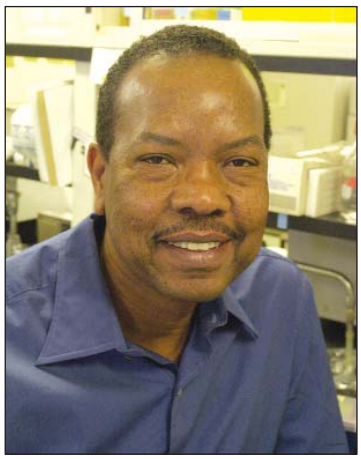
WORKFORCE DIVERSITY

NSF, Academics Told to Act As If They Mean It

What will it take to produce a more diverse U.S. scientific workforce? A lot of academic carrots and a few sticks, said participants in a daylong workshop sponsored by the National Science Foundation (NSF) last week. But no combination of incentives and penalties will succeed, they warned, unless universities take the problem more seriously and graduates can find more good jobs.

"We in academia are the problem," declared Shirley Tilghman, a molecular biologist and president of Princeton University. "We have designed the career path in a way that discriminates against women and minorities." She and others ticked off a long list of disincentives, including a lengthy apprenticeship, low pay, family-unfriendly hours, and cutthroat competition for grants.



The workshop supplemented a new report on national workforce policies from NSF's oversight body, the National Science Board, that laments what it calls an inadequate supply of domestic scientific talent (*Science*, 30 May, p. 1353). "We wanted to put greater emphasis on increasing the number of women and underrepresented minorities in science," explains Warren Washington, board chair. "We hope that this workshop will lead to a statement by the board on how to achieve that goal." Although the problem affects all of society, he adds, any new NSF policies will focus on academia, "because that's where we have the greatest leverage."

An overflowing roomful of university presidents, government and professional society executives, and longtime advocates of greater diversity told the board that words are good but deeds are better. "If I ruled the world," said Clifton Poodry, who oversees minority programs at the National Institutes of Health, "I'd give a lump [sum] of money to every university that is above average in sending minorities to graduate school. It would be a pat on the back, a message to keep up the good work."

> "One [minority] faculty member isn't going to do it."
>
> —GEORGE LANGFORD

One major obstacle, says Tilghman, is that academic science can be a hostile climate for women and underrepresented minorities—defined as African Americans, Hispanics, and Native Americans. "Our great success story is the near-parity of women earning Ph.D.s. in the life sciences," she noted. "But that's not the case for new faculty," who are still predominantly male. "Is it that women aren't choosing academic careers? Or is it that academia is not choosing them? I think it's both."

Tilghman said that university administrators can show they're serious about diversity by creating university-wide search committees with distinguished faculty members to seek out minority candidates—and by rewarding departments with additional resources. But others said that's not enough. "One [minority] faculty member isn't going to do it," said George Langford, chair of the science board's education committee and a biology professor at Dartmouth College in Hanover, New Hampshire. Langford, an African American, noted that Dartmouth has not hired another minority in the natural sciences since he was recruited in 1991. And board member Pam Ferguson, a mathematician at Grinnell College in Iowa, said that one group of retiring white male professors in her department "saw no reason not to clone themselves" in choosing their successors—and would have succeeded had the college president not insisted that the process be opened up.

NSF has recently started to tackle the problem in an indirect way: It's cracking down on grant applicants whose proposals do not adequately describe the larger societal impact of their research, including steps to broaden the scientific pool by reaching out to underrepresented groups. But the effect so far has been minimal: Only 245 of some 30,000 proposals this year have been rejected because they fail to address the research's societal impact, says Nathaniel Pitts, a senior NSF administrator. Moreover, several participants scolded the foundation for not knowing if grantees really follow through on their promises, especially on big projects such as NSF's Science and Technology Centers (STCs).

