ACADEMIC EARMARKS

Leading Pork Opponent Hog-Tied by Cancer Project

Representative George Brown (D–CA) has earned a reputation as Congress' leading pork-buster, a man who never met a political earmark he liked. Each year, he stages a pitched battle against the dark forces of congressional patronage, launching one legislative salvo after another to prevent lawmakers from sending millions of dollars to pet science projects in their home districts, circumventing agency peer reviewers and congressional oversight. His attempts often fail, but there's never any doubt that Brown is four-square against pork.

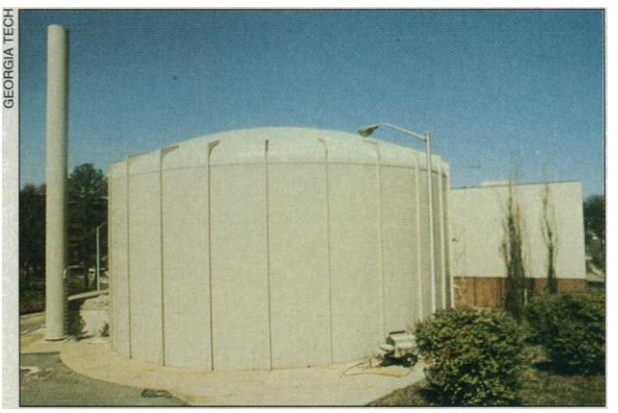
Or is he? *Science* had learned that in March, Brown signed a letter asking for $6 million in earmarked funds for an Idaho-based university consortium promoting an unproven and controversial cancer cure known as Boron Neutron Capture Therapy (BNCT). The request was turned down by House appropriators, but last month the Senate earmarked $2 million for the consortium as part of a $22 billion bill to fund energy and water programs. House and Senate conferees may meet this week to iron out their differences.

Regardless of the outcome of this year's budget battle, the Idaho BNCT program is one of the longest lasting and most divisive earmarks in science. Its 7-year history includes three studies from prestigious independent bodies recommending termination of the project, a national lobbying offensive by researchers against the project, two *Science* articles about the dispute, and a campaign within the Department of Energy (DOE) that led to the resignation in January of the project's chief promoter, then a researcher at DOE's Idaho National Engineering Laboratory (INEL).

Brown knows all that now. But on 29 March, in the course of an office visit from Richard Stallings, an Idaho congressman who had retired just a few months before, and an Idaho State University nuclear engineer named Merle Griebenow, Brown was only too happy to offer his support.

"I did what I do for any respected colleague who hits me up and says, 'George, I got a letter for you to sign'—I signed it without going into the background of the situation," Brown says. "I just didn't investigate it enough." The letter, circulated by Representative Michael Crapo (D–ID) and delivered on 3 May to Representative Tom Bevill (D–AL), chairman of the Energy and Water Appropriations subcommittee, also supports a non-earmarked BNCT program at DOE. Brown says he thought that was the program he was endorsing.

If the member of Congress most familiar with the ways of earmarking can be confused in this way, Brown concedes, so can anyone. "I think the average legislator, when confronted with a letter like this, is going to sign it without recognizing that what he's doing is contravening an important principle as to how to get results from the taxpayers' money," Brown says. Twenty-six other representatives, many of them declared opponents of pork and two who chair House science subcommittees that authorize such programs, signed the BNCT letter along with Brown.



GEORGIA TECH

Under pressure. Researchers are lobbying Congress to fund this Georgia Tech reactor for brain cancer therapy.

Indeed, the story of the Idaho BNCT earmark is virtually a case study in how pork happens. Its promoters believe that the therapy is promising, but they say that federal agencies (mostly DOE) have failed to recognize its potential. "I'm not crazy about this method of funding," says Griebenow, the project's main promoter, "but I don't see any alternative. I don't think DOE can get this done."

The idea behind BNCT is straightforward: Inject a boron compound that tends to localize in the tumors of a patient with brain cancer, then irradiate the patient's head with a low-energy neutron beam. The boron absorbs ("captures") the neutrons, readmitting a type of radiation that can kill nearby tumor cells without harming healthy brain tissue.

