On the morning of the first Gulf War (1991), having just heard the news of the US attack on Baghdad, I walked into my office in the physics department in a state of numbness and depression. Mass death and devastation would surely follow. I was dismayed, but not surprised, to discover my PhD student, a militant activist of the Jamaat-i-Islami’s student wing in Islamabad, in a state of euphoria. Islam’s victory, he said, is inevitable because God is on our side and the Americans cannot survive without alcohol and women. He reasoned that neither would be available in Iraq, and happily concluded that the Americans were doomed. Then he reverentially closed his eyes and thrice repeated “Inshallah” (if Allah so wills). Two weeks later, after the rout of Saddam’s army and 70,000 dead Iraqis, I reminded him of his predictions. He stumbled an explanation but soon gave up. Years later, soon after earning a reasonably good doctorate in quantum field theory and elementary particles, he quit academia and put his considerable physics skills to use in a very different direction. Today he heads a department that deals with missile guidance systems in a defense organization that makes nuclear weapons and precision missiles.

Belief in miracles, and that ones’ prayers can persuade divine intervention in matters of the physical world, is an integral part of most cultures and beliefs. In Pakistan today – where the bulk of the population has been through the Islamized education initiated by General Zia-ul-Haq in the 1980’s – supernatural intervention is widely held responsible for natural calamities and diseases, car accidents and plane crashes, acquiring or losing personal wealth, success or failure in examinations, or determining matters of love and matrimony. In Pakistan no aircraft – whether of Pakistan International Airlines or a private carrier registered in Pakistan – can take off until appropriate prayers are recited. Wars certainly cannot be won without Allah’s help, but He has also been given the task of winning cricket matches for Pakistan.

The last mentioned is serious business, lest anyone think otherwise. And it makes the Almighty’s job a particularly difficult one whenever there are Muslims playing on the other sides’ team. Hafizur Rahman, an astute observer of Pakistani cricket, recalls that when the Pakistan team won a test match in South Africa some years ago, to the amazement of the spectators, all team members prostrated themselves on the cricket ground to thank Allah. But this was a minor event compared to the national frenzy induced by the World Cup in Australia; the erstwhile prime minister, Benazir Bhutto, called upon the entire nation to pray for a final win. Even the clergy, who normally condemn cricket as frivolous entertainment, joined in the hysteria. When Pakistan lost the match, Chaudhry Shujaat Hussain, who became prime minister in 2004, had an interesting explanation. In his view, “the PTV (Pakistan Television) song that boasted that we would win, did not contain the word Inshallah. That is why we lost.”
Drought may not be as important a matter as cricket, but last week the government of Pakistan issued a warning – the rivers are running dry, water reservoirs are nearing the danger mark, and hydro-electricity production may soon be discontinued. Even as I type this paragraph on a Friday afternoon, millions of the faithful in mosques across Pakistan are obeying the government’s call for ‘namaz-i-istisqa’ (prayers for rain). Next year – instead of building dams, lining canals, embarking on water conservancy strategies, or doing something to control Pakistan’s exploding population – the government will presumably put the pressure on God again by summoning the masses.

Will It Rain If You Pray?
The history of myths and miracles in pre-Reformation Christianity, of their growth in earlier phases, and their decline under Renaissance thinking, is an extremely interesting and relevant subject for those who wish to understand the state of science and society in Muslim countries today. The fundamental question then was, and remains today, the following: does God suspend the laws of physics in response to the actions of human beings (in which case miracles can happen)? Or has God turned over the day-to-day matters of running the universe to the laws of physics that he put into place at the beginning (in this case miracles cannot happen)?

Following the lead of European Renaissance thinkers, Muslim reformers of the 19th century, particularly Syed Ahmad Khan, argued that miracles – as commonly understood – cannot and do not happen. As a religious scholar who wrote a tafseer (interpretation) of the Qur’an, Syed Ahmad Khan insisted that the miracles mentioned in the Qur’an must be understood in broad allegorical terms rather than literally. Following the Mutazillite tradition of early Islam he, together with various 19th century Arab modernists, insisted on an interpretation of the Qur’an that was in conformity with the observed truths of science, thereby doing away with such commonly held beliefs as the Noah’s Great Flood and Adam’s descent from heaven. It was a risky proposition that brought them closer to modern scientific thought, on the one hand, and severe condemnation from the orthodox of those times. But those 19th century battles appear to be forgotten today. Looking at these old writings, one wonders how those Muslim thinkers dared to engage so boldly in such controversial matters. But they did, and today we dare not. This is an indication of the profound philosophical and intellectual regression of the Muslim world over the last two centuries.

My discussion in a recent seminar in Lahore of the history of miracles, cause-and-effect in ancient Islam (there was greater acceptance then than today!), and description of rainfall as a physical process that cannot be influenced by prayer, drew an angry reaction from a professor at an elite university. Subsequently, an email was circulated to the entire student body and beyond, an excerpt of which is reproduced below:

"The fact that rainfall sometimes is caused in response to prayers is a matter of human experience. Although I cannot narrate an incident directly, I know [this] from the observations of people who would not exaggerate.... . The problem is that Dr Hoodbhoy has narrowed down
his mind to be influenced by only those facts that could be explained by the cause-and-effect relationship. That’s a classic example of academic prejudice…. Our world is not running on the principle of a causal relationship. It is running the way it is being run by its Master. Man has discovered that, generally speaking, the physical phenomena of our world follow the principle of cause-and-effect. However, that may not always happen, because the One who is running it has never committed Himself to stick to that principle.

