Dingell: AIDS Researcher in Conflict

Representative John Dingell (D–MI) raked NIH officials over the coals in a congressional hearing last week for "a cavalier attitude toward improper and illegal behavior" in a case involving alleged financial conflict of interest.

The hearing, conducted by the House subcommittee on oversight and investigations, focused on the affairs of Syed Zaki Salahuddin, a long-time member of Robert C. Gallo's laboratory at the National Cancer Institute. According to testimony at the hearing, Salahuddin is being investigated because he and his wife allegedly have had a financial interest in a biotechnology company called Pan-Data that has done hundreds of thousands of dollars in business with Gallo's lab since the company was founded in 1984.

Salahuddin, who declined to testify before Dingell on Fifth Amendment grounds, has been suspended from NIH without pay, pending a criminal investigation by the U.S. attorney. He has appealed the suspension.

"The subcommittee's interest in this matter goes well beyond the criminal prosecution," Dingell stated at the hearings. The gut issue, as he sees it, lies in NIH's ability to tend to its own affairs.

The Salahuddin investigation comes at a time when NIH, spurred by Dingell, is conducting an extensive new inquiry into an old dispute over whether Gallo or Pasteur Institute virologist Luc Montagnier should get the credit for discovering the AIDS virus (*Science*, 30 March, p. 1532).

Concerns about Salahuddin's relationship with Pan-Data were first raised as early as 1985. Salahuddin, Gallo, and acting NIH director William Raub each has told *Science* that Gallo demanded an accounting. Or, as Raub put it, "Gallo screamed at him."

Salahuddin says he told Gallo that it was his wife, not he, who was connected to Pan-Data and that she would sever all ties to the company. Indeed, Raub testified that when Gallo's lab manager sought written assurance that there was no conflict, Pan-Data's president wrote in 1985 and again in 1986 that "Neither Mr. or Mrs. Salahuddin has any connection to this company. Neither have ever received, nor are they entitled to, any gratification in any form, monetary or otherwise." Apparently that was the end of it as far as Gallo's lab was concerned and the issue was not reported up the NIH chain of command.

Dingell staffers testified that Pan-Data's attorney gave the subcommittee a statement that both Zaki Salahuddin and his wife Firoza "resigned as directors" of the company on 1 August 1984. However, the staff went on to testify that they had information that the Salahuddins subsequently received remuneration from the company.

One colleague of Salahuddin's who attended the hearing said he was "outraged by its tone. Dingell convicted him on the spot." In fact, the full evidence is not expected to come out until the matter goes to court.

A second issue that caught Dingell's ire has to do with the way NIH does (or does not) keep track of its scientific equipment. During the past several months, cancer institute officials have been conducting an inventory of equipment in Gallo's lab, responding in part to the allegation that some of it has found its way to Pan-Data and that, in any case, no proper inventory had been conducted in the past 5 years. The finding: Numerous pieces of equipment valued collectively at $275,000 cannot be accounted for. On the other hand, Dingell's staff reported "overages—285 pieces of equipment that were not listed in inventory records but which were found in the laboratory."

Raub, noting that annual equipment inventories may be overlooked in many NIH labs and that equipment tends to "migrate" from lab to lab all over the campus, nevertheless acknowledges that "If we can't find a $5000 centrifuge, we can be perceived as lax." Dingell takes a harder view. "I am directing the subcommittee staff to continue its investigation to determine who at the NIH has knowledge of this improper activity and why the management system collapsed so catastrophically." Further hearings are expected.

No problem? *Acting NIH head William Raub said Gallo was told there was no conflict.*

■ BARBARA J. CULLITON

U.S. Math Still in Poor Health

Six years after the National Research Council issued a bleak prognosis for mathematics funding and education in the United States, a new study from the same source now reports that the health of math is—still the same. Mathematicians remain at or near the bottom of the heap according to measures such as research funding, drop-out rates, and fellowship support.

The new report was billed as the sequel to the so-called "David Report" of 1984, named after the panel's chairman, Edward E. David, Jr. But in many respects "David 2" sounded like the same study. The report—formally entitled "Renewing U.S. Mathematics: A Plan for the 1990s"—states bluntly that "the goals set in the 1984 report have not been achieved." Specifically, "almost no progress has been made" to provide funding for individual senior researchers whose ranks have increased by only 100 in 5 years (from 1800 in 1984 to 1900 in 1989). "A critical shortage of qualified mathematical science researchers still looms . . . and the academic foundations of the mathematical research enterprise are as shaky now as in 1984," the report says.

Why has so little been done? Surprisingly, the report doesn't hold federal funding agencies accountable. Instead, it lays the blame squarely at the door of universities, which did little to respond to the pleas made in the 1984 report for administrative and financial support. "While government has responded substantially to the 1984 report's recommendations," the report says, "universities generally have not."

The result of this neglect is detailed in the new report, and the numbers tell the story best. Although federal funding for mathematics has gone up by 34% in 5 years, little of that has gone to support research or improve teaching methods. Instead, almost all of the increase was spent on infrastructure to buy computers and rebuild deteriorating facilities.

Meanwhile, the number of mathematicians obtaining Ph.D.'s increased by only five a year, from 744 in 1980 to 749 in 1988. And while they were earning their graduate degrees, only 18% of those mathematicians received research fellowships to support their work. That compares with 58% in biology, 51% in physics, and 45% in engineering. "Why would a rational young person in science go into math?" asked one

mathematician at the NRC meeting, after seeing those statistics.

