslims can be found in the fields of medicine and engineering. Even the ultraconservative Muslims who long for a return to the ethical norms of the seventh century see no need to abandon cell phones to do so, and even the most extreme of Islamic extremists envies the high-tech oil-extraction techniques and the weaponry of the West. Muslims, both conservative and liberal, issue *fatwas* (legal opinions) over the Internet without any hesitation over the technology they employ and with no fear that it may be *haram* (prohibited).

However, although contemporary Muslims tend not to be averse to science or technology, their strong belief in the compatibility of science and Islam may leave them vulnerable to dubious efforts to equate the two. The effort to harmonize modern technical knowledge and practice with Islamic teaching is part of a project known as the “Islamization of knowledge,” and is quite popular among Muslim intellectuals today. The most visible area of this intellectual work has been in the world of finance, with the development of so-called “Islamic banking.” A wide variety of venture-capital investments, joint-development projects, and partnership financing have been devised to avoid the appearance of charging interest, a practice forbidden by traditional Muslim jurisprudence. On a smaller scale, there has been a rising interest in bringing the sciences into a conversation with Islamic teachings.

An offshoot of this project takes an absurd turn: it attempts to demonstrate, in effect, that the Koran is a scientific textbook—that it is not merely compatible with science but actually foretells and validates specific modern scientific theories. This movement is troubling in part because it

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is becoming associated with the term “Islamic science,” which has long been used to refer to the medieval Golden Age during which the Muslim world made important contributions to natural philosophy, medicine, and mathematics. Confusing this new movement with that important period is a disservice to history. Moreover, this new movement to seek out science in the Koran is contrary to the scientific method and, in ignoring the Koran’s warning against confusing allegory with basic facts (3:7), is contrary to Islamic teaching.

As a 2002 article in the *Wall Street Journal* described, these ideas have become popular among fringe Muslim scholars and students. Organizations like the Commission on Scientific Signs in the Quran and Sunnah (based in Saudi Arabia), and books with titles like *Allah’s Miracles in the Quran* and *Scientific Miracles in the Prophetic Sunnah* have further promoted this pseudo-scholarly movement. These ideas are now widely available online, in YouTube videos, on countless websites and blogs, and in discussion forums.

This movement has even led its critics astray: the Pakistani physicist Pervez Hoodbhoy, for example, scorns the movement but unfortunately accepts the label of “Islamic science” for the ideology he attacks. In his book *Islam and Science: Religious Orthodoxy and the Battle for Rationality* (1991), Hoodbhoy asserts that the “Islamic science” of the classical era should simply be called “Muslim science”—that is, science that just happens to have been done by Muslims—and so ends up denying the elements of scientific methodology that actually were inspired by Islamic teaching.

Given the spread of this movement, it is worth distinguishing the claim that the teachings of Islam have been conducive to the development of the methods of science from the extravagant notion that particular scientific findings are foretold and validated by the Koran. It is my view that the Koran is a book of guidance rather than a book of science, and its references to the natural world are meant to be inspirational rather than demonstrative. I have no problem with the view that the Koran is perfectly consistent with a scientific understanding of the world, or with the belief that its Divine Author, being the Author of Nature itself, understands the natural world perfectly well. I *do* have a problem with the view that scientific theories are the standard by which the teachings of the Koran should be judged, or vice versa.

Modern science is not a body of facts, but a process for the study of the natural world. Because of human fallibility, that process yields a constantly changing set of conclusions about how this world operates. The

Koran, on the other hand, is an unchanging statement about why we are here. Conflating the very different disciplines of religion and science can only work to the detriment of both, as we will see.

