

Treatment of Radiation Victims in Brazil

A recent article by Leslie Roberts (News & Comment, 20 Nov., p. 1028) discusses the radiation accident in Goiânia, Brazil. This accident, like the nuclear reactor accident at Chernobyl, illustrates the need for international medical and scientific collaboration in these complex settings. I was pleased to join scientists from several countries in this effort. The Armand Hammer Center for Advanced Studies in Nuclear Energy and Health, along with several American and foreign health care companies (Behring, Baxter Health Center, Lilly, Hyland, Lederle, Pfizer, Merck Sharpe & Dohme, Miles Abbott, and others), were able to contribute more than \$1 million in equipment and supplies to help Brazilian physicians deal with the accident. Also, this effort allowed these physicians to use a novel therapeutic approach—the drug granulocyte-macrophage colony-stimulating factor (GM-CSF). Details of the efficacy of this therapy will be reported in the biomedical literature.

The *Science* article implies that there is some mystery regarding my role in the accident. Let me clarify this matter. My initial contact was on 2 October 1987, when I received a telephone call from a physician at the National Cancer Institute of Brazil, a facility of the Ministry of Health, regarding possible medical assistance to the victims. I offered my services and the resources of the Armand Hammer Center for Advanced Studies in Nuclear Energy and Health. I was next contacted on 15 October in Bonn, West Germany, by the same individual, who requested that I come to Brazil immediately and, if possible, assist the treating physicians in obtaining GM-CSF. On the same day the Brazilian Consulate in the United States contacted my office to indicate that a visa had been issued to me. I flew immediately from West Germany to Rio, where I began working with physicians at the Naval Hospital at their request and with their agreement.

While in Brazil I agreed to a policy that none of my activities would be discussed with the press; I did not agree to nor could I condone withholding any information from the press outside of Brazil. I also informed the Brazilian authorities that I would report studies involving GM-CSF to the U.S. Food and Drug Administration (FDA) and that

specific FDA guidelines might have to be adhered to.

One can judge the alleged query of the Brazilian authorities into my activities by their subsequent actions. I was commended by the Brazilian Navy for my assistance. Furthermore, I have been asked by the state government of Goiás and by the Ministry of Health of the federal government of Brazil to organize a meeting of scientific experts to advise the federal government on long-term follow-up of the population of Goiânia and of the immediate radiation victims. This will be held in March 1988. Finally, I have been asked to serve on a Brazilian federal commission investigating emergency response preparedness to nuclear and radiation accidents.

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U.S.–Japan Cooperation

Akira Hasegawa's proposals (Letters, 23 Oct., p. 448) to found an International Science Foundation (ISF) and to initiate it with a U.S.–Japan predecessor are each excellent suggestions. It could, however, be a serious mistake to infer that the latter is a predecessor for the former. Japan and the United States are two of the world's largest trading partners. Cooperative scientific or technological enterprises between them can hardly be divorced from this fact. So let's have a Japan–U.S. Science Foundation, but let's not think of it as an ISF. Incidentally, a formal basis of such an organization may exist in the U.S.–Japan Cooperative Science Program.

A real ISF would require careful consideration of a number of complex factors. For example, what role, if any, would the many existing international cooperative scientific enterprises have? Would the response of these existing institutions be positive? Is there a possibility that the ISF could be organized as a Unesco function? That could after all be appropriate, but in the light of Unesco's recent history, might the ISF be subject to political manipulation? Is the international scientific community sufficiently powerful to prevent this? It is perhaps trite to note, but nevertheless wise to remember, that scientists like everyone else have national loyalties. But it is also true that, as we engage in our favorite enterprises of discussing or doing scientific research

together, evidence that we come from different political constituencies usually disappears. So despite, these and other complicating factors, both of Hasegawa's suggestions deserve very serious consideration.

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Space Sample Policy

Glenn H. Reynolds (Letters, 4 Dec., p. 1341) does not make clear the distinction between international agreement on planetary protection and advocacy of quarantining a returned sample from Mars in Earth orbit. I criticized the latter proposal as enormously expensive and lacking either scientific justification or validity. In contrast, international agreements on planetary protection, related primarily to outgoing missions but also to sample return, were discussed by DeVincenzi and Stabekis (1). The agreements reflect "the need for containment of any unsterilized sample returned to Earth" (1). This need has been related mainly to protection of the sample from terrestrial contamination, and to receiving it in a laboratory on the earth's surface rather than in an orbiting spacecraft. A policy, approved by the executive council of the Committee on Space Research, International Council of Scientific Unions, Paris (COSPAR) (1), calls for containment if *not* safe for Earth return and no requirements "if safe for Earth return."

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REFERENCES

1. D. L. DeVincenzi and P. D. Stabekis, *Adv. Space Res.* **4**, 291 (1984).

Antarctic Research

In my contribution to a recent review article on Antarctic research (4 Dec., p. 1361), I did a serious injustice to L. G. Thompson and E. Mosley-Thompson and their associates and predecessors at the Byrd Polar Research Center (BPRC) (formerly the Institute of Polar Studies) of the Ohio State University in not discussing their con-