AT LAST, CONGRESS AGREES TO BUILD SSC, AFTER TEXAS-TYPE WHEELING AND DEALING

The political barriers that stood in the way of the Superconducting Super Collider were overcome at last on 7 September. That morning a House–Senate conference committee assembled in a small room adorned with bucolic murals on the Senate side of the Capitol and agreed to allocate the down payment for what will certainly be one of the technological wonders of the 21st century—a mammoth accelerator operating underground in a 53-mile racetrack-shaped tunnel, where two countercirculating beams of protons will collide at 40 TeV in the center of mass. Of the $225 million the committee cleared for the SSC in the fiscal year beginning 1 October, $135 million will go for the first year of construction. That is $25 million more than the House voted in June to start building the machine, but $25 million less than the Bush Administration sought.

Congressional support for the SSC was much stronger than any of its scientific proponents dared hope. The House vote on 28 June came after an emotional 1-hour 20-minute debate in which critics argued that it was a "quark-barrel" project that would drain funds away from more important priorities for science and society. But at the end the House paid little heed to such gloomy warnings and voted decisively, 331 to 92, against an amendment to eliminate $110 million in initial construction funds from a $200 million R&D earmark in the 1990 Energy and Water Development Bill. This was the first time the full House had voted on the SSC, and the margin stunned both friends and foes.

The lopsided results suggested that all the right signals had been sent and deals had been made. Tom Bevill, an Alabama Democrat who has served 22 years in the House and is chairman of the appropriations subcommittee that funds the project, had expected that support would collapse once the site was chosen. He and many other members believed that a project so expensive and esoteric would have little appeal on Capitol Hill. Just because he is so influential as a power broker, Bevill was lobbied by President Bush, Southern colleagues, and university presidents and scientists. Roy Schwitters, the Harvard physicist who has been the SSC's director since January, called on Bevill with other prominent physicists to convince him that the project was the right choice for the country at the right time. Even while embattled in an ethics scandal, Jim Wright, then House Speaker, lobbied Bevill and other lawmakers to vote for building the SSC in his home state of Texas.

Within the 'All-American' bill

When Bevill finally agreed to back SSC construction, the action did not go unnoticed. Bevill is the key figure in unlocking pet projects for many members through energy and water appropriations legislation, known on Capitol Hill as the "All-American" bill because it often seems that every district in the country needs a new water project or research grant. This year the bill includes more than $200 million for 40 new water projects that were not requested by the Administration but were proposed by individual members of Congress, usually as "pork-barrel" amendments that had never been discussed or debated in the House. When the amendment to strike construction funds for the SSC came to the floor, recalls Dennis E. Eckart, an Ohio Democrat who was one of its sponsors, "a lot of members with projects in the bill were reluctant to oppose a chairman who goes out of his way to be accommodating."

The amendment had been the idea of Democrat David R. Obey, a savvy Wisconsin populist who has been in the House 20 years and is an influential member of the appropriations committee. His cosponsors were Eckart and another Democrat, Howard Wolpe of Michigan, and Republican Sherwood Boehlert of upstate New York. They attacked the merits of the project, the cost, even the decision to locate it in Texas. Eckart called it "more pork for the plains of Texas." Obey argued: "All we ask is that we stop making spending promises we can't pay for.... It's one of the largest public works projects in the history of this country."

Hyperbole also pervaded the rhetoric of the supercollider's defenders. "If we can be successful with the SSC," said Robert A. Roe, the New Jersey Democrat who heads the House Committee on Science, Space and Technology, "we can revolutionize knowledge in the world." Roe spoke of investing in the technology of the future and protecting the nation's scientific preeminence. Only a week before, at a meeting to devise strategy for the impending floor vote, Roe had threatened to oppose the SSC unless more money was restored for a New Jersey project—magnetic fusion research at the Princeton University Plasma Physics Laboratory. Roe's resistance was averted by some last-minute maneuvering by Jim Chapman, the Texas Democrat who Wright had placed on the appropriations committee to steer the SSC through the budget process. Chapman, who had been conducting strategy sessions since January with Henry Gandy, the state's chief lobbyist in Washington, quickly set out to round up votes for Roe's fusion project.

Another Texas Democrat, Martin Frost, who serves on the House rules committee, which sets the agenda for floor debates, engineered a deal that enabled Roe to offer an 11th-hour amendment on magnetic fusion. Roe's amendment took $25.3 million from other energy and water programs and gave the money to magnet-

ic fusion, which the House had marked up earlier for $280 million—a savage cut from the Bush Administration's request of $349 million. In the amended bill, the Princeton lab, which had suffered a $40 million reduction in the earlier version, would get back half of its loss. (In the Senate bill, which passed in late July, the mark for magnetic fusion was $330.4 million and in the joint House–Senate version the program wound up with somewhat more, $330.8 million—though the exact amount for the Princeton Lab is not yet known).

