"bust out of the reservation," says Jolly. There's a growing perception that genetic and cultural evolution interact. It's time, said Jolly at the session, "to forge a new compact—on the basis of evolution perhaps, instead of culture."

William H. Durham of Stanford University suggested that such a vision "might even give us a common language to speak." Durham and his colleagues believe a rich lode of material can be mined through the combined efforts of the two sides. Different patterns of lactose intolerance in different societies, for example, may help explain patterns of cattle ownership and milk consumption, and thus be a significant factor in economic and cultural life as well as a biological reality.

This notion of uniting under the banner of evolution, however, seems like more colonialism to cultural anthropologists like Fred Myers of New York University. "The rapprochement they imagine is a rapprochement on their terms," he asserts. Biological anthropology, he says, "has very little to offer" cultural investigations because the two are operating in such different time horizons. Cultural anthropologists, Myers says, "regard human evolution as finished." And topics like lactose intolerance are basically matters on the biological, not cultural, agenda, he adds.

Does this inhospitable climate mean that the schism the AAA's Weiner fears is about to become a reality? Perhaps not. Biological anthropologists reported at the meeting that they see no signs that their colleagues are rushing to join university biology departments (*Science*, 24 September, p. 1798). Yet fission is taking place in one area: graduate training. "One thing that depresses me is that many departments are divorcing the two areas in the training of graduate students," says Matt Cartmill, a biological anthropologist at Duke University. Anthropology has traditionally emphasized integrative training, but a number of departments have abandoned it—notably Duke, which now has two anthropology departments, and the University of California, Berkeley, where the biological anthropologists in the department are now housed in the biology building.

Cultural researchers believe this change in training is a sign of the times. "The problems that defined the [traditional] approach and the historical circumstances have changed," says Myers. But with both feet planted squarely in one subdiscipline or another, tomorrow's anthropologists may have an even harder time crossing the field's academic Great Rift Valley.

–Constance Holden

SCIENCE EDUCATION

Expert Panel Criticizes Federal Activities

Report after report has documented the failure of U.S. school children to learn enough science and mathematics to join the technologically advanced global work force of the next century. There is also ample evidence that public understanding of science is abysmal. In response, the federal government has created hundreds of programs across dozens of agencies, all aimed at improving the situation.

Although the intentions are good, how are these programs actually doing? Not well, according to a bluntly worded report from a panel of experts that examined federal spending on science education.* Two of the main reasons, the report finds, are that the government's investment in science education doesn't always follow its own high-level recommendations and that not enough time and attention are paid to evaluating the nearly 300 programs that do exist.

Last year the federal government spent $2.2 billion on such programs, with graduate students receiving 42% of the total and K-12 students 35%. (Undergraduate education received 20%, and 3% went to programs promoting public understanding of science.) The panel concluded that this federal contribution is not focused sharply enough on the national goals drawn up at a 1990 education summit with President Bush and the nation's 50 governors. These goals, which include raising student achievement, improving teacher skills, broadening the participation of minorities and women in science, and increasing public understanding of science, were fleshed out by a committee representing a dozen federal agencies.

But that roadmap isn't being followed, says the panel, cochaired by Karl Pister, chancellor of the University of California, Santa Cruz, and Mary Budd Rowe, professor of science education at Stanford University. "The federal portfolio [of science education programs] is unbalanced and lacks coherence," according to their report. The lack of structure "makes it next to impossible to maintain fidelity to the overarching national goals for science, mathematics, engineering, and technology (SMET) education."

"We take its findings seriously, and see it as a way of strengthening [science education] programs."

—Luther Williams

The disparity between rhetoric and reality exists at every educational level, according to the panel. "With regard to the important issue of transition from school to work, we suggest shifting funds from Ph.D. production to mid-degree ventures and technical training to better prepare students for tomorrow's jobs," says Rowe. At the undergraduate level, the panel notes, only 36% of the $428 million spent last year addressed the government's two highest priorities—improving the curriculum and turning faculty members into better teachers. And the panel concluded that "the basic goals of SMET education" for elementary and secondary students—teaching core competencies and motivating students to aspire to careers in science—"have not been well served by traditional programs."

For Bruce Alberts, the new president of the National Academy of Sciences who has made education a priority, the yardstick is simple: What is the quality of science education that children are getting in U.S. public schools? "In most cities," he says, "it's very, very poor."

The panel says the federal government also comes up short in another key area: finding out whether the programs it funds are doing any good. Only one in five programs overall (one in eight undergraduate programs) has been evaluated, and the government spends less than 1% of its science education dollars on evaluation. Rowe says that, as a rule of thumb, a program should spend 10% of its budget on evaluation. The problem is exacerbated by the programs' novelty and diversity: The Department of Energy, for example, has 69 distinct science education programs, 42 less than 5 years old.

Although it might seem like harsh medicine, the report was accepted eagerly by Luther Williams, associate National Science Foundation director for education and human resources and acting chair of the federal interagency panel that requested the report. "We take its findings seriously," he said last week at a press conference, "and see it as a way of strengthening SMET programs." The report is also expected to bolster Williams' effort to persuade other federal agencies to emulate NSF and spend more on evaluation, a step the panel says is essential for improving science education nationwide.

–Jeffrey Mervis

* "The Federal Investment in Science, Mathematics, Engineering, and Technology Education: Where Now? What Next?" For more information, contact NSF at (202) 357-9498.