



SCIENCE IN IRAN

Picking a Path Among the Fatwas

Scientists in Iran find themselves challenged by true believers; some are trying to negotiate a peaceful compromise

TEHRAN—Scientists and philosophers mingled with clerics in robes and turbans here at a recent gathering in Iran's cavernous new international conference center. They had come to discuss science and religion—specifically, to seek common ground between Western science and the tenets of Islam. The Iranian intellectuals who helped organize the meeting* are hoping for a kind of détente that will help Iranian scholarship blossom. They were encouraged at the outset by Gholam Ali Haddad-Adel, president of the Iranian parliament, who offered the contingent of foreign academics a warm welcome.

But 2 days into the meeting, a chill filtered through the halls. Iran's government-controlled newspapers announced that a prominent Iranian sociologist, Ramin Jahanbegloo, had been arrested at the airport on his way to a conference in Belgium. His crime, according to the reported comments of Iranian Minister of Information Mohsen Ejei, amounted to "contacts with foreigners." Another state-controlled paper described Jahanbegloo as "an element of the United States who is part of the plot to overthrow the regime under the guise of intellectual work by peaceful means." No other charges have been cited. As *Science* went to press, Jahanbegloo was still being held without legal council in a prison notorious for torture. Hundreds of academics around the world have signed a letter to the Iranian government calling for his release.

* First International Congress on the Dialogue Between Science and Religion, sponsored by Tehran University of Medical Sciences, 1–4 May.

The foreigners who were aware of the arrest left the meeting uncertain about the government's intentions for Iranian academia. Iranians are often confused, too. Interpreting the leadership's signals can be difficult in a country where scientific achievement is revered but where the Koran—and a small group of clerics who interpret it—has the final say in all matters. And it can be disastrous to read the signals incorrectly.



Iran is investing heavily in science now, after decades of neglect (*Science*, 16 September 2005, p. 1802). Even the Iranian supreme leader Ayatollah Ali Khamenei has issued a fatwa, or edict, calling on researchers to

Open encounter. Clerics met with scientists and philosophers in Tehran in search of common ground.

secure Iran's position as the "leader in science" in the Middle East over the next 20 years. But at the same time, discussing ideas that displease the religious elite can land you in jail. As Haddad-Adel told *Science*, "We do not allow our scientists to make propaganda against Islam." Exactly what might constitute such propaganda is unclear, and Haddad-Adel declined to specify.

Many Iranian academics argue that science and Islam are compatible and that the challenge for each is to adapt to the other. "Iran is the world's only laboratory for bringing science and religion together," says Haddad-Adel, who was an academic philosopher before becoming one of Iran's most powerful politicians. But what this might mean in practical terms for Iran's scientists is uncertain. Some see any dialogue with the ruling clerics as helpful. "Most of the conflicts [between science and religion] are due to misunderstanding," says Jamshid Darvish, an evolutionary biologist at Ferdowsi University in Mashhad. But others are wary; they fear that more entanglement with Iran's religious conservatives will only lead to tighter controls over academia.

Dangerous questions

A glance at the evolution exhibit at Tehran's museum of natural history reveals the tension below the surface. Wave after wave of schoolgirls in matching headscarves file past a row of glass cases containing meticulously arranged

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—Gholam Ali Haddad-Adel
President, Iranian Parliament

fossils. A label next to a trilobite, for example, says that the specimen, discovered in the nearby Alborz mountains, came from the Devonian, a period 400 million years ago when those sediments were submerged in a shallow sea. Along the opposite wall, a diorama chronicles the evolution of life on earth. Painted scenes of ancient life look as if they've been copied directly from the latest biology textbooks. But the exhibit takes a sharp detour from science in the final display case where evolution is summed up. In an open tome representing the Koran, phrases in calligraphy proclaim that "God willed an atmosphere created from gases" and "God created man from water." Above that is a poster—published by the Creation Evidence Museum in Glen Rose, Texas—describing how Earth was created in a few days by an omnipotent being.

If this exhibit leaves you wondering what the curator actually believes, then that is probably by design. Under today's Iranian theocracy, "you are forbidden to deny the existence of god," explains Eghbal Taheri, a pharmacologist at the Tehran University of Medical Sciences. "You can do your science," she says, "but in the end you must choose your words carefully." For example, "you cannot say that the amazing cells in the eye are nothing more than a product of evolution over millions of years."

