



F Requiem for an office

Ten years ago, congressional Republicans did away with their world-renowned scientific advisory body, the Office of Technology Assessment. Now even some conservatives admit the time has come to bring it back.

By Chris Mooney

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or a scientist, Jack Gibbons is pretty hip to poetry. Just listen to how the diminutive, folksy Tennessee physicist--former director of the congressional Office of Technology Assessment (OTA) and, later, science adviser to President Bill Clinton--once described his previous work at the Oak Ridge National Laboratory, where he studied the creation of heavy elements in stars. "Some of the most enjoyable years of my life were spent poking around trying to figure out if we were really made of star dust," is how he put it in a 1988 interview. [1]

In explaining the role of the Office of Technology Assessment, which he guided for more than a decade, Gibbons has similarly turned to the language of poetry to describe a unique endeavor at the interface of science and policy. Over the years in discussing OTA, he has repeatedly invoked a sonnet from Edna St. Vincent Millay's 1939 collection *Huntsman, What Quarry?*, in which the poet cites society's bombardment by a "meteoric shower of facts" that lie "unquestioned, uncombined," and continues: "Wisdom enough to leech us of our ill / Is daily spun; but there exists no loom / To weave it into fabric. . . ." During his 1979 swearing-in as OTA director, Gibbons quoted this passage to members of Congress, announcing his (metaphorical) intention to weave scattered facts into a fabric that policy makers could use. [2]

Gibbons's literary sensibilities--and the quest to merge scientific knowledge with more humanistic forms of understanding that they bespeak--shine through in the highly readable reports of the Office of Technology Assessment, which were often Government Printing Office best-sellers. [3] Consider a 1988 report from OTA on infertility, which presented the woman's perspective thusly: "Lately you cry at the drop of a hat--when you see a diaper commercial on television, see a pregnant woman at the grocery store, or get an invitation to a baby shower. The whole world seems to be having babies." [4] Passages like this led the *Washington Monthly*, in 1989, to celebrate the deep humanism of OTA's approach to technical problems in an article titled "How to Revolutionize Washington with 140 People." [5]

OTA's 24-year body of work encompasses some 750 reports and assessments on topics ranging from acid rain to global climate change to the accuracy of polygraphs. Perhaps because the office vetted these documents so stringently, they have aged quite well. Some, on subjects like bioterrorism, even seem eerily prescient today. Following the anthrax attacks of late 2001, for example, a report prepared on behalf of Democratic Sen. Ernest Hollings of South Carolina noted that OTA had studied the number of spores required to produce inhalation (or pulmonary) anthrax almost a decade earlier. [6] "If this information had been readily available" during the crisis, Hollings's report noted, "it's conceivable that it even could have saved a life." And of course, due in

significant part to Gibbons' stewardship, OTA's reports didn't merely address Congress--they spoke to the broader American public as well, in accessible language rather than technocratic code.

Nevertheless, following the "Gingrich revolution" of 1994, incoming congressional Republicans dismantled their authoritative scientific advisory office in a stunning act of self-lobotomy. Obsessed with shrinking government, Gingrich's acolytes denounced OTA for being too slow in its assessments and (some added) suspect in its political orientation. The late Cong. George Brown of California, leading the Democratic minority on the House Science Committee at the time, memorably countered that the agency had served as Congress's "defense against the dumb," and continued, "it is shameful that OTA was defenseless against a very dumb decision by Congress." [7]

This September marks the 10-year anniversary of the official shuttering of the congressional Office of Technology Assessment. From today's vantage point, we can plainly see how sorely OTA is missed in congressional debates on subjects ranging from bunker-busting nukes to therapeutic cloning. Even some on the right--most notably Adam Keiper, managing editor of the neoconservative journal the *New Atlantis*--have recognized the virtues of OTA and counseled that the congressional Republicans "should, in their own way, on their own terms, build their own version of a professional advisory body on science and technology." [8]

But arguments such as Keiper's have not yet swayed the Republican leadership in Congress--quite the contrary. And at least until that happens, the death of OTA must be seen as a pivotal event in a narrative of increasing distrust of science among the American political right that flows directly into the raging controversy today over political abuse of science by the Bush administration. Considerable and important policy thinking has been undertaken regarding how and in what form OTA should be replaced. But until today's political right grapples with its deep and abiding distrust of the nation's scientific community, and the body of learning and expertise that it represents, progress may be impossible.

