layers of administration at the expense of program." Specifically, the NAS committee "feels that the USDA has some problems in removing unsatisfactory administrators."

In this atmosphere, the research environment of USDA is losing its attractiveness. "Unless extreme care is exercised, there is great risk of suppressing the individual freedom of the scientist and of accepting objectives of lower scientific integrity." The remedies, as the committee sees it, are to give active researchers a larger say in decision-making, to weed out the bad administrators, and to recruit from outside the USDA as well as internally so as to get the best scientists available.

Another failure of agricultural research management, the NAS committee considers, springs from misallocation of funds. One source of misallocation is the earmarking of funds by Congress for research "that no one can define or for which no scientists are equipped or interested." Cotton, for example, which in terms of cash receipts is half as valuable a crop as wheat, receives twice the amount of research dollars. Some earmarking of funds is an appropriate form of political action but to do it to excess, as the NAS committee believes Congress has done, leads to gross imbalances and serious gaps in the national research effort. The USDA should seek "to communicate better to the U.S. Congress the harmful effects of disproportionate commodity earmarking of agricultural research funds."

A third major fault in agricultural research management is the proliferation of small branch stations. In fact there are two such networks, the state system (SAES) and that administered by the USDA. The SAES system comprises some 300 outlying branch stations and field laboratories, while the USDA system has several major national laboratories scattered throughout the United States and some 200 smaller locations. According to the NAS committee, too much money has been invested in developing small branch stations, whose scientists, as measured by their publications and frequency of citation, are less productive than those working in larger units. In the absence of any evidence that the USDA research is done better or more cheaply than SAES research, the committee suggests the USDA should close down many small branch stations or at least transfer them to the SAES.

Basic Sciences Ignored

Besides the failings in research management, another principal reason for the poor standard of agricultural research is its inadequate interaction with the basic disciplines that underlie it. Plant physiology, for example, is a discipline which might seem quite pertinent to agricultural research, yet a survey of 200 plant physiologists conducted in 1969 indicated that only some 6 percent of their support was derived from the USDA.

As for biochemistry, another presumably relevant discipline, the committee describes itself "appalled" by the low level of support given by the USDA. For example, all of agriculture is dependent on photosynthesis, yet there has been little support for it from agricultural administrators. Nitrogen fixation is another biochemical reaction of more than purely academic interest; the committee describes as "irresponsible" the failure of the scientific administration of the USDA to fund significant research in the subject.

To remedy these oversights, the USDA (the SAES are said to be not quite such bad offenders) should set up a competitive grants program for the support of basic research in all the sciences—biological, physical, and social—that underpin the USDA's mission. (The USDA's existing grants program is inadequately funded and does not allow for a free flow of ideas from the scientific community because the administrators define the program areas.) The new program should be evaluated by a peer review system and administered separately from USDA

Briefing

Congress May Investigate NAS

The threat of a congressional investigation of the National Academy of Sciences (NAS) looms, damping the spirits of the NAS brass whenever they think about it. As one of them quipped, "It is one of the cheerier things we have to look forward to in the new year." Whether the threat will actually materialize is strictly a matter of conjecture.

Earlier this fall, during Senate hearings on food and nutrition, Senator Charles Percy (R–Ill.) accused the academy of being "insensitive" to conflicts of interest among scientists who serve on its many advisory committees (*Science*, 29 September 1972). His allegation came after testimony regarding the composition of a committee reviewing the safety of monosodium glutamate (MSG), the food additive that apparently causes so-called Chinese Restaurant syndrome in susceptible diners.

Academy president Philip Handler, who is particularly sensitive to these charges of conflict of interest and who feels he has taken steps to keep persons with bias or even the appearance of bias off NAS committees, followed up Percy's public statement. For the record, he wrote to Senator Gaylord Nelson (D–Wis.), chairman of the committee that had been holding the hearings and explained the NAS's procedure for seeking out potential conflict of interest among candidates for its committees. Handler also got in touch with Percy on the subject and received a reply that said, in general, yes, he (Percy) was concerned about the situation and would be willing to talk to Handler about it personally after his return from a lengthy trip to Asia.

As things stand now, that meeting may take place sometime in January. A spokesman for Percy says that the issue of a review of the NAS is still quietly alive but was put to one side during the elections. He said that the senator had always thought highly of the academy and was surprised by the charges leveled against the committee reviewing MSG by James W. Olney, a neurophysiologist from the Washington University Medical School in St. Louis. Since then, congressional staffers have been doing legwork in case there is a hearing. Percy's spokesman says that so far the only substantive indication of "dirty dealing" involves the MSG review. No hearings are scheduled at this time and, he says, whether they will be is up in the air.

Clearly, the prospect of a congressional investigation does not appeal to the academy, which has just been submitted to intensive scrutiny by former *Science* writer Philip M. Boffey. Boffey has been probing the NAS for more than 2 years under the auspices of the Ralph Nader organization. His report is nearing completion.—B.J.C.