

examinations a student must almost surely be a graduate of one of the better 'key' primary and secondary schools, which account for only 10 or 11 percent of the total enrollment and which are all located in the cities. Since only about one percent of elementary school graduates enter 'key' secondary schools, the competition for getting into the better schools at the middle level is at least as keen as the competition to get into college. MOE [the Ministry of Education] hopes to establish one key middle school in each county in China to enable peas-

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ant youth to compete for college slots, but it will take a long time for this policy to affect the comparative advantage for urban youth in access to higher education and professional opportunity."

Graduate education was a weak link in the education system even before the Cultural Revolution and scientists and engineers with graduate qualifications are in especially short supply. Formal graduate degrees were not awarded during the 1950's and 1960's, but Orleans says that a graduate apprentice system operated under which able students would pursue advanced study with a professor or academician. He says that the first post-Cultural Revolution graduate students were enrolled in 1978 and the first formal graduate degrees conferred in 1981. Long-range plans are said to call for achieving a level of 10,000 graduate degrees a year, 80 percent of them in science and technology. At that point it is suggested that it will no longer be necessary to send students abroad.

In discussing China's scientific leadership, Orleans, in passing, notes an ironic group of casualties of the Cultural Revolution. "S & T personnel in their thirties are rarely seen in positions of administrative or research responsibility. The problem stems not only from the closing of institutions of higher education, which lost the country several million professionals, but also the extremely low quality of the one million or so worker-peasant-soldier students who did graduate in the 1970's."

On the policy front, Orleans says that "the Chinese are searching for a 'science

policy' that not only will be compatible with PRC's economic goals and political prerequisites but will also produce rapid results." The Chinese concede that after the 1978 conference called to redirect efforts in science and technology, they were overambitious, for example, putting disproportionate emphasis on basic research. Now there has been "a turnaround," says Orleans, with the emphasis on linking science and technology more closely to "economic goals and needs."

The new agreement on policy discussions is between the Chinese Academy of Sciences and the U.S. National Academy of Sciences. On the American side, a steering committee has been formed to plan the conference with Eugene Skolnikoff of Massachusetts Institute of Technology as chairman. Details are still being worked out, but agenda topics agreed upon in January reflect the new pragmatism embraced by the Chinese. Main topics of discussion will be R & D in industry, manpower and training, and the social impact of R & D spending. Skolnikoff says that both sides are proceeding on the understanding that if the first conference is productive, a second one will be held a year later in China and further dialogue considered.

At this point, China's science policy, as portrayed by Orleans, is very much in transition. Government organization still retains the heavily centralized bureaucratic structure adopted from the Soviet Union after the Chinese revolution, although efforts to modify it are being made. Science policy activities are given some prominence, but appear to be an adjunct to planning operations and science policy organizations seem to lack sophisticated analytic capacities. Orleans warns that the current rapid reorganization of government makes it difficult for outside observers to perceive where power over science and technology really lies.

If much about the Chinese R & D establishment appears inscrutable from the American perspective, the uncertainty seems to work both ways. In his paper Orleans notes that the Chinese assume that the United States as a world leader in science and technology should have some straightforward answers on science policy "that should be adapted and adopted by the PRC. The explanation that our 'science policy' is evolutionary rather than creationist and therefore grows out of innumerable decisions (and indecisions) within the various sectors of government, industry, and academia was understood but only reluctantly accepted."—JOHN WALSH

Slaughter to Quit NSF for University of Maryland

John B. Slaughter is resigning as director of the National Science Foundation (NSF), after less than 2 years of a 6-year term, to become chancellor of the College Park campus of the University of Maryland.

Slaughter, an electrical engineer, was appointed to head the NSF by President Carter in 1980. From 1977 to 1979 he had been the Foundation's assistant director for astronomical, atmospheric, earth, and ocean sciences, leaving to become academic vice president and provost of Washington State University.

Reluctant to return to Washington, D.C., after only a year, he is said to have been heavily wooed by the Carter Administration, keen among other reasons to appoint respected blacks to prominent public positions.

During his period as director, Slaughter has kept a low public profile in battles over reductions in NSF support for areas such as science education and the social sciences. However, he has also seen research funds increase significantly, and has backed efforts to raise career prospects for black scientists.

Currently named among possible successors are William Nierenberg, director of the Scripps Institute of Oceanography, and the present deputy director, Donald Langenberg. But the Reagan Administration may well look toward industry.

—David Dickson

\$15-Million Gift Launches New Global Think Tank

Many believe there is a significant gap in the think tank landscape, in that there is no major institution in this country taking a science-based look at global resource and environmental issues.

