

The Battle For Science And Secularism In The Islamic World

Pervez Hoodbhoy
Professor of Physics, Quaid-e-Azam University, Islamabad, Pakistan

I thank the organizers for inviting me to speak on a subject which, in my opinion, is of immense importance to global peace and security today. As a physicist who works in the field of nuclear and elementary particle physics, I have always been awed by the power of scientific reasoning. As a social activist, I am convinced that it is a vital tool for transforming human consciousness in a way that can lead to a more rational and humane society. Therefore, for the last 35 years, I have been teaching physics and popularizing science on television in the country where I was born, Pakistan. Whereas I still very much enjoy doing this, as well as physics research, I must confess to feeling disappointed at times.

Science in Pakistan, as well as in the Muslim world, barely exists today. No major invention or discovery has emerged from this one-fifth of all humanity for well over seven centuries now. This arrested scientific development is one important element—although by no means the only one—that contributes to the present marginalization of Muslims and their perceptions of injustice and victimhood. Such negative feelings must be checked before the gulf widens further. Today we face the prospect of a bloody clash of civilizations between Muslims and the West. Should the war actually occur, it will rank along with the two other most dangerous challenges to life on our planet—climate change and nuclear proliferation.

Scientific impotence may be one of the reasons why there is such a disconnect between Muslims and the rest. But let me first dispel

the notion that Muslims are intrinsically backward or somehow incapable of modern thought. Unlike the native peoples of South America or Africa, Muslims have a rich history of contributing to global science and, to an extent, technology as well. Martians visiting Earth between the 9th and 13th centuries – the Golden Age of Islam – would surely have reported back to headquarters that the only people doing decent work in science, philosophy or medicine were Muslims. Muslims not only preserved the ancient learning of the Greeks, they also made substantial innovations. Mathematics, astronomy, chemistry, optics, mechanics, medicine, and human biology are some of the areas where path-breaking developments were made by Muslim scholars. This is a source of immense cultural pride.

But about seven centuries ago science and Islam parted ways. The modest rebirth in the 19th century has been eclipsed by a startling reversal away from science and modernity. This reversal began in the last decades of the 20th century and appears to be gaining speed.

Nevertheless, these days you will hear government heads and science ministers of Muslim countries make tall claims at conferences held around the world. They say that their countries are making great progress. Having attended a few such conferences, my impression is that the benefits lie mainly confined to the excellent meals consumed and frequent-flyer miles clocked up by the foreign delegates.

The sad state of Muslim science is apparent from the tables below:

Quantity of Scientific Output

- Less than 2% of 13.3 million annual publications originate from Muslim countries.
- The US NSF records that of the 28 lowest producers of scientific articles in 2003, half belong to the OIC.
- Patents are very few.

46 Muslim countries: 1.17%
Spain: 1.48%
India: 1.66%

| | Physics Papers | Physics Citations | All Papers | All Citations |
|--------------|----------------|-------------------|------------|---------------|
| Malaysia | 656 | 1,650 | 10,930 | 40,007 |
| Pakistan | 809 | 2,862 | 7,662 | 25,867 |
| Saudi Arabia | 866 | 2,390 | 15,700 | 56,416 |
| Morocco | 1,584 | 5,720 | 10,344 | 38,579 |
| Iran | 2,165 | 8,628 | 22,635 | 67,605 |
| Egypt | 3,099 | 10,743 | 26,829 | 90,597 |
| Turkey | 4,827 | 20,562 | 83,961 | 280,622 |
| Brazil | 18,467 | 102,605 | 125,132 | 627,441 |
| India | 26,627 | 139,841 | 203,989 | 788,852 |
| China | 71,782 | 275,963 | 400,917 | 1,480,743 |
| Germany | 103,273 | 1,057,735 | 742,917 | 8,014,317 |
| USA | 208,695 | 2,483,089 | 2,831,004 | 37,822,213 |

| | |
|--------------|-----|
| Malaysia | 58% |
| Pakistan | 1% |
| Saudi Arabia | 0% |
| Morocco | 11% |
| Iran | 2% |
| Egypt | 0% |
| Turkey | 2% |
| Brazil | 12% |
| India | 5% |
| China | 27% |
| Germany | 16% |
| USA | 31% |

High-technology exports as a percentage of total exports (World Bank Development Report 2006).