Theory and Observation

Before debunking the notion that the Koran is a scientific textbook, it is worth noting not only that Islamic civilization was the center of science and learning from about the eighth to the twelfth century (as has previously been discussed in these pages; see “Why the Arabic World Turned Away from Science,” Winter 2011), but also that Islamic civilization contributed to the rise of the modern scientific method. There is of course no single method to modern science, but its general approach is nonetheless distinguishable from pre-modern science. Whereas pre-modern science was wrapped up in philosophical concerns, heavily influenced by Platonic idealism, and reliant on deductive reasoning from first principles, modern science seeks to strip itself from philosophical questions and to depend as much as possible on inductive reasoning from empirical observation of natural phenomena.

That the great minds of the ancient world did not see science the way we moderns do can be very difficult to grasp. By way of illustration, consider a book written by Robert R. Newton. The astronomer and science historian was shocked to find that Ptolemy, the greatest astronomer of antiquity, had calculated the positions of stars and then published them in his famous star catalogue, the *Almagest*, as though they were actual observations. This “deliberate deceit” so incensed Newton that he gave his 1977 book on the subject the incendiary title *The Crime of Claudius Ptolemy*. For modern scientists, Ptolemy’s actions might indeed seem criminal: although of course predictions from theory often precede observations, as in the famous example of Einstein predicting that starlight would bend around the Sun to a greater degree than predicted by Newtonian physics, it would be considered an affront to scientific practice to use calculated values in place of ones that had already been actually observed. However, rather than thinking of Ptolemy as a criminal, it makes more sense to think of him as a creature of his times, or perhaps a victim of his epistemology.

The tension between deductive and inductive approaches to science has been a more contentious issue for Christian than for Islamic scholars. In contrast to the pre-modern understanding of science that often elevated what we now call philosophy over what we have come to know as science, and long preceding the advent of modern science, Islamic

scholars were inspired by the Koran's teaching that the physical world is the perfect creation of the infallible Creator and by its instructions to observe and study nature:

[Blessed be] He Who created the seven heavens one above another:
No want of proportion wilt thou see in the Creation of (Allah) Most
Gracious. So turn thy vision again: seest thou any flaw? [Koran (67:3),
trans. Abdullah Yusuf Ali]

While the preeminence of philosophy and theology in the pre-modern West sometimes restrained free inquiry, especially if scientific findings contradicted theoretical commitments, the Islamic world was more open to adjusting theory to observation. It is this inductive process that the Koran encourages with its repeated injunctions to look at the signs in the heavens and on earth, to think and contemplate, and to travel through the world in search of knowledge.

The Koran as a Textbook?

The movement seeking to propagate the claim that the Koran contains direct references or allusions to natural phenomena and scientific theories beyond the ken of the contemporaries of the Prophet Muhammad received much of its impetus from the influential 1976 book *The Bible, The Qur'an and Science* by the French physician Maurice Bucaille (translated into English by Alastair D. Pannell). Bucaille argues that the Koran has a greater internal consistency than the Bible and that the metaphors in the Bible have become quaint with the advancement of scientific knowledge while the metaphors in the Koran have become more meaningful.

Bucaille also argues that certain phrases in the Koran seem to allude to modern scientific discoveries, and considers this to be a miraculous testimony to the Book's Divine origin. For example, he suggests that a Koranic passage referring to the production of milk in cattle posed a challenge to contemporary understanding:

And verily in cattle (too) will ye find an instructive sign. From what is within their bodies between excretions and blood, We produce, for your drink, milk, pure and agreeable to those who drink it. [16:66]

This description might be considered incoherent or simply false from the standpoint of our modern understanding of physiology. But Bucaille proposes his own alternate translation from the original Arabic (here rendered through Pannell's English translation):

Verily, in cattle there is a lesson for you. We give you to drink of what is inside their bodies, coming from a conjunction between the contents of the intestine and the blood, a milk pure and pleasant for those who drink it.

As a physician who lived after the discovery of the details of the digestive process, Bucaille interprets this passage as a poetic reference to the scientific fact that the nutritional substances of the body, including those used in the production of milk, are collected by the bloodstream through the intestinal wall from chemical reactions taking place in the digestive tract—a process completely unknown in Muhammad’s day.