The principle is "seductively simple," says National Cancer Institute (NCI) radio therapy researcher Francis Mahoney: "A little radiation, a little boron, and bang. But when you scratch away at it, it's very complicated." For one thing, scientists have yet to find a boron-containing chemical that localizes sufficiently well in tumors, and have only recently learned how to measure boron concentrations in cells accurately. In addition, the energy of the neutrons is critical (they must be powerful enough not to be stopped by the skull, but not so powerful as to damage tissue elsewhere). And there is still much disagreement on whether a U.S. reactor exists that produces the right kind of neutrons in optimal quantities.

Unfortunately, says Mahoney, BNCT "was ballyhooed badly early on. It become a stereotypical example of science hitting the headlines before it was ready." Clinical trials in the 1950s and 1960s proved premature, and by the late 1970s, he says, BNCT "had gotten a really bad name."

BNCT proponents were not discouraged, however. Nuclear researchers eventually learned that they need to produce "epithermal neutrons"—those with energies between 1000 and 10,000 electron volts, which penetrate to a tumor but don't damage tissue on their own. Meanwhile, chemists developed boron compounds that were better—but still far from perfect—at localizing in tumor sites. By the mid-1980s, says one researcher, the biannual international BNCT conference resembled "a revival meeting without the tambourines."

Today, more than two dozen groups around the world are working on BNCT. Hiro Hatanaka, a neurologist at Teikyo University in Tokyo, has been treating people for some 20 years and claims several successful cases. Researchers at the Massachusetts Institute of Technology (MIT) and the New England Medical Center plan next month to start human trials on tumors in extremities. DOE distributes nearly $9 million a year to U.S. researchers for the research; the National Institutes of Health spends about $1 million.

But Griebenow, who embraced BNCT research in 1984 after his daughter-in-law's sister was diagnosed with brain cancer, argues that much more is needed. While at INEL, he lobbied DOE for a research program that would lead to restarting the mothballed Power Burst Facility reactor and converting it for BNCT use. He got the research program, and became its director. But faced with a cost of more than $20 million, DOE resisted converting the reactor, and independent reviews from NCI, the Institute of Medicine, and a DOE advisory panel all recommended against a reactor restart for BNCT use.

So Griebenow went instead to Congress and convinced lawmakers to back the program. His efforts brought INEL a total of more than $20 million for the BNCT pro-

gram over 7 years. Some of the funds came through congressional earmarks, and some after DOE agreed to request the money to get then-Idaho Senator James McClure "off their back," as Griebenow puts it. Other groups were outraged. Researchers at MIT and the New England Medical Center complained that his earmarking took funding away from their own BNCT projects and from others in the field, and in 1990 a review by the Institute of Medicine concluded that BNCT was "not ready for clinical trials."

Eventually, something had to give. Griebenow's aggressive advocacy had become an "embarrassment" to DOE, says one federal official. In 1992, the agency announced the creation of the National Center for BNCT Measurement and Development, which would focus on developing boron compounds and neutron-generating accelerators rather than reactor-based sources. It then launched a national search for a director with a background in chemistry, which effectively eliminated Griebenow, according to DOE program manager Jon Nadler. In January, Griebenow resigned and took a position at Idaho State University to start the university consortium.

The consortium—a collection of nine U.S. universities*—wants to convert a research reactor at Georgia Tech and start BNCT clinical trials by 1996. Griebenow says he intends to continue seeking earmarked funds for a portion of its budget because DOE does not support clinical trials.

The consortium appears to be politically well positioned. The nine universities are represented by six members of the Senate appropriations committee. The newest member of the consortium is the Medical University of South Carolina, whose president is James Edwards, energy secretary under President Ronald Reagan. Peter Fischinger, a former NCI deputy director who heads the university's Hollings Cancer Center, says the university does not expect to receive funds from the consortium this year but is prepared to seek earmarked funds in the future. "Do I like this [funding] approach? No. But I don't see how this can be galvanized otherwise," he says.

Brown says he will fight the very earmark he supported earlier this year when it returns to the House floor, but he hopes it will be killed by House-Senate conferees. Bevill, he says, "is fully informed from numerous sources this is a questionable activity, and not just because it's an earmark. It's a questionable program."