Note: no correlation with research

Patents from OIC countries are few. According to official statistics, Pakistan has produced only eight patents in the past 43 years.

So what explains the slow pace of scientific development in Muslim lands?

Most Muslims angrily reject any claim that science and Islam are incompatible as idea systems. In the current epoch of growing antagonism between the Islamic and the Western worlds, they feel those accusations add yet another excuse for the West to justify its ongoing cultural and military assaults on Muslim populations.

In defending the compatibility of science and Islam, Muslims argue that Islam had sustained a vibrant intellectual culture throughout the European Dark Ages and thus, by extension, is also capable of a modern scientific culture. The Pakistani physics Nobel Prize winner, the late Dr. Abdus Salam, would stress to audiences that one-eighth of the Qur'an is a call for Muslims to seek Allah's signs in the universe and hence that science is a spiritual as well as a temporal duty for Muslims.

But Abdus Salam, who I grew to know well and who wrote the preface to my book on Islam and science, readily acknowledged that the present intellectual climate in Muslim countries cannot sustain scientific growth.

The incontrovertible fact is that academic and cultural freedoms on campuses are highly restricted in most Muslim countries. At Quaid-i-Azam University in Islamabad, where I teach, the constraints are similar to those existing in most other Pakistani public-sector institutions. This university serves middle-class Pakistani students and ranks number two among universities belonging to the Organization of Islamic Countries, with 45 members. My campus has three mosques with a fourth one under construction, but no bookstore. Here, as in other Pakistani public

universities, films, drama, and music are frowned on, and sometimes even physical attacks by student vigilantes who believe that such pursuits violate Islamic norms take place. Islamabad, the capital of Pakistan, has no public library and no movie theatre.

As intolerance and militancy sweep across the Muslim world, personal and academic freedoms diminish with the rising pressure to conform. In Pakistani universities, the veil is now ubiquitous, and the last few unveiled women students are under intense pressure to cover up. The head of the government-funded mosque-cum-seminary in the nation's capital issued a chilling warning to my university's female students and faculty to cover their faces totally else acid would be thrown upon them.



I want to tell you how hugely things have changed in my university over the three decades I have taught there. So let me show you two pictures, one taken in 1985 and the other one a few weeks ago.

Chemistry Department, QAU, 1985



Chemistry Department, QAU, 2008



In rejecting science, Muslim orthodoxy has mounted a vigorous attack on the scientific method in recent years. It demands that the teaching of modern science in schools be correspondingly changed. So, for example, Newton's Law must no longer be called by that name. Nor should effect be related to cause. It should be noted, however, that the Iranian clergy has allowed science taught in Iranian schools to maintain its secular character.

Starting in the 1980's, the orthodoxy also posed an imagined "Islamic science" as an alternative to "Western science". This "science" claims that every scientific fact and phenomena known today was anticipated 1,400 years ago and that all scientific predictions can and must be based upon study of the Qur'an. This has been the concern of dozens of conferences in numerous Muslim countries, including Egypt, Pakistan, Malaysia and Saudi Arabia. Some religious scholars calculated the temperature of Hell, others the chemical composition of heavenly djinnis. Still others triumphantly disproved evolution. But none produced a new machine or instrument, conducted an experiment, or even formulated a single testable hypothesis.

Religious fundamentalism is always bad news for science. But what explains its meteoric rise in Islam over the past half century?

In my opinion, there is no one cause. But perhaps one cause is more important than all other causes combined. Although this conference has carefully avoided issues that directly relate to politics, I must clearly tell you that, in my opinion, the huge acceleration in Islamic fundamentalism has fundamentally to do with global politics and the pursuit of power by powerful nations.