Consider another Koranic passage cited by Bucaille, describing the Creation of the universe. In the popular 1934 Koran translation by Abdullah Yusuf Ali, the passage reads as follows:

With power and skill did We construct the Firmament: for it is We Who create the vastness of space. [51:47]

Bucaille argues that the most literal translation of the verse would refer not just to the “vastness” of space but to its *expansion*. He offers his own translation (again, rendered here through Pannell’s translation into English): “The heaven, we have built it with power. Verily, We are expanding it.” Writing in the 1970s, when Edwin Hubble’s discovery of the expansion of the universe was well known to all educated people, Bucaille was quick to argue that the verse refers to the expanding universe “in totally unambiguous terms.” Translators working in the years before Hubble’s discovery was widely understood, like Yusuf Ali, might have avoided the literal meaning of the original Arabic. They may well have found it unintelligible. But Bucaille embraces the literal meaning, which conforms to our understanding of an expanding universe—although, notably, he never suggests that one could have deduced from the verse that the universe is expanding. Bucaille’s reading reflects the view that the Koran is a book of guidance rather than a book of science, while still anticipating future scientific discoveries. A verse that could have been interpreted as alluding to the vastness of space may now be understood as referring to the expansion of space; yet the point of the verse was, is, and always will be that space, whatever its nature, is the creation of the Almighty, and its nature is determined by His will.

As impressive as these interpretations were to Bucaille himself, it is noteworthy that he never became a Muslim. Nor is there a single example of any scientific discovery made by virtue of studying the Koran. Consider

the case of the thirteenth-century Arab physician Ibn al-Nafis, a Muslim who discovered the pulmonary circulation system not through study of the Koran but of an entirely different creation of God, the human body. The ability to interpret passages about nature in a manner consistent with evolving scientific knowledge may reinforce the faith of someone who already accepts the Koran as the word of God, but in itself it makes an effective tool neither for converting people to Islam nor for educating Muslims on science.

Part of the reason that Koranic passages should not be read as scientific guides is that they tend to be open to varying interpretations—and therefore are far too imprecise to be considered examples of theoretical predictions that can be scientifically falsified. Bucaille’s preferred translation of the verse on milk, for example, is debatable; most translations simply speak of milk coming from between excrement and blood in cow’s bellies—a reflection, Bucaille argues, of the translators’ unfamiliarity with modern physiology. Such translations, however, loosely read, are perfectly consistent with the basic anatomical understanding, available even at the time of the Koranic revelation, that the same general place where nutritious milk resides—that is, the inside of a cow—also contains far less appetizing substances.

The more direct meaning of the milk verse is clearer in the context of the one that precedes it: “And Allah sends down rain from the skies, and gives therewith life to the earth after its death: verily in this is a Sign for those who listen” (16:65). The significance of verse 16:66 was plain to Yusuf Ali, whose translation included a footnote with an interpretation that surely could have been shared by early readers of the Koran, even without the modern anatomical knowledge it draws on:

Is it not wonderful that the same food, eaten by males and females, produces in the latter, when they have young, the wholesome and complete food, known as milk? . . . It is pure, as typified by its whiteness. Yet it is a secretion like other secretions, between the excretions which the body rejects as worthless and the precious blood-stream which circulates within the body and is the symbol of life itself to the animal which produces it.

Neither the great theologians nor the great scientists of medieval Islam felt that the Koran specified new theories of nature. Even when they were condemning popular contemporary views in natural philosophy as contradictory to the faith, they never pretended that a Koranic allusion to nature could be demonstrably turned into a particular theory. Thus,

when the great eleventh-century Muslim scholar Abu Hamid al-Ghazali condemns the philosophers for claiming that the sun is eternal, he does not try to develop some other theory about how it decays—say, by taking the Koranic reference to the sun’s “place of rest” as the starting point of an argument that it must someday die, even though he clearly believes that it must. Instead, he accuses the philosophers of disguising a metaphysical claim (that the material universe is uncreated) as a physical claim (that the lack of any observed decay in the sun over recorded human history means that it is eternal, and so the universe that contains it must also be eternal). He easily dispenses with the philosophers’ arrogant claim by pointing out that the sun is so huge that it could have lost as much as a range of mountains over the millennia without decaying enough to be observable from Earth—a possibility, of course, demonstrated by astronomers many centuries later. The movement to find “scientific miracles” in the Koran abandons the approach of al-Ghazali and the other thinkers of classical Islam.