Now the John D. and Catherine T. MacArthur Foundation, that maverick funder of geniuses, has ridden into the breach with \$15 million for the purpose of establishing the institute for World Environment Resources Inc. To be based in Washington, D.C., the

institute will be headed by Gustave Speth, former chairman of the Council on Environmental Quality. The two vice presidents will be biochemist Jessica Tuchman Mathews, a former member of the National Security Council now on the editorial board of the *Washington Post*, and Wallace Bowman, former director of the National Academy of Science's Commission on Natural Resources. The star-studded board of directors is headed by Matthew Nimetz, former under secretary of state for security assistance, science and technology.

The institute aspires to be the focus of an international network and, with a budget of \$4 million a year, will be "perhaps the largest private United States institution in the field of global environmental studies and policy analysis," according to the MacArthur Foundation.

Speth explained to *Science* that what makes the new organization distinctive is its focus on "planetary scale issues," its scientific orientation, and its focus on being relevant to policy-making. It will conduct "interdisciplinary, scientifically informed policy studies" on everything including fresh water resources, desertification, inadvertent climate modification, energy, ocean resources, and species conservation.

The institute is to have a "hub and spokes" structure to coordinate with other centers and provide a bridge between centers of scholarship and the policy-making process. Ties are already planned with the Energy and Resources Group at the University of California at Berkeley (headed by John Holdren who already has an unrelated MacArthur Foundation award), the Center for Energy and Environmental Studies at Princeton University, and the Ecosystems Center of the Woods Hole Marine Biological Laboratory.

It can be assumed that considerable salience to the institute's publications will be lent by the members of the board, which includes Stanford University president Donald Kennedy, former World Bank president Robert S. McNamara, World Wildlife Fund president Russell E. Train, and former National Cancer Institute director Arthur C. Upton, as well as luminaries in science, industry, and international development.

—Constance Holden

TV Report Affirms Violence-Aggression Link

Almost a decade ago the Surgeon General released a report that said television violence very likely causes some children to become more aggressive, at least in the short run. A new report, "Television and Behavior," sponsored by the National Institute of Mental Health, affirms this notion and surveys research that has been performed since the first report.

There has been plenty. In fact, the report says, 90 percent of publications on TV and behavior—including its effects on health, family and social relationships, societal perceptions, learning, beliefs, and emotions—have come out in the past 10 years.

Television, the report points out, has become America's third most time-consuming activity, following sleep and work. More Americans have TV than have refrigerators or indoor plumbing. The culture is so saturated with television that to assess its net impact on society is impossible.

Additional evidence is supplied on the question of TV violence (which has not decreased over the past decade), but the cause and effect relationship is by no means unambiguous. For example, some studies have shown that increased aggressiveness correlates with heavy viewing, regardless of the violence content of programs. Says the report, "people who view a great deal of television—and who consequently see a great deal of violence—are more likely to view the world as a mean and scary place." They also exhibit more "fear, mistrust and apprehension" than do light viewers. So, "because there are more victims than there are aggressors, this finding may ultimately be of more significance than the direct relationship between televised violence and aggression."

In a newer area of research, it seems that television has a damping effect on creativity and imagination. One study, for example, showed that children who listened to a story remembered the content better and delivered themselves of more comments and questions than children who saw a televised version of the story. In another study researchers looked at

verbal fluency among children in three towns in Canada, one of them with no television. "Two years after TV was introduced to 'Notel,' its children's verbal fluency scores . . . decreased significantly." Another study showed that among boys, low imaginative capacity correlated with aggressiveness and a taste for violent television.

Oddly enough, none of the research cited examines whether heavy TV viewing promotes passivity. The report comments favorably on experimental curricula designed to teach "critical viewing skills" to grade schoolers, but given TV-watching's overwhelming role as a displacer of other activities, it may be that the most vital skill could be learning when to turn off the set.—Constance Holden

Taub Appeal Set

The story of psychologist Edward Taub and his deafferented monkeys drags on. His appeal is now scheduled to commence on 14 June and this time he has opted for a jury trial, not having received a satisfactory verdict from a Maryland judge last October, who found him guilty of failing to provide adequate veterinary care for six animals.

Taub, who says he has been supporting himself with a 1-day-a-week hospital consulting job, is hoping money will come from somewhere to pay his legal expenses. He has so far been the beneficiary of \$90,000 worth of unreimbursed legal aid from the Washington law firm of Arnold and Porter. Partner Edgar H. Brenner, who served as Taub's lawyer, is also on the board of the Institute for Behavioral Research which Taub heads. The appeal will be managed by Maryland lawyer James Miller.

A group of neuroscientists has set up a Biomedical Research Defense Fund to help foot Taub's legal fees but most of the money so far collected—about \$8000—has been used up in mailings.

Several professional associations have expressed support for Taub, but only one, the American Psychological Association, has put its money where its mouth is. The APA board recently voted to give Taub \$5000 to pay for witness expenses.

—Constance Holden