

NSF Maps Program in Science Education

A blueprint for a revived program to improve science and mathematics education in elementary and secondary schools has been developed by the National Science Foundation (NSF). The new plan, which was presented by NSF director Edward A. Knapp to the National Science Board on 20 October, consists primarily of a set of goals and guidelines to be followed by the foundation in spending funds appropriated by Congress.

For the current fiscal year, Congress voted \$54.7 million for precollege science and math education. An additional \$13.9 million for the same purposes was carried over from the last fiscal year, which ended on 1 October. Knapp had previously taken steps necessary to create a new directorate for science and engineering education and establish positions for personnel to staff it (*Science*, 14 October, p. 147).

NSF's precollege education program was effectively abolished at the beginning of the Reagan Administration through budget action and dismantling of the existing science education directorate. Concern about the state of science and math education in U.S. schools, however, kindled interest in the subject in both Congress and the Administration and led to a resumption of federal funding.

Heading the NSF effort as acting director for science and engineering education is Laura P. Bautz, director of the foundation's division of astronomical sciences, who is currently wearing two administrative hats. Commenting on the selection of Bautz, who has a reputation at NSF as an able administrator but has little experience in science education activities, Knapp said, "One of the troubles has been that we had plenty of people at home in the science education network, but we haven't had people who are also at home in the science network." Knapp indicated that criticism that university scientists now had little involvement with science education at the school level was a "reason to pick someone with good connections in the science community."

NSF will follow instructions in the appropriations legislation in allocating

this year's funds among activities. The largest portion, \$27.7 million, will go into educational materials and research. Some \$15 million will be earmarked for teacher development and incentives, and about \$12 million into a category called "special activities," which includes a variety of programs such as funding of educational television projects, museum programs, and dissemination of information about science and math to school-age groups.

NSF officials emphasize that the agency does not want to impose its own preconceptions on the new program, but will respond to good quality proposals that fall within general guidelines. One criterion being stressed is that programs be designed for all students, not simply those headed for careers in science. Earlier NSF efforts have been criticized for such a tilt.

In a decision that has both practical and symbolic aspects, Knapp has agreed to a return of the science education staff to NSF's downtown Washington headquarters from a suburban office building to which it was transferred during its 1970's troubles. The move puts the staff back in direct touch with the research directorates and also marks a return from exile.

—JOHN WALSH

Kroc Foundation Dissolved

The Kroc Foundation, which for 12 years has supported research on diabetes, arthritis, and multiple sclerosis, will dissolve in April 1984. The foundation, which was funded by Ray Kroc, founder of MacDonald's Restaurants, has spent about \$42 million on research grants since 1969 and has sponsored 101 research conferences. It currently has \$50 million in assets, most of which will be assigned to a new foundation to support research on alcoholism and drug abuse.

Alcoholism and drug abuse are the special interests of Kroc's third wife, Joan, 56, who will head the new foundation. The Kroc Foundation was noted for its support of diseases that afflict the Kroc family. Ray Kroc, 81, has diabetes and arthritis and his 73-year-old sister Lorraine has multiple sclerosis.

The dissolution of the Kroc Founda-

tion was announced on 19 September by Robert L. Kroc, Ray Kroc's brother and the president of the foundation.

—GINA KOLATA

Apes and AIDS

In an effort to discover the cause of acquired immune deficiency syndrome (AIDS), the National Institute of Allergy and Infectious Diseases is awarding \$933,000 to the University of Texas at Bastrop for a 3-year research project involving 11 chimpanzees that will be inoculated with tissues and fluids from AIDS victims.

But some animal welfare groups have registered objections to the research. Shirley McGreal of the International Primate Protection League is circulating petitions to stop the project, which she claims will subject the chimps to the "mental torture" of "solitary confinement." The Humane Society, according to anatomist John McArdle, also opposes the experiment. He says this is another example of scientists "jumping to the animal model immediately" when the purposes of the experiment would be served by in vitro and epidemiological studies. He speculates that AIDS may be stress-related because immune function is susceptible to stress, and claims that putting chimps in stressful circumstances would therefore defeat the purpose of the project.

Officials at the National Institutes of Health (NIH), which is supporting a good deal of AIDS research, say there is good reason to think AIDS is caused by an infectious agent, particularly since researchers have recently been successful in transmitting simian AIDS in macaques in whom the disease has occurred spontaneously. The project follows in the footsteps of past exercises in isolating infectious agents such as the hepatitis B virus, in which animals have been used to obtain samples throughout the course of the disease from its inception. Veterinarian David Johnson of the Division of Research Services says the chimps will be kept in cages in one room, not in solitary confinement.