The "you support mine and I'll support yours" trade-off gained Roe's support for the SSC. According to several lawmakers, Roe was able to swing many undecided members on the science committee and the public works committee, which he once led. What's more, they add, Roe's impassioned speech at the climax of the SSC debate contributed to the large vote for the project. When Massachusetts Republican Mario Conte, his voice rising and his arms flailing, resorted to some vintage Texas-bashing about greedy state legislators demanding money for the SSC and other projects, Roe became indignant. "Do not pit one section of the country against the other," he told his colleagues. "If I could have this [SSC] built in New Jersey . . . I would be fighting as hard as the people in Texas are."

It wasn't only Texas politicians battling for the SSC. The day before the House vote, Obey got a phone call from a physicist at the University of Wisconsin urging him not to submit his amendment to strike construction funds. "The SSC is seen as so much pork that will be divvied up everywhere," said Obey. "So many people think they have a piece of the action."

Spreading the money around

Indeed, about three-fourths of the roughly $205 million appropriated for SSC R&D in the past five years went to three national laboratories—Lawrence Berkeley, Brookhaven and Fermilab. The labs, in turn, have spread the money to university researchers and commercial contractors around the country. DOE, for its part, has awarded direct grants in 18 states.

Some lawmakers thought they would be free of all outside pressures once the site around Waxahachie, Texas, was chosen for the machine. In the past year, for instance, Don Ritter, a Pennsylvania Republican who had been an outspoken opponent of the SSC for years, has lowered his voice. That's not surprising, considering that Westinghouse Electric and Air Products & Chemicals, both headquartered in his state, are competing for contracts to build the $6 billion machine. On the Senate side, J. Bennett Johnston, chairman of the energy and natural resources committee and powerful on budget and appropriations committees, had been cool to building the SSC in an era of large deficits. But he became one of its ardent proponents when General Dynamics let him know it would build a plant in Hammond, Louisiana, if it was selected to manufacture the superconducting magnets that will hold the beams in their oval course. Babcock & Wilcox, another company that wants to build SSC magnets and other components, also is located in Johnston's state. Johnston, in fact, effectively led the Senate campaign for the SSC. He met little resistance because Texas's own Lloyd Bentsen and Phil Gramm had already signed up more than 60 senators.

In conference, Johnston, working with Republican senators Pete Domenici of New Mexico, Mark Hatfield of Oregon and Thad Cochran of Mississippi, got House members to agree to add two key points to the SSC section of the Energy and Water Development Appropriations Act: One calls for $25 million in construction funds "to be available only to initiate the first tunnel sector contract and for no other purpose." The other argues that while foreign participation in the project could significantly reduce its cost to the US, it is likely that such contributions would require sharing in its technological development. Congress wants DOE to report on the advantages and disadvantages of foreign partnerships before any agreement is made. The agreement says, "Using this report, Congress can then make a decision on how much and what type of foreign participation is appropriate."

—Irwin Goodwin

WHITE HOUSE GLOBAL CLIMATE PLAN CALLS FOR RESEARCH BY 7 AGENCIES

With the abundance of scientific reports that humans are altering the basic chemistry of the Earth's atmosphere, leaders of the most industrialized nations are latching on to a hot topic. Britain's Margaret Thatcher and the Soviet Union's Mikhail Gorbachev speak forcefully on environmental issues, though cynics argue that their eloquence is shaped by public opinions and actual events like Chernobyl and summer droughts, not by personal principles. In his campaign for the US presidency last year, George Bush promised to clean up America and become the "environmental President."

In his budget manifesto, "Building a Better America," he declared he is "committed to developing a better understanding of the processes that influence global climate." As he saw it, "present understanding of complex Earth system processes is rudimentary and substantial research will be necessary before we can begin to make reliable predictions of global climate change." Considering the uncertainty, the President is loath to promise to limit or lower the levels of atmospheric gases—notably, CO_2, S_3O, CH_4, N_2O and chlorofluorocarbons such as $CFCl_3$ and CF_2Cl_2—that seem to trap some of the sun's radiation like the glass in a greenhouse.

'White House effect'

"The problem . . . is international in scope," Bush is quoted in "Building a Better America" as saying. "Unilateral action by the US alone will not solve it. In fact, some say the problem is just too big to be solved. . . . I say they are wrong. Those who think we're powerless to do anything about the greenhouse effect are forgetting about the 'White House effect.' As President, I intend to do something about it." In fact, Bush's budget, submitted last February along with "Building a Better America," included $191.5 million for a US Global Change Research Program—a 43% increase over fiscal 1989 research activities, which amounted to $133.9 million spread through seven agencies—among them, the National Science Foundation, Environmental Protection Agency, the Energy and Agriculture departments and NASA.

Little more was heard about Bush's global climate change program until D. Allan Bromley was asked about it in July by Senator Albert Gore Jr, the Tennessee Democrat. At the Senate science subcommittee's hearing on Bromley's confirmation as the new director of the White House Office of Science and Technology Policy, Gore