Pseudoscience and Religious Distortions

The movement is of course not without its share of critics. Hoodbhoy is perhaps the most notable among them. In *Islam and Science*, he describes a conference that included a panel discussion on “Things Known Only to Allah”—he quips, “I was unable to attend, but subsequently have often wondered what secrets the panelists were privy to”—and papers were presented with such startling titles as “Chemical Composition of Milk in Relation to Verse 66 of Surat An-Nahl of The Holy Qur’an,” “Description of Man at High Altitude in Qur’an,” and “Revelation of Some Modern Oceanographic Phenomena in Holy Qur’an.”

The paper titles hint at the broader problem. Consider, for example, another claim about the Koran commonly made by the movement’s proponents: that the *surah* (chapter) called “Iron” holds some kind of science lesson about the element for which it is named. Verse 25 includes words that can be translated, “And We sent down iron, in which there lies great force, and which has many uses for mankind...” “Sent down” is a phrase the Koran repeatedly uses to refer to blessings bestowed by God, and the fact that iron has “great force”—for example, in making weapons of war, as well as many other uses—does not require modern science to appreciate.

For the modern advocates of scientific miracles in the Koran, however, “sent down” must be understood to refer to the fact that all the heavy elements in the earth, including iron, *literally* came from the sky—namely,

from the fusion of lighter elements over the eons in supernovas and in heavy stars that have died out and scattered their matter, forming the stellar nebula out of which the earth accreted billions of years ago. (This is the fact behind Carl Sagan’s famous exhortation, “We’re made of star stuff.”) That this twentieth-century discovery would be alluded to in a book written in the seventh century would indeed be miraculous were other interpretations of this verse not readily available—for example, as a reference to the fact that much of the iron exposed and available on the *surface* of the earth comes from meteorites, a fact likely known to the ancients through direct observation. The suggestion that this verse of the Koran makes such a specific claim, detailing the process of nucleosynthesis in stars and the later formation of the resulting heavy elements into planets, is simply not credible. It is as if the Koran were a scientific text, the careful reading of which can teach us the physical nature of the universe. This approach to revelatory allusions to the natural world is pseudoscience, not science.

In just this manner, an article entitled “A New Astronomical Qur’anic Method for the Determination of the Greatest Speed C” claims that two verses in the Koran provide evidence for the special theory of relativity. Though the provenance of this article is murky—its original date and place of publication cannot be determined and its author, supposedly a Cairo-based professor of physics named Mansour Hassab-Elnaby, could not be reached—its central claim has been repeated very widely in the movement’s literature and in online videos. But the article falls short, both on the grounds of scientific methodology and on the epistemological grounds from which al-Ghazali attacked the metaphysical claims of the philosophers. Verse 22:47, in the Yusuf Ali translation that Hassab-Elnaby cites, reads, “...a Day in the sight of thy Lord is like a thousand years of your reckoning.” It is surely true, as Hassab-Elnaby claims, that this is an assertion of the relativity of time. But it is patently an assertion of the relativity of *psychological* time, not of the *physical* time of a body in motion for which the special theory of relativity accounts. That a day of time to the omnipotent Creator of the Universe would seem to us like a thousand years is to be expected when we compare our finite capacity for comprehension to His infinite Mind. Indeed, a thousand years would seem to be a rhetorical understatement. Rather, one should say that an instant in the sight of God is as an eternity in our time. Why, as others have pointed out, insist that this sentiment be interpreted as a miraculous prediction of the discovery of relativity and not accord the same status to the nearly identical statements in the Bible in Psalm 90:4 and 2 Peter 3:8?

