

ing. To guard against a repetition of such problems, NASA has already relieved the centers of authority for two major programs—the space shuttle and the space station—and has centralized top management in Washington. “The new program management structures clarify lines of communications,” says Fletcher, “identify focal points of authority, assure top management participation in important decisions, and ensure that problems are elevated to the correct level for consideration and decisions.”

In the same vein, Fletcher also promises to minimize multicenter management structures in future projects, and to tighten up the agency's internal review process.

■ *Increase management emphasis on space flight operations.* Before the Challenger accident, one often-voiced criticism of NASA was that agency officials were paying entirely too much attention to operational issues such as shuttle flight rates and shuttle pricing policy, and not nearly enough attention to the agency's research and development efforts. Indeed, it has even been suggested that NASA should spin off its operational activities to another agency, or to the private sector.

After considerable discussion, however, NASA officials and the Phillips committee both agreed that such an action is simply not feasible in the foreseeable future. “We bit the bullet,” says Fletcher. “It won't be easy, but we've accepted the fact that we have to learn to do operations well.” To that end, the agency's Office of Space Tracking and

Data Systems under associate administrator Robert O. Aller has been expanded into a new Office of Space Flight Operations. Aller's first task will be to identify just what NASA needs to do in this area.

■ *Establish a formal process within NASA to enunciate long-range goals and lay out programmatic, institutional, and financial plans for meeting them.* Like many other federal agencies, NASA has tended to stumble from budget submittal to budget submittal with no clear idea of where it is going. To rectify that tendency, however, the agency has already begun to put a new planning apparatus in place. In particular, astronaut Sally Ride is coordinating an agencywide effort to devise a new 10-year plan—“Space 1995”—which should be available later on this year.

In all, the Phillips committee made some 100 specific recommendations, which Fletcher and his colleagues have pledged to implement within a year. Phillips himself told *Science* that he was completely satisfied with the way NASA has responded so far. On the other hand, his report explicitly recognizes that much of what the agency's managers do is shaped by factors beyond their control—with notable examples being Administration policies, Congressional politics, Byzantine procurement regulations, and the annual upheavals of the federal budget. In the face of external forces like these, it remains to be seen whether this internal reform will have much effect. ■

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NIH Finds Argentine Experiment Did Not Break U.S. Biotechnology Rules

The National Institutes of Health (NIH) has dismissed allegations that the Wistar Institute used federal funds to carry out a field test of a recombinant rabies vaccine in Azul, Argentina, last summer. The experiment, which began in July and was halted in September, initially became controversial because its sponsor, the Pan American Health Organization (PAHO), did not notify the Argentine government (*Science*, 28 November, p. 1068).

Subsequently, questions have arisen about the way the experiment was conducted and whether Wistar wanted to circumvent U.S. regulations governing the release of genetically engineered organisms. Wistar has received in excess of \$3 million in funds from NIH for rabies vaccine research since 1980. The Argentine field experiment con-

ducted by PAHO with Wistar's participation cost \$65,000.

In a 25 November letter to NIH director James B. Wyngaarden, Edward Lee Rogers, counsel for the Foundation on Economic Trends, asserted that Wistar had violated NIH guidelines governing the recombinant DNA research. Representing the foundation's director, Jeremy Rifkin, Rogers argued that because the NIH funds supported research leading to the development of the vaccine, Wistar was required to submit any plan to conduct a field experiment to NIH's Recombinant DNA Advisory Committee (RAC) for approval.

William F. Raub, deputy director of NIH, however, rejected the foundation's argument that NIH guidelines were applicable to Wistar in the Argentine rabies experiment. Although

NIH has supported underlying research conducted by Wistar, Raub says there is no evidence that NIH funds were used for the field experiment. Wistar director Hilary Koprowski in a 5 December letter to NIH stated that funding came “from two private sources.” One contributor was the Rockefeller Foundation, which provided \$32,500. The other was L'Fondation Merieux, a private French research group.

Raub's decision, which was made public on 5 January, hardly ends the dispute. Rifkin says that as the guidelines are interpreted now, institutions and researchers can segment projects receiving NIH support to escape compliance with recombinant DNA guidelines. On 9 January, Rifkin petitioned NIH to reconsider its finding that there was no NIH funding for the Argentine test. Specifically, the foundation suggests that NIH take account of the research grants made to Wistar over the past 6 years. Rifkin also asks that the RAC close the loophole in the guidelines so that experiments done abroad are subject to agency review when related research is supported by NIH.

NIH's rules and the conduct of the Argentine experiment also are slated to be examined in February or March by a House science subcommittee on investigation and oversight. In particular, the subcommittee may take up ethical questions related to American firms conducting field experiments overseas, and will attempt to determine whether the Argentine field test's protocol was followed.

In a 5 November letter to *Science*, 130 Argentine scientists charged that there was a serious breakdown in the execution of the protocol. In particular, they contend that animal caretakers were not vaccinated against smallpox and they were not under medical surveillance as required; that inoculated cattle and control group cattle were not totally isolated; and that milk from inoculated animals was consumed by caretakers without being pasteurized. Wistar officials contend that the caretakers had previously been vaccinated and that blood samples were monitored for antibody levels.

Carlyle Guerra de Macedo, director of PAHO's Washington office, declines to comment on what transpired. In a letter to *Science* dated 19 December, de Macedo wrote: “PAHO's main concern in this matter is to avoid fueling a situation where emotion, self-interest, fact and perceptions are hard to differentiate. I fear that any additional information PAHO could make available at this point may be used by some to exploit the situation and could compromise our excellent relations with the government of Argentina.” ■

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