

IS THERE MADNESS IN THE SCIENTIST'S METHOD?

Spencer Weart's interesting article "The Physicist as Mad Scientist" (June, page 28) provides some insightful perspectives on the development of stereotypes of scientists. The disturbing issues presented in the article demanded some resolution, and the author appropriately concluded with suggestions on improving the image of scientists. However, the last sentence of the article is misleading in implying that scientists have altruistic motives: "And, second, work should continue to tell the history of real scientists—showing them as people working to improve civilization, but not to seize personal control over it..."

Examining the history of science reveals that scientists have usually pursued their research because of a spectrum of motives ranging from obsessive curiosity to the desire for fame, and the improvement of civilization was not a primary motive for most. Scientists are only human beings, as Weart clearly pointed out in the article. To present them as having superior motives would ultimately be counterproductive.

ESTHER B. SPARBERG
Hofstra University
8/88 Hempstead, New York

In his article on "mad scientists," Spencer Weart has many interesting observations on this phenomenon in various media over the years. However, he misses what, to me, is the key question. The question is not why, say, films show scientists in the "mad scientist" role. It is a powerful dramatic image, and after all, other professions also suffer. Equally standard figures are corrupt politicians, venal businessmen, traitorous diplomats, shyster lawyers and so on. Moreover, the mad scientist image is, we should recognize, a powerful metaphor for some of the problems of social impact associated with our profession.

No, the question that demands an answer is not why does the mad scientist often appear, but why does the normal scientist never appear? In all my filmmaking years, I can only

remember one film in which a scientist (albeit in a minor role) appears as a normal person—but recognizably with a scientist's viewpoint and aspirations. Can you recall any at all?

ALWYN EADES
University of Illinois
7/88 at Urbana-Champaign

I enjoyed Spencer Weart's article on "The Physicist as Mad Scientist." As the wife of a physicist, I appreciate his efforts to rehabilitate the popular image of the scientist. Having taught Mary Shelley's *Frankenstein* to college students, I can attest to the enduring power of the Frankenstein myth and to the enduring confusion of the Creature with his creator. The novel's subtitle, "The Modern Prometheus," points out the ancient roots of the Frankenstein figure.

Weart's account of the mad scientist stereotype, however, led me to speculate on the similarities between the modern scientist and the ancient wizard or shaman with which the stereotype identifies him. From a broad anthropological perspective, the two figures are not as different as we might think.

The aims and methods of the two share remarkable similarities. For example, both the shaman and the scientist venture into the unknown in search of knowledge and power over the natural world. Certainly pure research seeks new knowledge about the world; applied research seeks to turn that knowledge into power: new sources of energy, faster methods of transportation, cures for disease, even new forms of life. As a rule, of course, the scientist does not seek personal power over his society; this idea is part of the popular notion of the scientist as world dominator. But for all we know, the shaman is equally selfless, attempting to improve the quality of life of his neighbors and do his bit for the good of the tribe.

The methods of the shaman and the scientist resemble each other, as well. Both follow tested rituals that emphasize careful controls and a rigid sequence. Both strive for repeatability.



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The shaman uses magic formulas within the structure of his spell; the scientist uses mathematical formulas within the structure of the scientific method.

They serve a similar function in their societies. Certainly their world views differ: The shaman believes in spirits and demons, while the scientist believes in gluons and quarks. (I sometimes think the amount of faith required must be very nearly the same.) But both seek to harness natural forces in the interest of humanity. One might almost say that the wizard was the scientist of his time.

One significant difference between the shaman and the scientist lies in their accessibility. The shaman's rituals were largely public, as were the results: Either the rain came or the drought continued; either the patient recovered or he died. But the scientist conducts his rituals in the privacy of his lab, revealing the results at his discretion, and then usually to a circle of initiates in arcane publications inaccessible—or incomprehensible—to the general public. This remoteness adds to the aura of mystery that surrounds the public perception of the scientist. No wonder that the modern tribe, with as much faith as ever in the power of its shamans, is a little nervous!

BRENDA B. COLLIN
Dublin, Ohio

"The Physicist as Mad Scientist" seeks to blame the poor image of scientists on an ignorant public in the thrall of sensationalist writers.

Well, sensationalism does exist, and the public does have a poor image of the scientist, but Spencer Weart's assertion that one follows from the other was in no way demonstrated. Additionally, I found his implication that the base masses are incapable of independent thought to be rather arrogant.

Perhaps the public is not quite as ignorant as Weart believes. Perhaps the public disregards the smoke-screen of modern conveniences and sees instead just a few relevant facts that define the soul of the scientist.

For isn't it true that physicists continue to create devices whose sole purpose is to destroy the Earth? Is it not also true that engineers design projectiles whose sole purpose is to butcher human flesh? Are there not biologists who concoct formulas whose sole purpose is to impart virulent disease?

One could say that scientists are no different from the rest of the human race in their motivations. I would say that with great power comes great

responsibility.

Surely science is the world's second-oldest profession.

NORM SIMMONDS
Valencia, California

Chinese Students in the US: Home Unfree

The news story by William Sweet (June 1988, page 67) gave a report on the brief history and the future of the China-US Physics Examination and Application program. The story also discussed the future of Chinese students in the United States and touched on the sensitive issue of whether they would return to China after completing their studies here. I would like to take this opportunity to offer some of my personal views on the issue, which may or may not be shared by other Chinese students.

As a student from the People's Republic of China, I have frequently been asked the question "Are you going back to China?" Lately, I have been asked, "How many Chinese students will eventually return to China?" The answer to either question is not clear to me at the moment, in spite of my deep affection for my country. Two major factors influencing my decision are the lack of career opportunities and the disrespect of basic civil liberties.

As stated in Sweet's news story, the Chinese government has made clear that its long-term economic development plan is to emphasize small-scale enterprise and de-emphasize basic scientific research. The government's current reform policy, in my opinion, overemphasizes the commercial profitability of research activities and therefore will seriously undermine basic research in physics and other sciences, as well as the general technology base. As a result of this, even those fields, such as condensed matter physics, that the government has singled out for support will suffer severe drawbacks in the long run. The government has ignored criticism from a great number of concerned scientists both inside and outside China. Should the government carry out (and I think it will) such a so-called "reform policy," it will effectively diminish the research opportunities for those who wish to do independent basic research without immediate commercial benefit. I was told a little over a year ago by a fairly high-ranking government official who was touring campuses in the United States that the government did not encourage students to do postdoctoral

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