Hassab-Elnaby even goes so far as to claim that one can derive an accurate figure for the speed of light from the Koran. For this calculation, he relies on verse 32:5 (apparently in his own translation):

God rules the cosmic affair from the heavens to the earth. Then this affair travels, to Him (i.e. through the whole universe) in one day, where the measure is one thousand years of your reckoning.

On the basis that the Islamic calendar, then as now, uses the lunar system to measure time, Hassab-Elnaby claims that a “year” here actually refers to the lunar year, so that “one thousand years of your reckoning” actually refers to the distance traveled by the Moon in 12,000 orbits around the Earth. He then uses a complicated calculation, which, he says, removes the effects of general relativity from the equation, and—*voilà!*—reproduces the exact figure for the velocity of light.

This interpretation is stretched, to say the least. Hassab-Elnaby does not explain his assumption that the “cosmic affair” travels at the speed of light. In any case, the “day” which is a thousand years of our reckoning could be read as referring to the Day of Judgment, which to our human perception seems like a thousand years. And even allowing for the premise, if the verse really is read as a reference to the theory of relativity, it could be interpreted as referring to time dilation—say, to the fact that the “cosmic affair” travels at a speed such that a day in its inertial reference frame is equal to a thousand years here on Earth.

Hassab-Elnaby’s interpretation is attractive only because of his claim that the numbers work out—a conclusion that relies on strained definitions and mathematical artifice, as University of Vienna computational mechanics professor Arnold Neumaier has pointed out in a technical rebuttal to the paper. These technical questions would have been raised if the paper had been submitted for peer review, from which pseudoscience is exempt.

Even if Hassab-Elnaby truly had shown that his interpretation yields a number in agreement with the speed of light, he would at best have appended another provocative factoid to Bucaille’s list. But he doesn’t stop there. He goes so far as to suggest that this result itself provides evidence for “the validity of the special theory of relativity,” as if the theory would have been put in question if he had gotten a different number. It is one thing to suggest that God sent Muhammad the speed of light in code, the way Galileo sent Kepler his observation of the phases of Venus; it is something else entirely to claim that this interpretation somehow serves

as legitimate scientific evidence for relativity. Where Bucaille claimed that scientific facts could be cited to validate the Koran, his followers have completed the circle by citing the Koran to validate science, distorting both in the process.

Real Islamic Science

Should Muslims take these kinds of claims seriously, they will set themselves up to turn scientific theories about the nature of the universe into articles of religious dogma. Muslims must not marry the spiritual guidance of the Koran to a specific theory, like the theory of special relativity. Doing so could invite persecution of any scientist who questions that theory, as Galileo was persecuted. A theory about the physical universe stands or falls on its success in helping us to understand the universe. An interpretation of a verse of scripture stands or falls on its ability to bring us closer to the divine and into submission to His will.

Both those who believe that there is a conflict between religion and science and those who believe that their respective claims are identical make the same mistake. They think that because religion and science deal with the great questions about reality, the questions each answers must therefore be identical. They are not. Scientific inquiry and religious traditions deal with different, complementary questions: science asks *how*, and religion asks *why*. The reason Islam was conducive to science is not because the Koran explains how the universe operates, but because it includes the duty to investigate how it operates as an essential part of man's purpose on earth.

Al-Ghazali warned against confusing these different types of questions with one another. On the one hand, in his *Incoherence of the Philosophers*, he condemned the claims of philosophers, arguing that the study of astronomy

has no bearing whatever on metaphysical investigation. For this is as if someone were to say that the knowledge that this house came to be through the work of a knowing, willing, living builder, endowed with power, requires that one knows that the house is either a hexagon or an octagon and that one knows the number of its supporting frames and the number of its bricks, which is raving, its falsity obvious; or that one does not know that this onion is temporally originated unless he knows the number of its layers and does not know that this pomegranate is temporally originated unless one knows the number of its seeds—[all] of which is abandonment of [rational] discourse, discredited by every

rational person. [trans. Michael E. Marmura; brackets here and below appear in the translation]