Reagan's revenge

Ironically, OTA's demise did not come in its early days of existence, when the office struggled to prove itself. Rather, by the time it was done away with, OTA had become a globally renowned agency and a model for science advising to politicians in a democratic society.

Congress originally created the Office of Technology Assessment in 1972, at a time of general distrust between the Nixon administration and the Democrat-controlled legislative branch over the supersonic transport program and other issues. The era also saw mounting public concern over the dangers of pollution, nuclear energy, pesticides, and other technology-induced hazards. OTA, the thinking went, would both forecast coming technological quandaries and help Congress fact-check technical claims made by the various expert agencies of the executive branch, such as the Environmental Protection Agency. The office had a unique organizational structure: A twelve-member board, comprised of six members of Congress from each party, approved each OTA project. This arrangement theoretically ensured the agency's objectivity. [9]

Nevertheless, partisan tensions hobbled the office from the outset. Because OTA's leading sponsor, Democratic Sen. Edward Kennedy of Massachusetts, headed the OTA board in 1977 when many considered him a presidential contender, conservatives suspected the office of being a "happy hunting ground of Kennedy apparatchiks" and "liberal technocrats," as William Safire put it in the *New York Times*. [10] It didn't help that OTA blew through its first two directors in only a few years. When John ("Jack") Gibbons, formerly head of the federal Office of Energy Conservation, received a nod for the OTA director's job, Michigan Democratic Cong. John Dingell warned he was

the agency's last chance.

Gibbons promptly shook up the office's staff and rearranged it to focus on more immediate issues, rather than airy attempts at long-range technological forecasting. [11] Between 1979 and 1993, under his guidance the office also pursued a strategy of careful political neutrality, notes political scientist Bruce Bimber in his 1996 study of OTA, *The Politics of Expertise in Congress*. This approach gradually won the support of key Republican allies.

But when Ronald Reagan took office, the new administration endorsed *Fat City*, a 1980 book by conservative journalist Donald Lambro that identified OTA as one of Washington's many wasteful programs. [12] Lambro called OTA an "unnecessary agency" that duplicated work performed by other parts of government. He also quoted an unfriendly member of Congress who charged that most OTA reports ended up "in the warehouse gathering dust." In fact, OTA deliberately provided Congress with a second opinion so that it wouldn't simply have to trust the executive branch. As for its reports "gathering dust," an OTA rebuttal to *Fat City* noted that most of the office's studies had gone out of print at the Government Printing Office "despite frequent second and occasional third printings." [13]

Fat City would not prove the last time that conservatives attacked the agency. An even bigger controversy arose once OTA began to provide Congress with technical advice about Reagan's beloved space-based missile defense program (also known as the Strategic Defense Initiative or SDI). Generally speaking, OTA was deeply skeptical of the "Star Wars" program's technical feasibility, and its critiques struck the Reagan administration in the gut, coming as they did with the official imprimatur of Congress.

OTA's first and most controversial foray took the form of a 1984 study authored by physicist Ashton Carter, now a professor at Harvard's Kennedy School of Government, warning that "a perfect or near-perfect defense" against nuclear missiles represented an illusory goal that "should not serve as the basis of public expectation or national policy about ballistic missile defense." [14] Carter's report enraged the Pentagon, which asked to have it disowned by the agency. Instead, an OTA expert review confirmed the study's conclusions. Meanwhile, the conservative Heritage Foundation, highly committed to SDI, used the incident as grist for a report charging OTA with political motives and the unauthorized release of classified information. [15] The Heritage study complained at length about Carter's analysis, arguing that the time had come to "reassess" the Office of Technology Assessment--ironic, given that OTA existed, in part, for the purpose of achieving a level of objectivity hardly to be expected from partisan think tanks like Heritage.

Two subsequent OTA studies, more comprehensive and thorough than the Carter report, proved no less disapproving of Reagan's "dream." In a 1985 assessment, OTA concluded that the goal of protecting the entire U.S. population would be "impossible to achieve if the Soviets are determined to deny it to us," and that SDI could ignite a new arms buildup on the Soviet side (thus creating greater instability and risk instead of a foolproof defense). [16] And in 1988, OTA hit hard again with a study noting that SDI would stand a significant chance of "catastrophic failure" due to software glitches the very first--and, presumably, only--time it was used. [17] The Pentagon held up the release of the report for three months in an extensive classification review and withheld three chapters entirely. As Gibbons protested at the time, "The three chapters have been thoroughly cleaned. They contain absolutely no surprises for the Soviets. You have to ask why they're denied to the American people." [18]