Many math students appear to be asking themselves the same question. Mathematicians have the worst dropout rate—50% a year—among students studying science and engineering. And if they do earn their doctorate and win a faculty appointment, only 21% of those junior faculty receive federal support for their research. That compares with 53% in chemistry and 67% in physics and astronomy.

To help remedy this dismal situation, the NRC committee is seeking full implementation of the 1984 plan. The plan called for spending $180 million a year, now equal to $250 million with inflation, to bring funding for math into balance with other sciences and to support 700 more senior researchers. Only $133 million is currently being spent. The new report again urges universities to strengthen their math departments by improving teaching methods and nurturing mathematicians. It also recommends that $25 million be spent to recruit students to select careers in math—particularly minorities and women who will be critical for offsetting the predicted shortfall in mathematicians, says David.

That's easier said than done, however. Three days after the NRC report was issued, several hundred math educators met at the NRC to help the council's Mathematical Sciences Education Board plan how to recruit minorities to study math. After holding six regional workshops around the country in the past year, the board is putting together a 10-year plan to improve math education.

It was clear that the group is seeking big changes at all levels of math education—from preschool to graduate school. "The climate is ripe for radical education reform," said U.S. Secretary of Education Lauro Cavazos. Among the hundreds of recommendations were ones that seek widespread teacher education at all levels, improved methods for conveying the beauty and practicality of math, new ways to involve mathematicians and parents in education, and higher expectations of students.

All such changes, of course, will require more money and a new commitment from school districts, colleges, and universities. Many of the educators were optimistic that the problem is so bad now that more will be done in the 1990s than the 1980s. "The climate is changing because people finally are realizing there is no choice," says Uri Treisman, director of a center for math education at the University of California at Berkeley. "We have to go out and educate American kids in math. If not, no one will be in our classes." ■ **ANN GIBBONS**

British Museum in Turmoil

Britain's venerable Natural History Museum is in turmoil over a plan to scrap some of its research activities. Feelings are running so high that the museum's staff has already held one strike—which provided the spectacle of senior scientists picketing while schoolchildren waited to enter the popular exhibits—and it has threatened another.

The focus of their wrath is a proposal by the museum's new director, Neil Chalmers, to streamline research by concentrating on just half a dozen areas that currently hold considerable popular interest. The implication drawn by scientists within the museum and their supporters in the wider academic community is that serious—if arcane—scholarship is being sacrificed on the altar of current fashion.

Behind this dispute is a financial struggle. The government, which provides part of the museum's budget through the Ministry of Arts, has informed the institution that it must pay more of its way from admissions charges. Since visitors pay to see animated dinosaurs, not taxonomists, researchers believe that their work is being shortchanged to free up resources for the exhibits.

Chalmers, a primatologist who was dean of science at Britain's Open University before coming to the museum 18 months ago, wants to shed 100 jobs, including 46 of 299 research scientists, as part of his corporate plan to allow the museum to "run its finances in a business-like way." He also means to confine the museum's research effort to studies of biodiversity, environmental quality, living resources, mineral resources, human health, and human origins. The plan spells these out, but does not detail the departments that will go: the evolution and classification of fossil birds and mammals, fossil plants, bees and wasps, and microscopic plants are among a score of specialities to be scrapped.

Chalmers says that in the recent past the museum's research was spread too thin and made little impact on the scientific community, hence the decision to concentrate resources. "Nobody likes to lose posts," Chalmers said. "The alternative, though, of doing nothing is so much worse. It would be a haphazard rundown, freezing posts as people left in an unplanned fashion."

The decision to cut back on taxonomy has drawn widespread protest. Niles Eldredge, dean of the scientific council at the American Museum of Natural History, says: "We just don't know what's out there. To cut back now is a disaster. . . . There is no point in maintaining a collection if research is not being done on it."

Chalmers, however, takes a diametrically opposed view. "With more than 30 million species on Earth, is it an attainable goal to try to classify them all? You have to leave gaps, so are you going to leave them on a random basis or because you concentrate on areas of perceived importance?" He concedes that the areas he has singled out may turn out to be the wrong ones, but "that's a risk you have to take."

His critics say they definitely are the wrong choices. "You don't go from the dinosaurs to the ice age of man in one jump," charges Beverley Halstead, zoologist and vertebrate paleontologist at the University of Reading. All the richness of mammalian evolution during the intervening 60 million years will vanish from public view, Halstead says. "The whole sense of what really happened in Earth history is going to be prostituted to the flashy and the dramatic." Adds Halstead: "I accept the need for priorities [in research], but they should be scientific, not populist."

Halstead, who recently became president of the Geologists' Association, is gathering support from leaders of other professional societies to "implore" the museum to put its plans "in abeyance" for a short while until government discussions about funding for taxonomy are complete. He says a recent report by the Institute of Economic Affairs, a conservative think tank, advised the government that "data gathering" of the kind practiced by the Natural History Museum, must be supported by taxpayers' money. The government is understood to be considering the report. Chalmers, for his part, has averted a second strike by the museum's staff by agreeing to discuss his plan with them before forwarding it to the Ministry of Arts.

Ultimately, says Halstead, "I would like to see separate funding of the research departments by the Department of Education and Science," instead of the current "anomalous" position in which the museum's money comes from the Minister for the Arts. The result would be extinction of the old-style museum—with its mix of popular fun and serious scholarship—and the evolution of two new bodies, one for recreation and one for research. ■ **JEREMY CHERFAS**