Religious constraints have consequences for academia, says an Iranian philosopher of science who spoke on condition of anonymity. "Censorship, and especially self-censorship, is everywhere," he says. "In my papers and presentations, I must often change the ending to include some religious aspects, even though I am agnostic, which of course I can never admit." The clerics ignore most of the sciences, he says. But potential hotspots in addition to evolutionary biology include psychology and neuroscience; researchers in these fields often take care to leave room for the existence of a soul, he says. "But most of all," he adds, "there's sociology," where the benefits of theocracy are questioned at a researcher's peril. This is the widely assumed motivation for arresting Jahanbegloo, although the Sorbonne-trained sociologist is not known for activism.

There is no consensus among Iranian scientists, however, on whether religious constraints are doing harm. Taheri acknowledges that censorship exists but says, "I do not think it inhibits our work." The chancellor of the Tehran University of Medical Sciences, Bagher Larijani, brother of Iran's nuclear negotiator, disagrees. "It is a problem," he says. "We scientists must approach [the religious leaders] very quietly and humbly to explain ourselves." Larijani, an endocrinologist and Iran's chief medical and research ethicist, says that such dialogues have already encouraged Iran to embrace research tools banned in other Muslim countries, including human embryonic stem cells and transgenic plants and animals. To meet Iran's 20-year science goal, he says, scientific and religious experts must come together to work out their differences. Or, as Shiva Khalili, a psychologist at the National Research Center of Medical Sciences in Tehran puts it, "science and Islam must be harmonized."

Science in the balance

The conference in Tehran—organized by Khalili and a diverse team of Iranian academics—was supposed to get the scientists and ayatollahs talking, but the discussions revealed as much discord as harmony. Speakers did not even agree on whether it made sense to bring religion and science together.

"Science is secular," says Reza Davari Ardakani, a philosopher at Tehran University and the current president of the Iranian Academy of Sciences. "We are pitting these two things against each other, but there is no reason to do so. Science and religion occupy different positions." Nonetheless, says Haddad-Adel, the "harmonization" will proceed, starting with the construction of a bricks and mortar institution in Tehran "to give a permanent home for the dialogue."



Mixed message. Visitors to Tehran's natural history museum can view standard displays on geology and evolution as well as a "creation evidence" poster from Texas.

The diverse menu of conference lectures gave a flavor of the dialogue to come. Some theologians brought Islamic ethics to bear on scientific issues such as human cloning and climate change. Their conclusions were similar to those of the Western mainstream: Reproductive human cloning should be banned, and the risks of climate change call for immediate action. Others wrestled with issues raised by science-oriented theologians in the West—such as whether the physical constants of the universe are fine-tuned to make life possible. With something less than scientific rigor, they cited the health benefits of prayer and belief in god while warning against the dangers of atheism. In the midst of this, Iranian academics gave lectures on everything from cosmology to evolutionary psychology.

Many Iranian scientists say that more interaction with the clerics is badly needed. Although applied science such as medical biotechnology receives the government's blessing, "we lack funding for basic research," especially evolutionary biology, says Darvish. Religious leaders need help understanding that embracing evolution "is necessary to solve problems in many fields, including medicine and the environment," he says. "We need today's biology to stay up to date."

Darvish is adamant that religion should stay out of the science classroom and laboratory. "In my classes, I only teach evolution and the mountain of evidence that supports it," he says. But science in Iran may not emerge from harmonization unaffected. Discussions at the conference touched on possible plans ranging from a voluntary science and religion seminar series, which Darvish supports, to a revision of science textbooks to include theology, which he rejects.

Which way this dialogue tips could determine how many of Iran's best researchers remain in the country or drain away to the West. "Science students are required to take a number of religious classes," says Hazineh Rahmandad, an Iranian engineer at the Massachusetts Institute of Technology in Cambridge. "But right now the burden does not prevent you from getting a proper scientific education," he says. "What worries me is that there seems to be a new push to change this equilibrium." Student protests erupted last year when Iran's ultra-conservative president, Mahmoud Ahmadinejad, appointed a cleric as chancellor of Tehran University. Critics say that the new chancellor's "forced retirement" of 40 members of the university faculty last month is part of an effort to eliminate dissent.

But optimists say the conservative trend will be short-lived. "I don't think there will be any Islamicization of science," says Saba Valadkhan, an Iranian molecular biologist at Case Western Reserve University in Cleveland, Ohio. "There is a new generation of pragmatic reformers in Iran, and they are the ones pushing for this dialogue between science and religion," she says. "That is the way to make science functional in a highly dysfunctional atmosphere."

—JOHN BOHANNON