OTA's Star Wars reports not only angered the Reagan administration, but made the office conservative enemies who would remember the affront later. Some even interpreted the 1995 killing of OTA as "Reagan's revenge," Gibbons notes. [19] Yet few OTA reports engendered controversy like its SDI work. Gibbons, who directed the office until becoming Clinton's first science adviser in 1993, insisted that each study provide Congress with a range of well-informed policy

options to choose from. "OTA produced a body of scientific information from which, then, the politics could be argued," says Rosina Bierbaum, who headed OTA's climate change project in the 1980s and now serves as dean of the University of Michigan's School of Natural Resources and Environment. "And now, it doesn't seem to me like there's any consensus body of information that the Congress accepts." [20]

OTA developed a stellar international reputation as well. Scores of policy makers from overseas visited the office to learn how it worked, a series of interchanges that led to the creation of OTA analogues in European legislatures--including the United Kingdom Parliamentary Office of Science and Technology and the German Parliament's Technology Assessment Bureau. When the U.S. Congress then did away with OTA in 1995, other nations were stunned. "That the leading technological state in the world, a democracy like us, should have abolished its own main means of democratic assessment left us aghast," wrote Lord Kennet, who created an umbrella group of mini-OTAs called the European Parliamentary Technology Assessment Network. [21]

But the Gingrich Republicans, who'd ridden the cleverly packaged "Contract with America" to victory, viewed matters very differently. OTA became a "sacrificial victim," observes Federation of American Scientists president and former OTA staffer Henry Kelly, because the new Congress wanted to prove its willingness to make budget cuts in its own house. [22] Newt Gingrich's move to consolidate power in the House of Representatives following the 1994 Republican sweep, combined with his own sense of himself as a science guru, may have also worked against OTA. As the office's last director, Roger Herdman, a medical doctor and a Republican who now directs the National Cancer Policy Board at the Institute of Medicine of the National Academies, told me, "There are those who said the Speaker didn't want an internal congressional voice that had views on science and technology that might differ from his." [23]

Some of Gingrich's followers also considered the renowned agency a tool of the left. According to Gingrich spokesman Rick Tyler, the Speaker discerned a tilt to OTA's reports: "In some cases, it was politicized work." [24] Gingrich's lieutenant Robert Walker, who chaired the House Committee on Science at the time of OTA's demise, further argues that the agency's analyses simply took too long to be of use to Congress. [25] But like many other science and environmental issues, OTA wound up dividing conservative and moderate Republicans. Cong. Amo Houghton of New York, a classic GOP moderate, helped lead an almost-successful fight to save the agency under the slogan, "You don't cut the future." In an interview in late 2003 before his retirement from Congress, Houghton called cutting the office just plain "dumb." "It was not that much money," he added--\$21.9 million the year of the office's demise--"and they were just looking for sort of symbolic targets." [26]

From today's vantage point, however, amid increasing controversies over the politicization of science and the disregard for expertise, the decision to do away with OTA appears less dumb than calculated. OTA scrupulously avoided making explicit policy recommendations, but its reports did sift through expert disagreements, rule out fringe scientific views, and challenge implausible technological assertions (including those associated with SDI). Gibbons once even described the agency's staff as blessed with "good bulls---detectors." [27] In OTA's absence, however, the new Republican majority could freely call upon its own favorable scientific "experts" and rely upon more questionable and self-interested analyses prepared by lobbyists, think tanks, and interest groups. A 2001 comment by Gingrich, explaining the reason OTA was killed, pretty much said it all: "We constantly found scientists who thought what they were saying was not correct." [28]

"Sound science"

OTA's absence. Science buff and technophile that he was, he certainly had an idea about how such advice ought to be delivered. But that idea has been almost universally rejected by science policy thinkers--and for good reason. It simply doesn't make any sense.

In defending his party's dismantling of OTA, Gingrich has advocated what one might call a "free market" approach to scientific and technical expertise. In the Speaker's view, members of Congress should take the initiative to call individual scientists and inform themselves, much as Gingrich himself did. Never mind that few members of Congress were such science buffs--or that some, like majority leader Tom DeLay, had had previous careers in fields like pest extermination. "Gingrich's view was always, 'I'll set up one-on-one interactions between members of Congress and key members of the scientific community,'" recalls Bob Palmer, former Democratic staff director of the House Committee on Science. "Which I thought was completely bizarre. I mean, who comes up with these people, and who decides they're experts, and what member of Congress really wants to do that?" [29]

Gingrich's science advising idea contains unmistakable echoes of his party's broader argument in 1994: That government should shrink, and that the private sector should take up the slack. But quality scientific advice needs an institutional structure and consistent procedures and methodologies behind it; it can't simply be privatized.

