

for possible sex-linked effects have demonstrated "significant differences do exist in susceptibility to 17 different [toxic] agents."

Both Fields and Calabrese worry that too many unisexual research data are being extrapolated to include the untested sex. And the implications can be enormous, they believe. For example, in today's workplace, most women "are being 'protected' by standards that were developed principally from industrial hygiene data with men," Calabrese says. Since there is the potential for at least 200 to 500 percent differences in susceptibility to toxicants, he says, with females sometimes showing the greater susceptibility, "there's got to be some question about the extent to which current [occupational health] standards are effective in protecting women." — *J. Raloff*

## Clean water bill sent back to Reagan

Though the House and Senate unanimously passed a \$20 billion bill to reauthorize the Clean Water Act in the closing hours of the 99th Congress (SN: 10/25/86, p.264), the long-awaited legislation died from a pocket veto by the President. On the first day of the 100th Congress, however, it was born again as HR-1, the first bill introduced in the House. Following swift passage by both the House and Senate, the Clean Water bill was back on President Reagan's desk by Jan. 21. Congressional support for the bill is so strong that its passage into law — if necessary, by a veto override — is all but assured.

The bill would commit \$18 billion over nine years to new sewage treatment plants — far more than the \$12 billion called for in the President's alternative bill. It also provides money to begin a program to control "nonpoint" pollution, which runs off nonindustrial lands such as farms, city streets and construction sites; to help clean lakes and major estuaries; and to enable the Environmental Protection Agency and the states to further restrict allowable pollutant discharges where several heavy industrial polluters already reside.

The clean water program stagnated for four years while Congress formulated the controversial measures embodied in the new bill, according to Sharon Newsome of the National Wildlife Federation in Washington, D.C. She says, "Now it's up to President Reagan to reinvigorate the program by signing the legislation before him." Adds Sen. Robert W. Kasten (R-Wis.), "If the President doesn't approve this, not only will his veto be soundly overridden, but he will have been saddled with a major political defeat in his first skirmish with the 100th Congress."

— *J. Raloff*

## Military funding: Does it add up?

"Being poor does not mean we should sell out," writes mathematician William P. Thurston of Princeton (N.J.) University. That statement appears in a letter in this month's NOTICES, published by the American Mathematical Society (AMS). It's one sign of a growing debate within the mathematical community on the effects of military funding on mathematics research at universities. Last week, that debate surfaced at an AMS meeting in San Antonio, Tex., where several resolutions on the matter were considered.

Just three years ago, a National Academy of Sciences report, citing how support for mathematics has lagged behind that for other sciences, recommended that the federal government double its funding of mathematics research (SN: 2/4/84, p.71; 6/23/84, p.392). Since then, largely through the efforts of the Joint Policy Board on Mathematics in Washington, D.C., funding for basic mathematical research has increased substantially, from \$68.5 million in fiscal year '83 to \$115 million in '87. In both years, the Department of Defense (DOD) provided about 40 percent of the funding.

A small group of mathematicians, including Thurston, became concerned about the funding situation more than a year ago. At that time, a new, \$10 million mathematics program was established at the Defense Advanced Research Projects Agency (DARPA), which suddenly injected large sums into a few, narrowly defined fields of mathematics, such as dynamical systems and signal processing, which could have military applications. Initially, DARPA's move elicited complaints and criticisms from many mathematicians worried about a number of practices that DARPA instituted during the first year, including closed meetings, restrictions on publication and the lack of proper peer review of proposals. Later, DARPA agreed to correct many of those problems, but that experience forced mathematicians to look more closely at the consequences of depending on DOD funding.

One concern, at a time when many mathematicians are scrambling to get funds for computers and when the number of National Science Foundation (NSF) grants for individual investigators is decreasing, is that the trend within DOD seems to be toward research with specific applications or missions in mind. "That's a real mistake," says Robert Osserman of Stanford University. "It's shortsighted and clearly undesirable."

Irving Kaplansky of the Mathematical Sciences Research Institute in Berkeley, Calif., says that unless one can

predict "what mathematics is going to be like in the future, [then] all good mathematics should be pursued. There are so many cases in the past where something abstract . . . has unexpectedly turned out to be just what was needed."

At the AMS business meeting, Michael Shub of the IBM Thomas J. Watson Research Center in Yorktown Heights, N.Y., introduced a resolution expressing concern about these trends and requesting that those representing the AMS direct their efforts toward increasing the fraction of non-military funding for mathematics research, as well as toward increasing total research support. The resolution had about 400 co-sponsors.

"We're not asking military organizations to stop funding mathematics research," says Morris W. Hirsch of the University of California at Berkeley. "We're not asking individuals to stop applying to military organizations for grants. It's a question of emphasis and degree."

On the other hand, Melvyn B. Nathanson of Lehman College in Bronx, N.Y., argues that even if NSF funding goes up, it's still appropriate for AMS to seek more funds from DOD and other mission-oriented agencies. "There's nothing unethical about accepting DOD funds," he says. "If you disagree, don't take the money."

Says Ettore Infante of the University of Minnesota in Minneapolis, "It seems to me that to try to divide into two the funding that comes to mathematics and to say that one is good and one is bad is a fundamental mistake on our part."

Nevertheless, suggests Hyman Bass of Columbia University in New York City, there seems to be "a broad consensus about at least a slow movement toward allocating a larger portion of the funding of mathematics to civilian agencies."

Supporters of the resolution succeeded in getting a vote on the issue put on the agenda for the next AMS meeting, which takes place in Salt Lake City in August. Meanwhile, the AMS council may decide to mail out a ballot so that the society's 20,000 members can vote on this resolution and several others.

Earlier, the council itself passed an alternative resolution simply recommending that more should be done to strengthen "traditional basic research programs." A pair of resolutions directing AMS not to "encourage or actively facilitate" the participation of mathematicians in Strategic Defense Initiative research programs was also considered and is likely to show up on the ballot.

— *J. Peterson*