Whatever the outcome, Brown says he's learned something from the embarrassing incident. "I'm drawing the conclusions that I don't sign any more letters before reviewing them much more carefully than I did in this case," he says. And that's not all: "I'm also going to try to continue educating my colleagues not to earmark, even if I ask them to."

–Christopher Anderson

*The members of the BNCT University Consortium are: Idaho State, Montana State, Purdue, Emory and Washington State universities, the universities of Washington and Rochester, the Medical University of South Carolina, and Georgia Institute of Technology.

ACADEMIC FACILITIES

NSF's Construction Program Grows Up

For years, research universities have begged Congress to create and adequately fund a program to renovate the nation's aging laboratories, citing a $10 billion backlog of crumbling bricks and mortar. This month they claimed a small victory—a doubling, to $100 million, of the budget for a competitive program begun in 1990 at the National Science Foundation (NSF) to pay for lab renovation and for large scientific instruments. The Senate seems willing to go even further: The report accompanying its budget bill tells NSF to ask for $250 million in its 1995 budget request. And the House Committee on Science, Space, and Technology is now considering some radical proposals to enlarge NSF's facilities program, along with a draconian measure aimed at stamping out congressional earmarks, an unsavory offshoot of the dire need for construction funds.

The vehicle for these proposals in the House is a reauthorization bill for NSF, approved last week by the science subcommittee. (The House is expected to complete action on the bill this fall, although the Senate won't take up comparable legislation until next spring.) It would give the foundation at least $150 million for its facilities program in fiscal year 1995, which begins on 1 October 1994, and $200 million in 1996. The measure, proposed by subcommittee chairman Representative Rick Boucher (D–VA), would effectively make the facilities program NSF's top priority by requiring the appropriations committees to allocate these funds even if the rest of NSF's budget has to be cut to accommodate them.

Boucher's proposal is applauded by lobbyists for research universities, although they are skeptical that NSF alone can solve the problem. "I think it's a promising development," says Howard Gobstein of the Association of American Universities, a group of research universities that opposes earmarking despite the fact that some of its 58 members have benefited from the practice. "Although we'd prefer the full authorization [The bill would allow NSF to spend up to $250 million], those levels might be sufficient as part of a broader government-wide facilities program." But NSF officials are wary. "We have some problems with that provision," says Ray Bye, who heads NSF's congressional relations office. "Our priorities are people and programs, and this approach distorts that order." The proposal is also expected to stir debate in Congress because it chips away at the authority of the appropriations committees to allocate money to each agency.

Boucher's bill would also prohibit universities that receive congressional earmarks—funds awarded without agency peer review—from competing for funds from NSF's facilities program. If that provision had been in effect this year, it would have excluded almost one-third of the 56 institutions that received a total of $37 million last month in NSF's third round of awards. The "double-dippers" include the University of Alabama, Birmingham, which received $1 million in competitive funds from NSF to renovate a chemistry lab after having collected $57 million in earmarks over the last decade for research facilities, and Tufts University, which added almost $2 million from NSF for its chemistry facilities to some $46 million already awarded in earmarks.

The ranking minority member on the subcommittee, Representative Sherwood Boehlert (R–NY), plans an amendment containing a more drastic solution—a ban on all NSF funds, including those for research and training, for those institutions that receive earmarks. Although the full committee is likely to reject the idea later this month, it demonstrates the depth of congressional concern about a practice that last year cost the government $760 million.

The House reauthorization bill also asks the director of the White House Office of Science and Technology Policy to develop a government-wide plan for a facilities program, of which NSF would be a part. The idea for such a program has already spread to the National Institutes of Health, whose 1994 budget will contain $7 million for an extramural construction and renovation program operated through the National Center for Research Resources. Last month NIH awarded $5 million in grants for a more limited program created last year, and this spring NIH received authority to spend up to $125 million a year.

Such activity points to a further expansion of programs to fund university facilities. But unless Congress is especially generous, the funding is unlikely to match the amount universities are now getting via the pork-barrel route.

–Jeffrey Mervis