

ISSUES AND EVENTS

Legislation to Revive OTA Focuses on Science Advice to Congress

The legislation introduced in the House of Representatives in June was a model of brevity, a mere 17 lines long. It was also inexpensive, by federal government standards, asking only \$20 million annually for six years to fund an agency that could provide Congress with detailed, unbiased reports explaining the complex science and technology entwined in many public policy issues.

For Representative Rush Holt (D-N.J.), the physicist-turned-politician who wrote the bill, it was the most straightforward way to bring more science advice to Congress. He simply dusted off the Technology Assessment Act of 1972 and changed its title to read "Office of Technology Assessment Reestablishment Act of 2001." Holt added some money and, voilà, the Office of Technology Assessment (OTA), killed in 1995 as part of the Republican revolution that swept through Congress, could be brought back to life.

For Holt the need to revive the OTA is obvious. "Just pick up a list of committee hearings and run through the subjects they are dealing with," Holt said recently. "Telecommunications, encryption, health care decline, national missile defense, purity of prescription medicine, fuel efficiency. I don't think anybody would say there wouldn't be enough work for such an agency."

Critics of the OTA revival say that the National Academy of Sciences (NAS), the Congressional Research Service, the Government Accounting Office, and even lobbyists and independent scientists provide more than adequate scientific counsel to Congress. Especially in times of tight budgets, the critics argue, there is no need to spend \$20 million re-creating an office that is redundant.

But the OTA was respected by many on Capitol Hill as an independent source of information, and the day Holt introduced his revival bill, he had 30 sponsors, both Democrats and Republicans. That number has since risen to almost 50. The bill was quickly assigned to the House Science Committee for possible hearings, an essential move if the bill is to be taken seriously.

Yet almost no one, including Holt, truly expects the OTA bill to pass as

In an era of tight budgets and shrinking programs, it will be difficult to reestablish the Office of Technology Assessment, once a small, highly regarded office that provided science advice to Congress.

is. Holt is under pressure to modify the bill so that representatives who voted to kill the OTA in 1995 can vote for the legislation without appearing to be reversing themselves. "Congress doesn't reverse itself," Holt conceded.

But the bill was also intended to get people on the hill talking about the merits of an OTA-like agency, and that it has done. The legislation was introduced just a day before Carnegie Mellon University public policy professor M. Granger Morgan held a well-publicized workshop in Washington, DC, for academics and past OTA staffers on ways to create some new version of the office. After discussing an assortment of models of what a new OTA might look like, the workshop adjourned without reaching a consensus.

A reluctant supporter

In the days after the workshop, Holt's staff worked the hill to get more representatives to sign on as cosponsors of the bill; they eventually convinced a reluctant Rep. Vern Ehlers (R-Mich.), the other physicist in Congress, to sign on. But Ehlers's support is tepid at best.

"The OTA didn't meet the needs of Congress," Ehlers said, citing an oft-raised argument of the agency's critics. "You need rapid response to a request for information, and OTA was often too slow."

The OTA was started in 1972 after President Richard M. Nixon and Congress engaged in a series of disputes over scientific and technical issues surrounding the antiballistic missile treaty, the pesticide DDT, and the supersonic transport program. Legislators felt they were relying too much on federal agencies under the administration's control for background information, so the OTA was created to provide independent and comprehensive scientific reports to Congress. The office was governed by the Technology Assessment Board, which consisted of six senators and six representatives,

split evenly along party lines.

Starting with an annual budget of \$5 million, the OTA staff organized workshops, hired outside experts, and did its own research to produce reports that, while comprehensive, intentionally lacked specific policy recommendations. Instead, the reports detailed alternatives, spelling out what experts believed were the pros and cons of each course of action.

The inconclusiveness of the OTA reports is another common criticism of the office, but physicist Jack Gibbons, who headed the OTA for 14 years before becoming President Bill Clinton's science adviser, said the neutral nature of the studies was essential. "If OTA had been giving recommendations on what Congress should have done on issues, we would have been shot out of the saddle very quickly," Gibbons said.

While that inconclusiveness bothered lawmakers, the OTA studies were well regarded within the scientific and academic communities. "Virtually everybody thought the OTA was an exceptional government agency," said Roger Herdman, the last OTA director. Herdman, now director of the National Cancer Policy Board at the Institute of Medicine, said that, as a result of the OTA's existence, congressional leadership had become more attuned to the role of science in policy issues. "The governing board [for the OTA] had some of the most senior committee chairs on it," he said. "In serving on the board, they raised their level of awareness of science. That was helpful."

Gibbons said the OTA raised awareness about science not only in Congress, "but in the public as well. When the reports came out, they often made news." Indeed, many OTA reports were rated as best-sellers at the Government Printing Office.

Former OTA employees become almost passionate when talking about the agency, noting that it was a government agency unlike any other. In an epitaph placed in the *Congressional Record* on 28 September 1995, the day before the OTA shut its doors for the last time, Rep. Amo Houghton (R-N.Y.), the former CEO of Corning Inc, addressed the unusual nature of the

office: "OTA was a small agency [about 200 employees]. It was a generous place. For some, colleagues became like second families and these relationships extended to committee and personal staffs. Friendship, joy, and grief seemed to be shared without regard to job description. Many at OTA value this legacy as much as any other."