Meanwhile, al-Ghazali also rejected the tendency of some religious people to insist on literal interpretations of Koranic verses. In *On the Boundaries of Theological Tolerance in Islam*, he pointed out that one could not accuse another of disbelief unless the other had accused the Prophet Muhammad of being a liar; but saying that a particular pronouncement of the Prophet constituted an *allegorical* rather than a *literal* truth was not the same thing as accusing him of lying. Where a scientific conclusion about the physical universe contradicts a literal interpretation of a traditional text, rejecting the literal interpretation is in no way heretical. Thus, in *Incoherence*, al-Ghazali cautioned against attempts to deny the scientific explanation of eclipses:

Whoever thinks that to engage in a disputation for refuting such a theory is a religious duty harms religion and weakens it. For these matters rest on demonstrations, geometrical and arithmetical, that leave no room for doubt. Thus when one who studies these demonstrations and ascertains their proofs, deriving thereby information about the time of the two eclipses [and] their extent and duration, is told that this is contrary to religion, [such an individual] will not suspect this [science], only religion. The harm inflicted on religion by those who defend it not by its proper way is greater than [the harm caused by] those who attack it in the way proper to it. As it has been said: “A rational foe is better than an ignorant friend.”

Another danger of literal interpretation in the interest of science is that it misrepresents science as a body of facts instead of the process that it is. The approach to science manifested by these pseudoscientists draws on the educational system now dominant in the Muslim world, in which knowledge in general is treated as a body of facts to be memorized rather than a product of human effort that attempts to bring all known facts into a coherent whole.

One of the enduring Islamic contributions to science is the role it played in encouraging the methodology that marks modern science. In the broadest sense, the modern approach to scientific knowledge, which was the approach of the early generations of Muslim scholars, is to critically examine the coherent structure offered by previous generations of scholars with the intention of understanding it, questioning it, reforming it, or, if necessary, replacing it completely. What were once known as

facts of science that the Muslims of the classical era discovered have been superseded by newer discoveries, just as many other scientific findings are regularly replaced by better insights. This sort of critical thinking is the essence of *ijtihad*, a term that refers to the sort of critical thinking that was considered to be the duty of intellectuals during the Golden Age of Islamic civilization.

In contrast to the coherent methodology of science stands the incoherent approach of the pseudoscientific movement seeking to treat the Koran like a textbook, which suffers from the same flaws that al-Ghazali criticized in the philosophers. The philosophers too sought to rationalize the “self-evident” axioms of previous philosophers into harmony with the scientific theories popular in their own day, and argued that the latter followed with logical inevitability from the former. Today’s Muslim pseudoscientists take the powerful symbols of holy text, give them an interpretation that can be rationalized into harmony with the scientific theories popular today, and argue that the latter follow with logical inevitability from the former.

Islamic civilization played an important role in the transformation of ancient science into modern science. But the claim that the Koran contains scientific facts in such a way that it “predicts” the discoveries of modern science risks turning the phrase “Islamic science” into a sad joke, giving those who claim there is nothing worthwhile in Islam more power over those who know better.

Despite their fall from a once-preeminent position in the sciences to the sad state in which they find themselves today, almost no Muslims have turned against science. But among the Muslims there are literalists who, while sincerely believing themselves to be enthusiasts of science, are laying the groundwork for a rejection of science by repeating the mistake of the medieval Christian Church—marrying their interpretation of scripture to current scientific theory. Should the day come that the supporters of the movement to find “scientific miracles” in the Koran finally accept that their claims have been disproven, they and their intellectual heirs are likely either to turn against the Koran, dismissing the sacred text as “unscientific” only because a particular interpretation that was easy for an earlier generation to accept was undermined by later discoveries, or else turn against science, declaring it to be a heresy against an interpretation that they have confused for scripture.