"The STCs have done great things," said Rice University mathematician and former board member Richard Tapia, who directed community outreach for an STC on parallel computing. "But they haven't changed the culture of the university." Keith Jackson, president of the National Society of Black Physicists, was even blunter. "Is an STC going to get its funding cut off if it doesn't reach its ▶

CREDIT: JON GILBERT FOX FOR THE CENTER FOR ENVIRONMENTAL HEALTH SCIENCES AT DARTMOUTH COLLEGE

The BEST Programs in Academia

University programs that do a good job of training minorities and women scientists share nine essential traits, according to an upcoming report from a consortium of government officials, industrial leaders, and educators.

Next month, BEST (for Building Engineering and Science Talent) will send Congress its analysis of "what works" in elementary and secondary schools, higher education, and the workforce. But last week Shirley Ann Jackson, president of Rensselaer Polytechnic Institute in Troy, New York, summarized the report's academic segment for a National Science Foundation (NSF) workshop to promote diversity (see above), adding an example of each trait:

- **Institutional leadership** (the Meyerhoff Program at the University of Maryland, Baltimore County)
- **Targeted recruitment** (the National Consortium for Graduate Degrees for Minorities in Engineering and Science)
- **An engaged faculty** (Preparing Future Faculty project)
- **Personal attention** (the Stevens Institute of Technology's Lore-El program)
- **Peer and intergenerational participation** (NSF's VIGRE and LSAMP programs)
- **Comprehensive financial aid** (institutional funding)
- **Extended research experiences** (the University of North Carolina's Partnership for Minority Advancement in the Biomolecular Sciences)
- **Bridge programs to the next level** (UCLA's Center for Excellence in Engineering and Diversity)
- **Continuous evaluation** (the Gateway Coalition based at Drexel University)

–J.D.M.

goals for serving underrepresented minorities?" he asked. "That's what really matters."

Jackson also took a swipe at the assumption in the science board's recent report that the demand for scientific talent is outpacing supply. "Our 600 African-American physicists have degrees from some of the finest universities in the country," he said. "But there aren't jobs for them" after they graduate.

For a minority scientist on the bottom rung of the academic ladder, the climb can seem endless. "I know what I need to do to get tenure: publish copiously and bring in gobs of grant money," said Emilio Bruna, a population biologist with 1 year under his belt at the University of Florida in Gainesville. "And being here to talk about diversity isn't going to help." But being resourceful might. Bruna ended his remarks with a plea that transcends race and gender: "Give me a grant. Please."

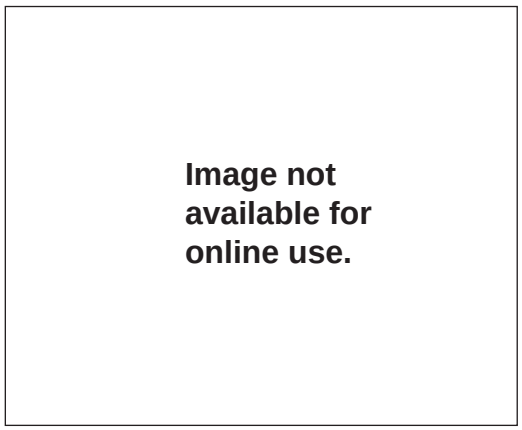
–JEFFREY MERVIS

INFECTIOUS DISEASES

Civets Back on China's Menu

TOKYO—The masked palm civet, the obscure south Asian animal suspected of helping spread the virus that causes severe acute respiratory syndrome (SARS), is returning to Chinese markets. The lifting of a 4-month ban on it and 53 other species of wild animals delighted gourmets in Guangdong Province, where the local cuisine relies on a variety of wild animals. But it came as a surprise to the World Health Organization, which has a team of experts working with its Chinese counterparts investigating a possible animal reservoir of SARS.

The joint Chinese-WHO team "is trying to get hard evidence so one could do a risk analysis of which animals could harbor the virus" and transfer it to humans, says Alan Schnur, WHO's team leader for communicable disease control in Beijing. But any decision on setting or lifting marketing bans "is an internal matter [for China]," he says, "and WHO would not normally be involved in such a decision." Civets have been identified as a potential link in the chain of infection.



