correspondence involving van den Bosch and the chairman of the CAST task force, Martin M. Barnes, a professor of entomology at the University of California at Riverside.

Van den Bosch is known to his colleagues at Berkeley and to entomologists generally as something of a maverick. His professional standing with his peers is high, but he has a reputation for combativeness and polemical resources which have made him conspicuous in California pesticide controversies, where, as one observer put it, "they play hardball." (Van den Bosch is known as an expert in biological control of insects and this, along with his membership in the Environmental Defense Fund and open espousal of reducing use of pesticides, does not endear him to pro-pesticide forces.) In a letter to Barnes, van den Bosch added this P.S.: "In my vocabulary of epithets I am a gutter fighter. That's where the opposition holds forth and I fight by its rules."

Barnes and others have raised the question of the credentials of some members of the group which included several graduate students and persons with educational backgrounds outside that usually associated with a study of the type carried out. Van den Bosch readily admits that the group was a "raiders type group," similar to the study groups mustered by Ralph Nader and dubbed "Nader's raiders," but argues that group members with training in fields such as law, journalism, and agricultural economics were desirable because there was enough scientific strength among the authors and consultants who assisted the group.

What is next for the report is not altogether certain. The comments and criticisms collected by EPA, as well as EPA's own remarks, are now on the way back to van den Bosch. The message to the group is likely to be along the lines suggested in a sympathetic but certainly not uncritical review letter from David Pimentel of Cornell. Pimentel, also an entomologist, said his impression is that the report is too long, covers too many topics, has some statements which "are stronger than can be supported by the data presented," and would profit from careful editing. He suggests that a much shorter paper "that carefully and concisely documents the cosmetic problem" should be prepared. Pimentel, who with a group at Cornell has been engaged in a similar study, does, however, support the van den Bosch thesis that "large quantities of insecticides are being used needlessly because of 'cosmetic standards.' "

That the van den Bosch report has attracted so much attention is in part a result of special circumstances prevailing now. Many pesticides that have been in use for a long time are coming up for reregistration and growers and pesticide manufacturers may have seen the criticism of cosmetic use as the opening of a new front against them. Furthermore, the Federal Trade Commission is looking hard at marketing orders which undergird the cosmetic standards, with FTC staff suggesting that marketing orders may be in restraint of trade.

The furor surrounding the report does have some ironies, especially for its critics. As Pimentel and other observers note, the van den Bosch report is likely to have greater impact because of the controversy than it ever would have, had it never been challenged.—JOHN WALSH

Biomedical Training: Time for a Slowdown

A committee of the National Academy of Sciences (NAS) has issued a startling report that calls for a "modest but significant" *reduction* of federal support of students in the basic biomedical sciences and a "significant reorientation" of government sponsorship of training of individuals in the behavioral sciences. Considering how dear training grants are to the hearts of researchers throughout America, certain features of the report, "personnel needs and training for biomedical and behavioral research,"* come as something of a surprise.

The report is the first substantive statement of the Committee on a Study of National Needs for Biomedical and Behavioral Research Personnel that was created, as a result of the National Research Act of 1974 (*Science*, 2 August 1974), to help the government decide just how many individuals the country needs to keep the research enterprise alive and reasonably well. Committee chairman Robert J. Glaser, president of the Henry J. Kaiser Family Foundation in Palo Alto, says the report represents an attempt to be "realistic" about what is fiscally possible these days—and realistic it is. The Glaser committee recognizes limits.

Training grants and fellowships became a subject of intense concern to the biomedical community in 1972 and 1973 when the Nixon Administration tried hard to do away with all federal support of training in biology and medicine. Training grants support not only individual students but also institutions, and deans and department chairmen became distraught at the thought of losing that source of money. Committees were formed, letters were written, congressmen were petitioned, and always the message was the same. Young postgraduate students are the very lifeline of the biomedical research enterprise. For it to continue to flourish, there must be more training grants for more students, not fewer.

And now, the Glaser committee comes along and says, Well, maybe more is not really the answer. It's refreshing, if nothing else. The committee looked at quantities of available data on manpower and, while acknowledging that there are not as much really solid data as one might like, concluded that there is no pressing need to substantially increase the number of individuals doing pre- or postdoctoral research in biomedical or behavioral sciences. In fact, it decided that a slight decrease in numbers in some fields is in order.

The committee's judgments seem to be based, in large part, on a practical assessment of the world as it is in 1976, rather than on a vision of a world as they might like it to be. Which is to say, as Glaser did, "The committee has been very sensible in realizing that there will continue to be restraints on funds and that if our work is going to be useful, we have to try to establish some priorities."