The protests of the animal welfare people are part of a larger goal, which is to close down all seven of the NIH-funded regional primate centers (Bastrop is not one of them). NIH is not

only out of sympathy with that but has formulated a National Chimpanzee Breeding Plan. Now that chimps can no longer be gotten from Africa, NIH wants to promote the establishment of a self-sustaining captive breeding population among the 1200 chimps kept by U.S. biomedical research institutions.—**CONSTANCE HOLDEN**

Hospices Compared with Conventional Care

Preliminary findings are now available from the 3-year National Hospice Study, the first comprehensive attempt at evaluating hospice care in the United States. The results may come as something of a surprise to those who believe a hospice offers a distinctly superior alternative to conventional hospital care when it comes to the well-being of terminal cancer patients and their families.

According to principal investigator David S. Greer of Brown University, who presented the findings at the Institute of Medicine annual meeting on 26 October, there were no significant differences in patient reports about their quality of life and satisfaction with care between hospice patients and those in conventional care. However, costs were less for patients in home-care programs.

The Brown group compared 14 hospices with a similar number of community oncology centers. The "best and most experienced" providers were selected, according to project director Vincent Mor. The hospices were divided into home care and hospital-based, which included one of the country's four freestanding inpatient hospices.

Many more of the patients in conventional hospital care were subjected to diagnostic tests and intensive interventions in the final weeks of life, including surgery, radiation, and chemotherapy. Reports from patients' "principal care" people indicated that the hospital-based hospices achieved better control of pain than either of the other two models, although patient self-reports (frequently impossible to elicit) showed no difference.

As for intangibles, Greer reported that patients' "social quality of life" was uniformly high and slightly better

when they were cared for in the hospital system. No significant differences were found in measures of perceived health, outlook, emotional well-being, functional performance, and "patient awareness." Sixty-two percent of the patients treated at home died at home, compared with 20 percent of those in hospital-based hospices.

Cost differences were significant: Overall costs for home-based patients were \$4758 compared with \$5890 for inpatient hospices. No comparable figure was supplied for conventional care where costs may average \$1000 in the final week.

Some of the findings are likely to be controversial when the report becomes available. Louise Bracknell of the National Hospice Organization says it is very difficult to evaluate hospices at this point in their development because so few as yet can offer the complete array of services.

The Consumers Union's Institute for Policy Research has recently completed an in-depth survey of 41 families of deceased patients, half of whom had hospice care. Sociologist Margaret Gold says she questioned families about aspects of care such as pain relief, personal care of the patient, communication with doctors, the patients' emotional well-being, and family cohesiveness. The respondents, she says, felt all these were handled much better in hospices, whether hospital- or home-based. She also questioned the validity of some of the responses in the Brown study: patients, she says, are unlikely to express dissatisfaction with care givers on whom they are so dependent; besides, those in conventional care are unlikely to complain when they assume they are getting the best money can buy.

Greer himself expressed some misgivings as to whether his study was uncovering the full picture. Said he "... there may be something going on there which is not measurable utilizing current techniques ... and may not even be describable except by the best of our poets. I leave most hospices inspired"—but also concerned that "the advent of regulation, the entry of reimbursement, and the professionalization which seems inevitable may destroy those elusive elements which are so emotionally and spiritually uplifting."

—**CONSTANCE HOLDEN**

Scientists Endorse Ban on Antibiotics in Feeds

It is quite a feat to get 300 scientists from diverse backgrounds to agree on anything, even more remarkable to have them agree on a strong public policy measure which has been pending in the bureaucracy and in Congress for a decade. But a recent petition drafted by the Natural Resources Defense Council (NRDC) does just that. The petition, released on 24 October by NRDC staff scientist Karim Ahmed, is a restrained but urgent letter to President Reagan and the secretary of Health and Human Services, asking for a quick ban on "sub-therapeutic uses of penicillin and tetracycline in livestock feeds." The Administration is considering expanding the use of drugs in feeds.

An attached statement endorsed by 300 scientists supports the plea and points out that the overuse of these drugs is weakening their value as tools to fight human disease. The endorsers include many academic department heads, scientists at government laboratories and private cancer research centers, and officials at biotechnology companies such as Cetus and Biogen. The authors note that other compounds can be used to promote growth, but that there are no substitutes for these drugs as weapons against disease. "The effectiveness of these two antibiotics is a national resource that no country can afford to compromise," they conclude.

For at least a decade it has been clear that the use of antibiotics as growth promoters has the detrimental side effect of speeding the evolution of drug-resistant bacteria on the farm. Microbiologists have worried that this resistance factor could be transferred from bacteria that infect animals to those infecting humans. The federal Food and Drug Administration in 1978 proposed tighter controls on the most important drugs in feeds, penicillin and tetracycline. But the cattle, feed, and drug industries fought these controls on the grounds that the cross-over potential had not been proved. Now it has, in research conducted by Thomas O'Brien at Harvard University Medical School and published in 1982. Ahmed writes, "further delay is unconscionable."—**ELIOT MARSHALL**