I responded with the following points:

- Prof. X admits that he has never personally witnessed rain fall in consequence to prayers, but confidently states that this is ‘a matter of human experience’ because he thinks some others have seen unusual things happen. Well, there are people who are willing to swear on oath that they have seen Elvis’s ghost. Others claim that they have seen UFOs, horned beasts, apparitions, the dead arise, etc. Without disputing that some of these people might be sincere and honest, I must emphasise that science cannot agree to this methodology. There is no limit to the power of people’s imagination. Unless these mysterious events are recorded on camera, we cannot accept them as factual occurrences.

- Rain is a physical process (evaporation, cloud formation, nucleation, condensation). It is complicated, because the atmospheric motion of gases needs many variables for a proper description. However, it obeys exactly the same physical laws as deduced by looking at gases in a cylinder, falling bodies, and so forth. Personally I would be most interested to know whether prayers can also cause the reversal of much simpler kinds of physical processes. For example, can a stone be made to fall upward instead of downward? Or can heat be made to flow from a cold body to a hot body by appropriate spiritual prompting? If prayers can cause rain to fall from a blue sky, then all physics and all science deserves to be trashed.

- I am afraid that the track record for Prof. X’s point of view on rain is not very good. Saudi Arabia remains a desert in spite of its evident holiness, and the poor peasants of Sind have a terrible time with drought in spite of their simplicity and piety. Geography, not earnestness of prayer, appears to be the determining factor.

- Confidence in the cause-and-effect relationship is indeed the very foundation of science and, as a scientist, I fully stand by it. Press the letter ‘T’ on your keyboard and the same letter appears on the screen; step on the accelerator and your car accelerates; jump out of a window and you get hurt; put your hand on a stove and you get burnt. Those who doubt cause-and-effect do so at great personal peril.
• Prof. X is correct in saying that many different people (not just Muslims alone) believe they can influence physical events through persuading a divine authority. Indeed, in the specific context of rain-making, we have several examples. Red Indians had their very elaborate dances to please the Rain God; people of the African bush tribes beat drums and chant; and orthodox Hindus plead with Ram through spectacular ‘yagas’ with hundreds of thousands of the faithful. Their methods seem a little odd to me, but I wonder if Prof. X wishes to accord them respect and legitimacy.

Why Science Does Matter
Specious theological beliefs, together with reliance on miracles and superstitions, have acted as a brake on social progress and often rendered peoples vulnerable to the depredations of science-based imperialism. Muslims have been the worst sufferers.

Suffocated by Western colonizers on the one hand, and the weight of tradition on the other, 19th century Muslim modernizers across the Muslim world sought new ways to revive their societies. Reconciling Islamic theology with science was an important challenge because, for these pioneering individuals, science was the key instrument for promoting rational thinking on political and social matters. Mohammed Abduh, Rashid Rida, Jamaluddin Afghani, Syed Ameer Ali, Syed Ahmad Khan, and other intellectuals, sought to deal with issues such as polygamy and purdah in Islam, the question of slavery, the permissibility of interest, etc. Their success – limited as it was – was important in eventually creating a large Muslim elite that broke with traditional norms and forms of social behaviour.

But today Islam is once again regressing into pre-scientific thinking and behaviour – thousands of websites on science and Islam promote the most egregious examples of scientific crackpotism. But Muslims are not alone. A similar regression is evident on a global scale with anti-scientific thinking neatly dovetailing with, and providing justification for, aggressive forms of social and political behaviour.

This primitivism is starkly evident in George Bush’s America which promotes Creationism and Christian notions of the human foetus. According to the National Science Foundation's biennial report (April 2002) on the state of science understanding: 30% of adult Americans believe that UFOs are space vehicles from other civilizations; 60% believe in ESP; 40% think that astrology is scientific; 32% believe in lucky numbers; 70% accept magnetic therapy as scientific; and 88% accept alternative medicine. This vast base of ignorance allows for the rise of American neoconservatism and the blueprint for the New American Century; preparations for Armageddon; and for General Boykin in Somalia to say “my God is bigger than theirs”.

In India, superstitious beliefs were actively cultivated by the BJP and its allies. These included the creation of astrology departments, promotion of “Vedic” mathematics and cosmology, and a revamping of the school curricula. Mass hysteria – promoted by orthodox Hindus – accompanied the sighting of the “Monkey Man”, followed by Muhnochwa the “Face-Scratcher”, and then the elephant-like Lord Ganesh’s alleged
drinking of milk. Charged with the notion of Hindu superiority, and of wild notions that Hindu deities had been born under certain mosques, Hindutva forces organized the razing of mosques and tombs, and massacred Muslims and Christians.

In Israel, orthodox Jews have been the pillars of a state that is built on the notion of religious exclusion. Israel’s drive for total military superiority, and a strong tradition of Jewish secularism, have so far kept the orthodox at bay. But it is unclear whether this can persist indefinitely. For example, certain American cattle tycoons have for years been working with Israeli counterparts to try and breed a pure red heifer in Israel, which, by their interpretation of chapter 19 of the Book of Numbers, will signal the coming of the building of the Third Temple. If they were to succeed, it could intensify the already strong movement within Israel to rebuild the Temple, the event of which would ignite the Middle East, as any new Temple must be built on the Temple Mount current home of the Dome of The Rock, a Muslim holy site.

Zealots of all persuasions – Muslim, Hindu, Christian, and Jewish – welcome attacks on science and reason. Social constructivists, postmodernists, and even some feminists, have unwittingly given them yet more ammunition by inventing specious arguments. Improvement of the human condition demands a return to critical reasoning and scientific analysis, a rejection of cultural relativism, and willingness to accept still-evolving universal norms of ethics and human behaviour.

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