To make my case, let us go back to the mid-1950's. At that time all Muslim leaders were secular, and secularism in Islam was growing. Iran under Mohammed Mossadeq, Indonesia under Ahmed Sukarno, and Egypt under Gamal Abdel Nasser are examples of

secular but nationalist governments that wanted to protect their national wealth. What changed subsequently? Here the West must accept its share of responsibility for reversing the trend. Western imperial greed subverted and overthrew them one by one. Standard Oil did not want Mossadeq, so he went. The CIA hated communists, so Sukarno went. And so on.

At the same time, conservative oil-rich Arab states—such as Saudi Arabia—that exported extreme versions of Islam became US clients. The fundamentalist Hamas organization was helped by Israel in its fight against the secular Palestine Liberation Organization as part of a deliberate Israeli strategy in the 1980s. Where weak secular governments collapsed, or were subverted, a vacuum was created. Nature, as we all know, abhors a vacuum. Islamic fundamentalism and its promises rushed to fill the vacuum.

Perhaps most importantly, following the Soviet invasion of Afghanistan in 1979, the US Central Intelligence Agency armed the fiercest and most ideologically charged Islamic fighters and brought them from distant Muslim countries into Afghanistan, thus helping to create an extensive globalized jihad network. Today, as secularism is continuing to retreat. Inept and unpopular governments in Pakistan and Afghanistan are providing enormous impetus to the Taliban who are sweeping over the two countries.



How can science and secularism return to the Islamic world?

I have no silver bullet to offer. Forward movement will require global justice become a priority. Colonialism is no longer acceptable. The United States must give up its Bush-era dreams of total planetary control and abandon PNAC, the Project for the New American Century. Instead of seeking “total spectrum dominance” in space, air, sea, and land, it must learn to live with the rest of the world. In this respect, the election of Barack Obama is to be welcomed as a harbinger of change but his administration will have to work hard to change the common opinion among Muslims that the US is at war with Islam. So far he is not doing enough and had no comments to make when, two months ago, as American jet fighters flown by Israeli pilots dropped bombs over the world’s largest slum and killed hundreds of children. Such deaths feed into a bitterness that could lead to a never ending war of civilizations.

Progress will also require behavioral changes among Muslims. If Muslim societies are to develop technology instead of just using it, the ruthlessly competitive global marketplace insists on not only high skill levels but also intense social work habits. The latter are not easily reconcilable with religious demands made on a fully observant Muslim’s time, energy, and mental concentration: The faithful must participate in five daily congregational prayers, endure a month of fasting that taxes the body, recite daily from the Qur’an, and more. Although such duties orient believers admirably well toward success in the life hereafter, they make worldly success less likely. A more balanced approach will be needed.

Science can prosper among Muslims once again, but only if there is a willingness to accept certain basic philosophical and attitudinal changes—a *Weltanschauung* that shrugs off the dead hand of tradition, rejects fatalism and absolute belief in authority, accepts the legitimacy of temporal laws, values intellectual rigor and scientific honesty, and respects cultural and personal freedoms.

The struggle to usher in science will have to go side-by-side with a much wider campaign to elbow out rigid orthodoxy and bring in modern thought, arts, philosophy, democracy, and pluralism. Science cannot prosper under authoritarianism. And authoritarianism runs deep everywhere. It underlies the conventional Muslim family structure that demands absolute obedience, and a tyrannical educational system where the teacher crushes independent thought. Muslim women must be given the same rights as men. Without intellectual and personal freedoms, Muslim societies shall continue to suffocate.

Fortunately, respected voices among believing Muslims see no incompatibility between the above requirements and true Islam as they understand it.

Progressive Muslim forces have recently been weakened, but not extinguished, as a consequence of the confrontation between Muslims and the West. For this both sides are blameworthy, the proportion of which can be endlessly debated. But what cannot be denied is that on an ever-shrinking globe there can be no winners. It is time to calm the waters. We must learn to drop the pursuit of narrow nationalist and religious agendas, both in the West and among Muslims. In the long run, political boundaries should and can be treated as artificial and temporary, as shown by the successful creation of the European Union. Just as important, the practice of religion must be a matter of choice for the individual, not enforced by the state. This leaves secular humanism, based on common sense and the principles of logic and reason, as our only reasonable choice for building the world's societies and nations.