OTA was vulnerable

When the Republican leadership, led by House Speaker Newt Gingrich, brought the "Contract with America" to Congress in 1995, one of the central promises was to cut the size of government. To show they were serious, Gingrich made cuts in Congress itself, and the OTA, being a small, somewhat independent science agency, was vulnerable.

"There was an exuberance in the new majority back in 1995," Holt said. "They wanted to change everything in Congress. They got rid of the ice buckets provided each day to the members of Congress, then they got rid of the OTA."

Representative Robert Filner (D-Calif.), a history of science professor for 22 years at San Diego State University before coming to Congress in 1993, described the OTA's death as "the most tragic thing that Gingrich did. He had to cut something, and OTA didn't have much political support."

Ideology also played a role. "Newt's guys saw science as a liberal idea," Filner said. "On issues such as global warming, what they saw was science advice that was going against their ideology."

Gingrich, now a consultant and lecturer, doesn't disagree with Filner's assessment, but believes it was the OTA's science that was ideological. "Those of us who were conservative Republicans felt that the OTA was used by liberals to cover up political ideology with a gloss of science," Gingrich said in a recent radio interview. "We constantly found scientists who thought what they [OTA reports] were saying was not correct."

The office was killed in a conference committee by one vote. Six years after the OTA was interred, all of the more than 700 OTA reports can still be found on The OTA Legacy, a Web site (see <http://www.wws.princeton.edu/~ota>) maintained at Princeton University as a sort of monument to the office.

Why such strong feelings for a small government organization that ground out lengthy reports on topics as diverse as the role of insects in AIDS transmittal, the potential of fusion energy,

Brookhaven Celebrates Maurice Goldhaber's 90 Years

Three generations of Goldhaber physicists, with Maurice front and center, posed for this family portrait during a pause in the festivities at Brookhaven National Laboratory on a day in July dedicated to the celebration of Maurice Goldhaber's 90th birthday. Formal talks about physics past and present were interspersed with spontaneous reminiscences by celebrants who had come from far and wide.

Goldhaber's career spans the decades from James Chadwick's laboratory at Cambridge in the early 1930s to the latest solar neutrino results from the Super Kamiokande collaboration, of which he is an active member. He was Brookhaven's director from 1961 to 1973.

Flanking Maurice are his brother Gerson (right, University of California, Berkeley) and his sister's son Benjamin Eichhorn (professor of statistics at Rider University in Lawrenceville, New Jersey). Behind them are (right and left) Maurice's sons Alfred (SUNY Stony Brook) and Michael, who has a PhD in particle theory but writes mostly about public policy. Between the brothers is Alfred's son David, who recently joined the physics faculty at Stanford University.

BERTRAM SCHWARZSCHILD



BROOKHAVEN NATIONAL LABORATORY

sanitation in Alaskan native villages, and the adequacy of scientific equipment for undergraduates? For Gibbons, the answer is simple: "Congress is made up of citizen-governors," he said, "and they need good advice on spending trillions and trillions of dollars on issues that involve technology and science. Not to have any formal office dealing with science and technology in the legislative branch is to say that none of this matters."

No apologies offered

Gingrich offered no apologies. "I strongly opposed OTA," he said. And Congress doesn't need to revive the office and return to getting science advice from "a bunch of analysts who read papers and then tell you what they think."

Congress does need a system for getting good science advice, Gingrich said, but it should be a network of scientists, perhaps coordinated through the NAS, that enables senators and representatives to talk directly to scientists. "We ought to be getting Nobel Prize winners in the room and talking directly to them," he said. "Do you want to have genuine scientists talking directly to you, or congressional staff people writing up summaries? I want every viewpoint in the room so I can hear the arguments. It's a matter of philosophy."

Former Science Committee chairman Robert Walker, now the CEO of the Wexler Group, a Washington lobbying firm, shared Gingrich's opposition to the OTA, partly because the office wasn't effective, he said.

Elaborating on Ehlers's complaint that the OTA was too slow, Walker said the agency "could never meet a legislative schedule. It was a nice science agency, but it never did its studies in a time frame that met the needs of the legislators. They worked on a science rhythm, not a legislative rhythm."

"Both Newt and I are science nerds," Walker continued. "But none of the OTA work helped me on the Science Committee. When we passed the energy bill in the early 1990s, the OTA didn't come out with its energy report until a few months later."

Gibbons's response to the timeliness criticism of the OTA is, "You can't make wine on Sunday and drink it on Monday." Sometimes legislators wanted instant responses to complex questions, he said, and that wasn't possible. He noted that, while final reports sometimes came out after legislation had been voted on, legislators could get interim updates on studies when they needed information.

But even many supporters of the OTA revival effort agree with Walker's criticism. "The OTA never saw a side issue it couldn't delay on, and it often lost sight of the ball," said a former staff member. "But it did provide important, neutral information that Congress needs. It helped structure the national debate on scientific issues."

