agencies relating to conservation of land races of crop plants. He also indicates that current funding is not enough to guarantee continued availability of badly needed resources and tells of a most praiseworthy effort by the Department of State and the Agency for International Development (AID), who sponsored, in Washington, on 16–18 November, a U.S. Strategy Conference on Biological Diversity. This was a very important undertaking, and both the Department of State and AID should be praised and thanked for their sponsorship.

In addition, as a mammalian geneticist deeply concerned with advances in biomedical research, I would like to urge that similar attention be given to the preservation of biological diversity for a different purpose: to make possible biomedical research on experimental animal mutants of medical interest. Although John Walsh cites "genetic engineering applications" as part of the agenda of the strategy conference, I am not sure this means animals for biomedical research.

Back in 1977, when our National Academy of Sciences committee was preparing *Conservation of Germplasm Resources: An Imperative* [Introduction in (*1*)], we pointed out that in experimental animals, as in land races of plants, "the main issue has to do with preservation of the basic genetic material, DNA." As long as we have one copy of a particular gene, we have the capacity to make more.

Mutants of medical interest in experimental mammals, some of them homologs of human constitutional diseases, others valuable tools for analysis of metabolic pathways, form the basis for much current biomedical research. Future availability of the germplasm of these animals is really almost as important as is the scientific literature resulting from study of their characteristics and responses. Research support has usually been available for experiments on these animals, but it is much harder, particularly in the present "tight budget" situation, to get adequate funding for long-term maintenance to guarantee future availability. The problem is "specialness": only a few researchers at any one time need to work with mice with pituitary dwarfism (*2*), hemolytic anemias due to defects in the red cell membrane (*3*), vitamin D–resistant rickets (*4*), or testicular feminization (*5*); but these investigators "need it bad."

There are hundreds of other important mouse mutants (*6*) that must be saved, plus smaller numbers causing constitutional diseases in rats (*7*), rabbits (*8*, p. 575), and even cats and dogs. To cite the most obvious example of critical need for particular mutants of medical interest, many promising experimental therapies for human constitutional diseases cannot legally be tried on human subjects until their effects have been tested on pertinent mutant animals.

Maintenance of animal colonies of so many diverse kinds of mutants becomes very expensive and hard to support under current funding conditions. It is hoped that cryobiological preservation, usually of embryos, will be less expensive over the long haul (*1*, pp. 79–91). As worldwide biomedical research and improvement of public health continue to reduce the incidence of infectious diseases, study and therapy of constitutional diseases will become more and more important. The need for many diverse experimental animal mutant research tools will continue and increase. Truly, the conservation of germplasm resources *is* an imperative.

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Documenting Science and Technology

Eliot Marshall's article about the U.S. House of Representatives' investigation into radiation treatments at the Institute of Nuclear Studies (INS) clinic in the late 1960's (News and Comment, 23 Oct., p. 423) attributes the inconclusive findings of the House science and technology subcommittee on investigations in part to "gaps in the record." He notes, somewhat ominously, that "Andrew Stofan, a NASA official, disclosed that all of NASA's documents on the INS research, which ran from 1964 to 1974, had been thrown out in the course of routine housecleaning."

This situation comes as no surprise to members of a joint committee of the History of Science Society, the Society for History of Technology, the Society of American Archivists, and the Association of Records Managers and Administrators. This committee has been examining the state of documentation of post–World War II science and technology in America for the past several years. Similar passing notices in *Science* and other journals have alerted us to endangered Manhattan Project records, lost radiation waste disposal records, proprietary records concerning science and technology at important corporations that may well be destroyed, and conflicting regulations concerning retention of government-funded research grant and contract records.

It is extremely helpful to the joint committee to have examples of such unmet documentary needs as we attempt to identify the systemic failures of our national archival systems. We would greatly appreciate hearing from scientists, scholars, and administrators, including records managers and archivists.

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Pleistocene Climate

I read with interest Richard Kerr's exciting article about orbital variations and their effect on the earth's climate (Research News, 4 Sept., p. 1095). I should like, however, to draw the reader's attention to one point of reference in need of clarification.

In 1975, Briskin and Berggren (*1*) found that the Pleistocene was divided into two major climatic regimes with the shift taking place approximately 1 million years ago. Comparison between winter temperatures and oxygen isotopic ratios of planktonic foraminifera led to the conclusion that two types of cold regimes characterized the Pleistocene. On the average, the first million years' winters were colder, and shifts in winter temperatures were associated with minimal ice volume changes. In the last million years, the average winters were warmer, but shifts in winter temperatures were associated with greater ice volume changes.

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