

# Scientists doing a slow Bunsen burn

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By Malcolm W. Browne

Since at least the time of Archimedes, the third-century B.C. Greek physicist who was slain by a Roman soldier, scientists occasionally have had to defend themselves from forces anathema to rational thought.

Once again, many scientists believe their backs are to the wall, and participants at a recent meeting in New York resolved to start fighting back.

There is growing danger, many said, that the fabric of reason is being ripped asunder, and that if scientists and other thinkers continue to acquiesce in the process, the hobbling of science and its handmaidens — medicine and technology among them — seems assured. Moreover, many participants argued, the same cognitive disease afflicting science in the United States and many other countries could eventually even unravel democracy, which depends on the capacity of citizens to reach rational estimates.

About 200 worried scientists, doctors, philosophers, educators and thinkers from nationwide convened for a three-day meeting at the New York Academy of Sciences to exchange views and plot strategy. Held under the rubric "The Flight from Science and Reason," the meeting was organized as a call to arms.

Defenders of scientific methodology were urged to counterattack against faith healing, astrology, religious fundamentalism and paranormal charlatanism. But beyond these threats to rational behavior, participants at the meeting aimed their barbs at "post-modernist" critics of science, who contend that truth in science depends on one's point of view, not on any absolute content.

Participants deplored what they see as a

— See REASON, page E2

Malcolm W. Browne writes about science for *The New York Times*.

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fear of  
irrationalism

— REASON, from page E1.5

growing trend toward the exploitation of scientific ideas to attack science. They cited the physics of relativity and quantum mechanics as pillars of 20th-century thought that sometimes are distorted by critics of science into arguments that nothing in science is certain and that mystery and magic have an equal claim to belief.

At risk is public trust in such scientific tools as statistical analysis, controlled laboratory and clinical experiments, the rational analysis of political oratory, and the study of history, anthropology and every other field dependent on disciplined, rational thought.

Another weapon increasingly wielded by opponents of science, participants warned, is the frequent allegation that fraud in scientific inquiry has become so common that scientists cannot be trusted.

Dr. David Goodstein, a physicist and vice provost of the California Institute of Technology, said that although fraud existed, it was not nearly as common as critics of science contended. Goodstein, who has worked with federal agencies in developing guidelines for defining misconduct in science, said that from 1980 to 1987 only 26 cases of misconduct came to light, involving about 0.0003 percent of all scientists receiving research grants.

All but five of those cases involved doctors or biologists, Goodstein said.

Excessive legal constraints on scientists, he asserted, can "endanger the scientists' right to be wrong," hindering the scientific process.

Although most medical schools discount the claims of chiropractors, faith healers and practitioners of "alternative medicine," many medical schools lack the courage to stand by their convictions, Dr. Gerald Weissmann, a doctor at the New York University Medical Center, said.

"Silence is easier in politically dangerous times," he said. "Medicine and science today are being confronted by lunatics, fascists and the practitioners of bizarre magic."

Dr. Paul Kurtz, a professor of philosophy at the State University of New York at Buffalo, contended that post-modernists of both the political left and right denied that scientific knowledge was possible. The result, he said, was an "erosion of the cognitive process which may undermine democracy."

Americans have become fascinated by angels and "out of body" experiences, said Dr. Wendy Kaminer of Radcliffe College in Cambridge, Mass., and seem to be discarding

the habit of critical thinking. It is in this environment that irrational ideas take hold, she said, asserting, "They tell us, for instance, that there is no death, only 'energy transformation,' and that science, born out of speculation, cannot help us understand the spiritual world."

"The dissemination of pseudoscience, including such things as the fascination with near-death experiences, the growing belief by Americans, 34 percent of them, in reincarnation, and such books as the best-seller *Abduction: Human Encounters with Aliens* by Harvard University's John E. Mack, are dangerous. They help to break down the standards of reason, and that can lead to such vicious doctrines as Aryan theories of race, and Lysenkoism."

The latter term is named after Trofim Lysenko, an agronomist who erroneously believed that acquired characteristics could be inherited and who nearly destroyed Soviet agriculture.

Organizers of the meeting acknowledged that it was not structured to give enemies of science equal time. The latter have ample opportunity to express their positions on television talk shows, popular books and in the press, they said.

Among the writers sharply criticized at the meeting but not present were Shirley MacLaine, the actress who espouses the certainty of reincarnation; Mack, the author of the book about alien abductions; Dr. Sandra Harding of the University of Delaware, who has argued that "value-free research is a delusion" and has compared traditional methods of science to "marital rape, the husband as scientist forcing nature to his wishes."

But despite their unwillingness to transform the meeting into a debate, speakers were subjected to some verbal brickbats from a few hecklers in the audience.

His fists clenched, Dr. Daniel Miller, a Brooklyn psychologist, stepped to the microphone to denounce one of the panels.

"This is not an objective platform, and I've heard nothing but vituperation from the scientific power structure trying to reinforce its own image," he said.

Miller's business card describes his specialty as "Organic Process/Past Lives Psychotherapy."

Just as serious a threat to rational inquiry as paranormal nostrums, according to several participants, is ethnocentrism and efforts by various groups to rewrite history in the interest of raising self-esteem.

Dr. Bernard Ortiz de Montellano, an

anthropologist at Wayne State University in Pleasant Ridge, Mich., who directs a program to recruit members of ethnic minority groups into the sciences, assailed what he said was the distortion of history to enhance ethnic pride.

"A teaching aid widely distributed among teachers of African-American studies asserts that African science developed along different and superior lines," he said, in which the ancient Egyptians, portrayed as the ancestors of modern blacks, supposedly led the way with their studies of "trans-material causation," remote viewing, astrology and other magic.

Students may leave such courses with the impression that ancient Egyptian theological mysticism offers a more accurate view of the world than do the canons of science, he added.

But other speakers challenged the idea that education should take the blame for superstition and belief in all that is supernatural or unreasonable.

"Take Russia and France," Weissmann said. "Both countries educate their young people in science far better than we do. But the belief in magic and the supernatural is certainly more widespread in France and Russia than it is in the United States."

Dr. Dudley Herschbach of Harvard University, winner of the 1986 Nobel Prize in Chemistry, spoke wistfully about opportunities lost in a series of documentary programs broadcast recently by the Public Broadcasting System. Dr. Herschbach and two other Nobel winners, Dr. Leon Lederman and Dr. J. Michael Bishop, were the subjects of these three programs, called *The Nobel Legacy*, broadcast in April and May.

The three scientists sought to convey to the audience a sense of the beauty and excitement of scientific inquiry, but in the broadcast programs, the producers inserted frequent interjections by Dr. Anne Carson, a professor of classics at Emory and McGill universities

who is a harsh critic of many of the principles of science.

"I never met her, and I was sorry I couldn't engage her in a dialogue," Herschbach said.

Dr. Gerald Holton, a physics professor at Harvard, warned that if science did not take some determined steps to protect itself, it would succumb to the powerful social and political forces arrayed against it.

Referring to government hearings during the Communist-hunting McCarthy Era that deprived Dr. J. Robert Oppenheimer of the security clearances he needed to continue as leader of nuclear-weapons research, Holton said, "Oppenheimer acquiesced in his own destruction. He said later that during the hearings 'I had very little sense of self.'"

The lesson, Holton said, is that "the moral authority of science depends on maintaining a good sense of self, and recognizing the need to act in self-protection." 3