Guangdong delicacy. A possible SARS virus host, the masked palm civet, will soon be back in food markets.

CREDIT: REUTERS NEWMEDIA INC./CORBIS

China's State Administration of Forestry and the State Administration for Industry and Commerce banned sales of 54 species of wild animals in late April after researchers at Hong Kong University reported finding evidence of the SARS virus in several civets collected from a market in Guangdong Province, which borders Hong Kong. Although the researchers never advocated this action, officials decided to order a sales ban at the height of the SARS crisis as a precautionary measure. It dealt a devastating economic blow to thousands of families who raise the wild animals, and the families lobbied hard to have the ban reconsidered.

In early June, the forestry administration invited experts representing the Ministry of Science and Technology, the Ministry of Health, the National SARS Control and Prevention Command, and academic researchers to a symposium to assess the risks of allowing wild animals back into the markets. Guo Zhiwei, an official at the Ministry of Science and Technology, says the government "did not find any evidence of a connection to SARS among those [54] species."

No other scientists provided any evidence of a link, either, says the forestry official, so the government lifted the national ban on farm-raised animals but retained a prohibition on sales of animals caught in the wild. Each province controls local commerce, and Guangdong has already declared that animal ranchers can resume sales of civets once quarantine examiners certify that their stocks are free of SARS and other infectious agents. The University of Hong Kong team that first made the link to civets emphasized in an earlier interview that it never claimed civets were the presumed animal reservoir, but that its findings suggested there is an animal link (*Science*, 18 July, p. 297). WHO's Schnur says it is understandable that the government would not want to base a policy decision on the preliminary findings of the University of Hong Kong and other teams. Resolving the question of an animal reservoir "is very much a work in progress," he says.

–DENNIS NORMILE AND DING YIMIN

Ding Yimin writes for *China Features* in Beijing.

ScienceScope

Security R&D Rises to Top In 2004 Budget Debate

Security-related science is the big winner so far in Congress's annual budget battle. Nearly all R&D spending increases approved to date for 2004 would go to the departments of Defense (DOD) and Homeland Security (DHS), according to an analysis released this week by the American Association for the Advancement of Science (AAAS, publisher of *Science*; see www.aaas.org/spp/rd/sum81503.pdf).

When Congress returns next month, it will have just weeks to complete the 13 spending bills for the new fiscal year, which begins 1 October. So far, the House of Representatives has completed work on 11, and the Senate has finished four.

Overall, the House bills would increase federal R&D spending by 7%, to $126 billion. The majority of the new funds would go to defense, homeland security, and bioterror programs at DOD and DHS. The National Science Foundation would get a 6% increase, and the National Institutes of Health would get a 3% boost. R&D spending at other agencies would remain flat, and some programs at the departments of Agriculture and Commerce would see steep cuts. It remains to be seen whether the Senate will go along.

–DAVID MALAKOFF

Europe's Moon Launch Delayed

LONDON—Europe's solar-powered moon probe is facing new launch delays. The European Space Agency said this week that SMART-1, originally scheduled to lift off this month from Kourou, French Guiana, won't fly until late September at the earliest due to scheduling conflicts with other payloads. SMART-1 is the first of an international string of lunar missions (see p. 1033).

If all goes as planned, the 1-cubic-meter spacecraft will test an array of cutting-edge technology. It is powered by a solar motor that produces electricity used to charge gas atoms that push the spacecraft along. Miniature electronics will help it maneuver to the moon in a new way: SMART-1 will be launched into an elliptical Earth orbit, spiraling closer to its target for about 16 months until it is captured by the moon's gravitational field.

The craft's instruments will then survey the lunar surface for at least 6 months. "X-ray and infrared spectrometers of such power have never been flown around the moon," says SMART-1 project manager Giuseppe Racca. Researchers hope SMART-1's data will help resolve mysteries such as the moon's origin and the composition of its crust.

–LUCY MADDOX