LETTERS

The Pentagon's Computers

The article "Computers and the U.S. military don't mix," by William J. Broad (News and Comment, 14 Mar., p. 1183) contains significant errors. For example, Broad states that the National Military Command Center in the Pentagon is totally dependent on commercial sources of power. This is not true. Diesel emergency generators for the command center are on hand and are regularly exercised. In addition to backup generators, uninterrupted power supplies, that is, floating batteries, prevent disturbance to key systems. Broad also states that the computers at NORAD "go down whenever nearby commercial power lines are struck by lightning." Again, this is wrong. NORAD has backup generators in a protected location and has excellent protection against outside disturbances such as lightning. These two instances are only examples of a multitude of errors, misunderstandings, and misinterpretations in the article.

The World Wide Military Command and Control System (WWMCCS) is often confused with a small portion of that system, the automatic data processing equipment that supports certain parts of the system. Further, the automatic data processing equipment is composed of subsystems, one of which, WWMCCS ADP, has a subsubsystem, the WWMCCS Intercomputer Network (WIN). The article begins with a lurid description of an alleged "computer-generated crisis" involving our missile warning system on 9 November. WIN is not used in any way in that system.

Broad quotes the General Accounting Office as saying that, at many bases, "a separate . . . computer was used for each security level of data being processed" and that "multilevel security within the single . . . system" is one answer, but that the "Honeywell computers cannot do this." No computer or system available today, nor any way now known in which our government has confidence, can provide multilevel security. We are hopeful that research under the Defense Advanced Research Projects Agency may lead to such capability, but it is now beyond the state-of-the-art of all computers, including Honeywell's.

Such errors in a respected publication may result in an unwarranted decrease in public confidence in our national defense capabilities.

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Peanut Butter Test

McCullam's letter (2 May, p. 446) suggesting that peanut butter is a solvent for *Science* ink prompted us to search out the responsible agent(s). We tested the ingredients in one brand of commercial chunky peanut butter to determine the speed with which it removes ink from the pages of *Science*.

Agent	Time (sec)
Peanuts (dry roasted)	53.6
Dextrose*	15.2
Partially hydrogenated vegetable oil	58.4
Salt†	7.5
Sugar†	10.3
Peanut butter	17.9
Peanut butter with oil removed‡	9.1

*Since dextrose was not handy, we substituted fudge. †Aqueous solution. ‡Oil extracted with acetone.

Contrary to McCullam's observations, it appears that any of several ingredients other than grease is the root of the problem. A weak saline solution is even speedier than peanut butter, obliterating McCullam's own letter in 4.6 seconds.

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Peer Review: An Experiment

Walter Stumpf (Letters, 22 Feb., p. 822) asks: "Why do scientists provide and accept anonymous reviews of grant applications and journal manuscripts? In an *open review system*, merits and weaknesses would be assessed more thoughtfully and criticisms would be made more responsibly."

A unique opportunity to compare the merits of anonymous peer review and open peer commentary has been provided by a scientific communication project, *The Behavioral and Brain Sciences. BBS* [modeled after *Current Anthropology* (*1*)] uses anonymous peer review to assess acceptability for publication and then publishes with the articles open peer commentary from 20 or more investigators (including the referees).

This project allows the process of "creative disagreement" in science to be directly examined. The indications so far are that anonymous peer review and open peer commentary can be *complementary* mechanisms, rather than substitutes for one another (*2*). In re-

viewing, anonymity must be an available option "for much the same reason that voting is done anonymously: to assure that judgements can be made freely and without fear of incurring prejudice or ill will" (*2*, p. 18). Moreover, the review process is never completely anonymous, because the editor or grant officer knows the reviewers' identities. More research should certainly be devoted to developing fairer and more objective methods of selecting reviewers (and perhaps also editors and grant officers), and authors' and grant applicants' rebuttals should certainly be taken into consideration in the review process. Individuals and organizations are working on these problems (*3*). But anonymous peer review should not be abandoned unless there is evidence that something better can take its place.

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Sakharov and Whistle-Blowing

The invidious treatment and persecution of Andrei Sakharov by the Soviet bureaucracy is a dramatic demonstration of the result of the collision of the individual conscience of a scientist with the inexorable intention of "policy-makers." Because of the tensions between the West and the Soviet Union at present, I fear that we shall overlook the principle of Sakharov's torment.

The principle, I believe, is that scientists are employees of bureaucracies and, according to the administrators, are employed to solve problems, not to create them. The concepts of free inquiry and that scientists may have consciences do not always penetrate the depths of the administrative mind; instead attempts are made to "deal" with the situation, usually resulting in dismissal, or loss of tenure, or internal exile. I know of no countries with significant numbers of scientists that have escaped the problem: consider the whistle-blowers at the Department of Health, Education, and Welfare or the Department of Defense.

I hope my colleagues continue to protest Sakharov's victimization, but with the understanding that it can happen in the United States, and does. Perhaps the National Academy of Sciences, in conjunction with the appropriate international organizations, could examine this dilemma in an effort to orient the scientist's role in society.

It seems essential to clarify, if not codify, the ethical and moral obligations of scientists to officialdom, since they may be different from those of the nonscientist. The Sakharov case is justification enough to establish an international organization (analogous to Amnesty International) to publicize the plight of scientists who have fallen afoul of officialdom because of their beliefs.

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Whale Meat in the Japanese Diet

Junghans (Letters, 4 Apr., p. 6) points out several errors in Beary's letter (14 Dec. 1979, p. 1260) regarding the high concentrations of mercury in whale meat eaten by the Japanese. We would like to call attention to some additional errors in Beary's letter.

Junghans is correct in stating that whale meat is now only an occasional source of protein in the Japanese diet. Furthermore, almost all of this meat is from baleen whales, not sperm whales. Only baleen whale meat is commonly available in Japanese food stores. Sperm whale meat is generally regarded as of low quality and distasteful. It is eaten in only a few local areas of Japan, in the vicinity of coastal whaling stations.

It is well known that sperm whale meat contains high levels of mercury (*1*, p. 44). In 1974, Nagakura *et al.* reported that the total mercury content of sperm whale meat ranged from 0.92 to 1.67 parts per million (ppm) and that about 70 percent of this was methyl mercury. However, they found that mercury levels in baleen whale meat were much lower, ranging from 0.01 to 0.07 ppm. Methyl mercury was not detected in any of the baleen whale meat sampled.

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