Gingrich's dubious approach, however, helps explain the science politicizing bonanza of the Gingrich Congress. The dismantling of the Office of Technology Assessment contributed to a free market for scientific expertise all right--with alarming consequences. With OTA gone, Gingrich's troops didn't hesitate to invoke their own favored experts to undermine the scientific mainstream in hearings devoted to subjects such as ozone depletion and global warming. The attacks came as the new Republican majority sought to free up the market in another way as well--by ramming through a major "regulatory reform" bill that would have prescribed rigid and inflexible rules governing the use of science to protect public health and the environment.

As a rallying cry for this whole agenda, the Republicans loudly demanded that policy must rely on "sound science." But by this term, the new majority clearly didn't mean the distinguished work of OTA. Rather, the "sound science" crusade betrayed the incoming Republicans' close rapport with the tobacco industry, which had battled for decades to obscure the truth about dangers posed by its products, both to smokers and to innocent bystanders. Big Tobacco and its allies had helped popularize the term "sound science" to describe an agenda that had little to do with scientific rigor, and everything to do with blocking government controls on industry by raising the burden of scientific proof required to justify action.

In short, by any measure, the death of OTA was closely followed by a startling push toward the political appropriation of science during the Gingrich Congress--a push that both clearly precedes and yet also feeds into current debates over how science has been treated under the administration of George W. Bush. No wonder, then, that New Jersey Democratic Cong. (and physicist) Rush Holt, who has introduced several bills outlining different approaches for restoring an OTA-like capacity to Congress, makes the case for restoring the agency in part based upon the argument that it would help to depoliticize science. "One of the reasons for defunding OTA was that people like Gingrich accused it of being partisan," says Holt. "And I would argue that because they did away with it, it made it possible for science on Capitol Hill to become partisan." [30]

Holt isn't the only scientist (or politician) clamoring for OTA's return. The authors of *Science and Technology Advice for Congress*--a 2003 collection published by the nonpartisan think tank Resources for the Future--outline a range of options for improving the science savvy of elected representatives, from simply resurrecting OTA to creating a similar organ in the Government Accountability Office (GAO) or Congressional Research Service (CRS). They also suggest increasing the role of the well-respected but undeniably slow-paced National Academy of Sciences. [31]

However, the authors of *Science and Technology Advice for Congress* more or less admit that none of the other existing advisory structures to Congress really fit the bill for filling the gap left by the dismantling of OTA. The Congressional Research Service, for instance, excels at firing off quick analyses to Congress upon request, but does not have an institutional capacity for managing or vetting long-term outsourced analyses. Indeed, the agency "tends to present the views of all interested parties as if they were of comparable validity, rather than to analyze each such view skeptically so as to arrive at the best understanding of an issue," writes analyst Christopher T. Hill. [32] In some ways even more limiting, CRS explicitly styles itself as an agency that works for Congress and only for Congress; its reports aren't even readily accessible to the public. It hardly seems the place to achieve a Jack Gibbons-style analytical capacity that simultaneously seeks to enlighten the American populace and make them a party to scientific and technical decision making.

As Congress's investigative arm, the Government Accountability Office provides, in some ways, a more suitable model. And indeed, OTA supporters like Holt have proposed recreating the office under the broader auspices of the GAO. Again, however, the GAO has more of an accounting mindset than a policy-analysis orientation and currently lacks a staff with the sort of scientific expertise that would be necessary were it to be called upon to replace OTA.

Other agencies, such as the Congressional Budget Office, seem even more ill-suited to take on the work once performed by OTA. And of course, the National Academy of Sciences, though it frequently contracts with Congress for research and commands a vast reservoir of scientific expertise, produces very expensive studies, very slowly. Another drawback to relying upon the academy for an OTA-like function is that its reports frequently make policy recommendations; by contrast, one of OTA's virtues was its willingness to present a range of policy options without favoring any particular one. Finally, the academy is not a branch of Congress and does not take orders from it. It's an entirely separate institution.