While Holt deals with the pressure to alter his bill to correct for the perceived shortcomings of the previous OTA and to address the difficulties of winning over past opponents, a less dramatic effort to bring more science

advice to Congress is occurring in the Senate. An amendment that would set aside \$1 million for a pilot program in technology assessment, run by the Government Accounting Office, was adopted in July as part of the Legislative Appropriations Act. Senator Jeff Bingaman (D-N.Mex.), the amendment's author, said it wasn't intended to "restart OTA," but to formalize a way to "analyze current science and

technology issues affecting our Congress." He said he eventually would like to see the program expanded and transferred to the Congressional Research Service. While that isn't as substantial as Holt's re-created OTA, it is attracting support as being more politically realistic. Bingaman's million-dollar program must survive conference committee budget negotiations, which is far from a sure thing.

With the severe budget squeeze facing Congress, Holt admits it will be difficult to pass an OTA bill that calls for expanding government with a revived, \$20 million-per-year agency. "I think a case can be made that a lot of efficiency will come from a new OTA," Holt said. "In retrospect, the decision to get rid of the ice buckets was a good one, but the decision to get rid of OTA wasn't." **JIM DAWSON**

Bell Labs Research Regroups as Parent Lucent Shrinks

It's no secret that the past year has been a rocky one for Lucent Technologies. In synch with the rest of the telecommunications industry, its stock has tumbled. By next spring, the company plans to scale back its global workforce to 60 000, or about 50% of its peak two years ago. Bell Labs, Lucent's research arm, has lost funding and people because of the company's financial woes, and because of the spinning off of its microelectronics business. What's the toll on Bell?

The transistor, Big Bang background radiation, the laser, laser cooling of atoms, the fractional quantum Hall effect, solitons, and functional magnetic resonance imaging are among the many discoveries that have come out of Bell Labs, and its scientists have garnered six Nobel Prizes.

But like the rest of Lucent, Bell Labs is contracting. The total number of researchers is now about 600, half of what it was in 1999. The number of people doing basic research in the physical sciences is down to about 60, from 110 or so a few years ago. Going back further to the late 1970s before the government split up parent company AT&T, the physical sciences research team was 300 to 400 strong. AT&T—which as a monopoly could afford to invest in long-term research—was broken up in 1984, and thinning occurred in the early 1990s in a market pinch. More people left when Lucent was founded in 1996, but physical sciences research at Bell Labs later made a comeback.

The spin-off this year of Agere Systems was intended to get Lucent out of making and selling optoelectronic components and integrated circuits and open the door for the new company to sell more freely to Lucent's competitors. But the spin-off, first announced in July 2000 and started in March of this year, has been thwarted by Lucent's financial slump; the plan now is to complete it in the coming months.

In the meantime, many Agere researchers work at Lucent headquarters in Murray Hill, New Jersey. The

With Lucent Technologies in meltdown, many researchers mournfully predict the demise of Bell Labs. Lab leaders, however, maintain they will stay at the forefront of research.

fledgling company is taking its share of the blows: Among other austerity measures, Agere has laid off about a third of its workforce—including many of the 275 former Bell Labs scientists working in silicon and optical component technology.

The Agere spin-off "is the last straw," says one long-time Bell Labs physicist. "The perception of some of us is that it narrows research and limits the potential for collaboration and synergies. The financial imperatives have become so strong, one is not being given time to do things with much more than a five-minute hori-

zon. Bell Labs will never be the same."

Breaking noodles

That refrain has been heard every time the company has splintered, and the worry about research becoming increasingly business-driven extends to all industry-based labs. This time, though, many industry watchers say Bell Labs is more at risk than ever of losing the breadth and freedom of research that have made it a magnet for top scientists.

"Pulling labs apart is like pulling apart spaghetti—you can't do it without breaking some of the noodles," says Stan Williams, a one-time Bell Labs researcher now at Hewlett-Packard Co, where, in 1999, he saw up close the splitting off of Agilent Technologies. "A research enterprise depends on its past integral. Research has an esprit, tradition, and a corporate memory of its own. Once segmented, it's extraordinarily difficult to weld together."

"Any time you get smaller, there is less buttressing from fluctuations of the market," adds David Nelson, a physicist at Harvard University who has consulted for Bell Labs for 25 years. "As outside financial pressures strip layers of insulation off, it's going to be harder to keep the diversity. Where is the next generation of exciting new ideas for hardware going to come from if they're so focused on the bottom line? If you aren't letting 1000 flowers bloom, you lose the capacity to respond to new challenges. You need lots of genetic diversity. This is a concern in the context of Lucent and other companies."

Physical sciences research at Bell Labs "was interdisciplinary. There was a big sea that we fed off of and into," says Philip Platzman, a theoretical physicist who has been at Bell Labs for 41 years. "Now it's small, it's good, and, most important, it's still there. But the atmosphere has changed. The rest of Bell Labs is severely weakened. The Agere spin-off takes away everything connected with components—silicon,



LUCENT TECHNOLOGIES headquarters in Murray Hill, New Jersey. The company is halving its workforce and closing offices left and right. Some of those still there say they are paying closer attention to Lucent's budget than to the US government's.