The committee defined four broad areas of research—basic biomedical sci-

*Available from the Commission on Human Resources, National Academy of Sciences–National Research Council, 2101 Constitution Avenue, NW, Washington, D.C. 20418.

ences, behavioral sciences, clinical sciences, and health services research—and tailored recommendations to what it perceives as the specific needs or realities (not necessarily the same) of each.

With respect to biomedical sciences, the recommendation is that a reduction of about 10 percent in the number of federally funded predoctoral candidates is "advisable" because there is reason to think that if one trains more, they will not be able to get jobs. Using fiscal year 1975 as a base, that means that in absolute numbers, training grants for predoctoral students would drop from 6000 to 5400. For postdoctoral students, the committee recommends maintaining the status quo (about 3200 postdocs are supported now).

Grants and Fellowships

The committee also took the opportunity to draw important distinctions between training grants and fellowships. The former go to students through institutions whose academic training programs have been deemed worthy of support. The latter go directly to individuals who compete for them on a national basis and who can take their fellowship money to whichever institution they wish. The Glaser committee recommends that predoctoral candidates be given training grants but that postdocs should be supported by fellowships, which also happens to be the way the Administration thinks postdoctoral education should be funded, if at all.

In the field of behavioral sciences the committee calls for a major change in the current pattern of training, saying that "Scientific advances in these fields have vastly increased the complexity of research methods and imposed requirements for more intensive training." The committee found that there are plenty of Ph.D.'s in the area to meet conventional demands, but not enough individuals to tackle research problems in "behavior and health." At present, about 10 percent of federal support of training in behavioral sciences goes to postdocs and 90 percent to predoctoral candidates. The committee recommends a drastic shift in those percentages, to 70 percent of funds for postdocs and only 30 for Ph.D. candidates. And, in a reverse of its position on training grants versus fellowships as a mechanism of support in the biomedical sciences, here the committee urges that at least 80 percent of the money go to training grants. It explains this by saying that because postdoctoral training is just beginning to emerge as a common thing in the behavioral sciences and because there is a growing need for interdisciplinary training programs, it makes sense to concentrate one's efforts on institutions that have the capacity to develop innovative programs.

In the clinical sciences the committee finds a need for training money for 2800 individuals, most of them M.D.'s, but also including Ph.D.'s, dentists, and veterinarians who are interested in clinical research, and thinks that about 80 percent of funds should go for training grants. "There is a need for high-quality programs specifically designed to provide the rigorous scientific background necessary to produce a clinician with the skills necessary to be a productive research scientist." (In 1969, the peak year for NIH funding of training, there were about 4200 postdocs being supported in clinical sciences.)

Calling health services research "an emerging area of national importance," the committee said that, for now, support in the area is adequate (there are about 180 individuals in health services training programs), and, again, it urged that money be concentrated in training grants to institutions that are developing programs in this still very new field. Also, as before, it recommended a shift from emphasis on support of predoctoral candidates to those who already have their degrees.

In this regard, one thread running throughout the report is that there either is, or soon will be, a surplus of Ph.D.'s, and, therefore, no compelling reason to support their training as extensively as in the past. On the other hand, there are certain areas in which there is a "national need" for more specially trained postdocs.

Reaction to the report, chairman Glaser says, has been "varied," with negative responses coming primarily from those who just don't want to cut back on anything. (The "public" will have a chance to comment on the committee's findings at a meeting at NAS on 4 November.)

The report is by no means perfect, and the committee has a lot of work to do during the next couple of years to develop better data from which to project manpower needs, and so forth, but it does seem to be a good start because the committee is approaching a highly sensitive problem with such a reasoned tone. As vice-chairman Henry W. Riecken of the University of Pennsylvania put it, "We are trying to get out of the adversarial process that has characterized the training debate."—BARBARA J. CULLITON

Energy Conservation: Congress Acts on Building Standards

Congress has passed a bill calling for energy conservation in new and existing buildings which well before the turn of the century could lead to huge reductions in the amount of oil that will have to be imported from abroad. The measure cleared Congress on 10 August after House-Senate conferees had finally broken a prolonged impasse over the intensely controversial question of federal sanctions for enforcement of conservation standards.

According to the conferees' report, the measure—if fully implemented—could by 1990 result in energy savings for new buildings amounting to the equivalent of 6 million barrels of oil a day, or three-fourths of the volume of all domestic oil now being produced. Savings equivalent to a half million barrels a day were said to be possible by 1980 from better insulation for existing buildings and from installation of more energy-conserving equipment, such as heat pumps.

But full implementation of the standards for new buildings may depend on whether the tough federal sanctions now spelled out in the bill only conditionally will be needed—and whether Congress will be willing, when the standards are promulgated 3½ years hence, to approve those sanctions.

The conservation standards for buildings legislation is only one part of a larger measure known as the Energy Conservation and Production Act of