Because of such considerations, for many analysts the inquiry into how to replace OTA essentially winds up with a body not very different from the one that previously existed. For instance, OTA Star Wars study author Ashton Carter and former OTA bioterrorism policy analyst Jerry Epstein co-wrote a contribution to *Science and Technology Advice for Congress* that essentially calls, on policy grounds, for an agency that sounds like a dead ringer for what came before. "We didn't say, 'We want to recreate OTA,'" explains Epstein. "We started out saying, 'Whatever Congress needs, it needs to be credible and authoritative.' And then we re-derived OTA. You basically end up where OTA already was." [33]

That's not to say that a newly reconstituted congressional science advisory body would have to be exactly the same as OTA. Rather, there's a chance to learn lessons from OTA's demise and address some of the criticisms levied against the agency (at least the valid ones). For instance, some members of Congress claimed that OTA did not always work according to the congressional schedule. That's certainly an issue that can be addressed by creating an office more geared toward releasing short-term analyses as well as longer term projects. OTA studies "don't always have to be 200 pages long and eight months in coming," says Arizona State University science policy scholar David Guston. "But you can't just pick up the phone and call your bud." [34]

Of course, some of the arguments cited at the time of OTA's demise aren't as important to address because they're difficult to take seriously. For example, budgetary arguments against reviving OTA don't hold much water. The office was not only cheap by government standards but, as Guston has written, its analyses often saved the country loads of money. [35] For instance, OTA conducted a critique of a massive plan by the Social Security Administration to procure computers, and its evaluation saved \$368 million--the yearly cost of operating OTA many times over.

Finally, there are the political arguments over OTA. Was it really biased? Was it a creature of the Democrats that had controlled Congress for decades and therefore unsuitable to Republican rule?

It's not at all clear whether these arguments against OTA should be taken one whit more seriously than budgetary objections--but they are, unfortunately, a political reality. The leadership of the Republican Party today, whether in the White House or in Congress, still nourishes a deep distrust for the kinds of thorough, dispassionate, professionalized science policy analyses provided by OTA. The prevailing notion is that "small-t" technocrats tend to be "big-D" Democrats, and produce skewed analyses that cannot be trusted. The sentiment goes hand in hand with a long-standing distrust among modern conservatives of what they view as the biases of university culture, the eastern Establishment, and even the "liberal media."

This major political reality must be faced, not ignored. Still, it's heartening to find even some conservatives, like Keiper of the *New Atlantis*, realizing that the GOP, as the ruling party, cannot afford to guide the nation blindly on matters of science and technology. That, in short, quality analysis matters and is truly of bipartisan value. One can only hope the message catches on more broadly in the GOP.

Socratic method

Jack Gibbons, for his part, has accused the Gingrich Republicans of political motives and decried the "callous treatment" OTA received at their hands. [36] But he also interprets the agency's death in the context of the always fraught relationship between science advisers and those they advise. In a 2003 speech at Rice University, Gibbons, ever one for literary as well as philosophical quotations, drew a joking analogy between the fate of OTA and that of Socrates: "He gave advice to other people. He was poisoned." [37] The message is an important one: Should OTA ever return to Congress, it will not necessarily be safe. Certainly not if its studies repeatedly prove inconvenient to vested political interests.

Nevertheless, at a time of constant politicized debates over scientific information, the restoration of impartiality, standards, and a respect for rigorous analysis can hardly hurt. That's a theme that came out last year when I interviewed Gibbons at the famed Cosmos Club in Washington, D.C., in the baroque Warne Lounge beneath glittery chandeliers and a *trompe l'oeil* ceiling painting of cloud-hopping cherubs. I'd asked Gibbons to discuss with me the death of the Office of Technology Assessment and the politicization of science in America--two intimately intertwined topics that in fact merge in the same person.

A signatory to a prominent 2004 statement by the Union of Concerned Scientists denouncing the Bush administration's scientific stewardship, Gibbons told me that while science has always been politicized to some extent, "It's never been this blatant or this bad. We almost wistfully think back to the Reagan years." [38] But he also explained how OTA, had it remained in existence, could have served as a partial check on rampant science politicization and misrepresentations of scientific information. The office might have prepared an independent assessment of the number of available embryonic stem cell lines, for instance, so that Congress wouldn't have had to trust President Bush's woefully incorrect claim that "more than 60" such lines were in existence as of August 2001. OTA might also have helped set the record straight on the science of climate change--a task it could have accomplished in congressionally endorsed studies that would have been hard to ignore.

OTA, Gibbons added, defused politicized science disputes by providing an authoritative, baseline body of information that all sides could accept. Characteristically, Gibbons reached into his grab bag of quotations in order to accentuate the point. He invoked the words of Patrick Moynihan, the late Democratic senator from New York: "We can each have our own opinions, but we cannot each have our own facts." That's a lesson whose value, we can only hope, will ultimately prevail upon Congress--whether Republican-controlled or otherwise.

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2. Luther J. Carter and Walter G. Berl, "An Interview with John H. Gibbons," *COSMOS Journal*, 1998.
3. In "Capitol Hill's High-Tech Tutor," *New York Times*, July 14, 1989, Robert D. Hershey Jr., noted that OTA even hired "professional editors for its projects," so as to ensure they were readable to members of Congress.
4. U.S. Congress, OTA, *Infertility: Medical and Social Choices*, OTA-BA-358 (Washington, D.C.: U.S. Government Printing Office [GPO], 1988).
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7. House Science Committee Democratic press release, "OTA, Congress's Defense Against the Dumb, Closes Down; Congress Left Defenseless," September 29, 1995.
8. Adam Keiper, "Science and Congress," *New Atlantis*, Fall 2004/Winter 2005.
9. My account of OTA's history relies on Bruce Bimber, *The Politics of Expertise in Congress: The Rise and Fall of the Office of Technology Assessment* (Albany: State University of New York Press, 1996).
10. William Safire, "The Charles River Gang Returns," *New York Times*, May 26, 1977.
11. See R. Jeffrey Smith, "Thermidor at OTA," *Science*, vol. 205, August 10, 1979, and "A Narrower Focus on Technology Assessment," *BusinessWeek*, August 27, 1979.
12. Donald Lambro, *Fat City* (South Bend: Gateway Publishing Company, 1980). OTA is "Program 52" on the chopping block in Lambro's book.
13. Rebuttal on file with author.
14. U.S. Congress, OTA, *Directed Energy Missile Defense in Space: A Background Paper*, OTA-BP-ISC-26 (Washington, D.C.: GPO, 1984). The quotation comes from Section 10, "Principal Judgments and Observations."
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16. U.S. Congress, OTA, *Ballistic Missile Defense Technologies*, OTA-ISC-254 (Washington, D.C.: GPO, 1985), p. 33.

17. U.S. Congress, OTA, SDI: *Technology, Survivability, and Software*, OTA-ISC-353 (Washington, D.C.: GPO, 1988), p. 5.
18. Van Dam and Howard, "How John Gibbons Runs Through Political Minefields: Life at the OTA."
19. Interview with John Gibbons, June 3, 2004.
20. Interview with Rosina Bierbaum, September 25, 2003.
21. Quotation from the foreword to Norman J. Vig and Herbert Paschen, *Parliaments and Technology: The Development of Technology Assessment in Europe* (Albany: State University of New York Press, 2000).
22. Interview with Henry Kelly, September 24, 2003.
23. Interview with Roger Herdman, September 25, 2003.
24. Interview with Rick Tyler, September 29, 2003.
25. Interview with Robert Walker, December 2, 2004.
26. Interview with Cong. Amo Houghton, September 25, 2003.
27. "OTA: Nearing Age 15 and Thriving After Rough Start," *Science and Government Report*, December 1, 1986.
28. Quoted in Jim Dawson, "Legislation to Revive OTA Focuses on Science Advice to Congress," *Physics Today*, October 2001.
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31. M. Granger Morgan and Jon M. Peha, eds., *Science and Technology Advice for Congress* (Washington, D.C.: Resources for the Future, 2003).
32. Christopher T. Hill, "An Expanded Analytical Capability in the Congressional Research Service, the General Accounting Office, or the Congressional Budget Office," in *Science and Technology Advice for Congress*.
33. Interview with Jerry Epstein, June 22, 2005.
34. Interview with David H. Guston, September 16, 2003.
35. Robert M. Margolis and David H. Guston, "The Origins, Accomplishments, and Demise of the Office of Technology Assessment," in *Science and Technology Advice for Congress*.
36. Carter and Berl, "An Interview with John H. Gibbons."
37. John Gibbons, speech at Rice University's Baker Institute for Public Policy, November 2, 2003

(author's notes).

38. Interview with John Gibbons, June 3, 2004.

Chris Mooney is the Washington, D.C., correspondent for Seed magazine. This article is adapted from his first book, The Republican War on Science (waronscience.com), due out this September from Basic Books.

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