

if—as widely feared—no deal had been reached and it had remained dependent on continuing resolutions until the end of the fiscal year in September. The additional funds include Clinton's \$40 million add-on for the foundation's research programs, which gives the agency \$2.3 billion for research, just 1% more than 1995, but \$140 million less than the Clinton Administration's request. Though Congress took an \$8 million bite from last year's total, the whole agency wound up with \$3.2 billion. The 1996 budget funds all other NSF programs at the level of the original request, including \$599 million for education programs and \$100 million to refurbish academic research infrastructure.

"I am immensely relieved and pleased that Congress has agreed upon a final budget," said Neal Lane, NSF's director. "We can now put behind us the distractions and confusion of the shutdowns and continuing resolutions," he added, though he went on to warn that the coming year "may prove to be even more difficult."

Winning concessions for NASA

NASA also won concessions from the budget agreement. It received an extra \$83 million for its science, aeronautics and technology accounts. While the space agency's funding for 1996 declined by 3.3% from the previous year, the final amount of \$13.9 billion is almost \$100 million higher than Clinton's request for 1997 and almost \$400 million more than the House Science Committee has proposed in its authorization for next year.

In fact, only a day before the 1996 budget agreement, the House Science Committee, chaired by Robert S. Walker, a Republican of Pennsylvania, had narrowly approved an Omnibus Civilian Science Act for R&D in FY 1997 that would reduce spending on all R&D programs under its jurisdiction (not including military and biomedical research) from \$20.3 billion to \$19.7 billion. By comparison, the Clinton Administration proposed to increase R&D spending to \$20.9 billion in 1997. After a rancorous nine-hour session, the committee's Republican majority produced a bill that would increase basic research allocations by about \$250 million or 5% above current levels, but would make sharp cuts in global climate change studies and industrial partnership programs.

The science committee's bill would fully fund continued construction of NASA's space station and provide \$14.5 million more than this year's allocation for space science and life and microgravity research. The House committee proposed increases for other space

science programs that the agency's administrator, Daniel S. Goldin, has championed. These include the Discovery planetary missions, which would get \$20 million more than the President requested for next year, the New Millennium technology development program (\$18.5 million more), Explorer projects (\$25 million more) and missions to Mars (\$30 million more). But the Republican majority is sour on NASA's Mission to Planet Earth and the program's Earth Observing System of orbiting remote-sensing spacecraft. It would slash about \$374 million from the proposed \$1.4 billion for the Planet Earth project, then make additional cuts in EOS data gathering and analysis. Last October, in the same week that three scientists were awarded a Nobel Prize for their research in global climate change, the House Science committee held hearings on the scientific findings, which one Republican member, Dana Rohrabacher of California, denounced as "liberal claptrap."

For NSF the committee authorized \$3.25 billion next year—\$75 million below the President's request and about \$30 million above the final 1996 budget. The bill would give NSF \$26 million more than its current levels for science and engineering research grants but is still \$32 million short of Clinton's request for fiscal 1997. The authorization measure also directs the agency to eliminate one of NSF's seven directorates, which veteran committee

watchers say is an unambiguous message to drop the directorate for the social, behavioral and economic sciences. In public statements last year, Walker belittled the social sciences as "not real science" and as too "politically correct" for his tastes. Lane and John H. Gibbons, Clinton's science adviser, publicly declared their strong opposition to such a move. Representative George E. Brown Jr of California, the senior Democrat on the committee and a House member for 32 years, has characterized Walker as "the most ideologically driven chairman in the entire House."

In addition, the bill includes an amendment proposed by Representative Joe Barton, a Texas Republican, to change the agency's name to the National Science and Engineering Foundation. The amendment squeaked into the bill by a vote of 23 to 22 in the committee.

Walker has stated that since the committee passed a two-year authorization last year for research programs in the Energy Department, there's no need to vote on the programs for 1997. But it was clear from the squabbling among Republican committee members that they are deeply divided over DOE programs ranging from magnetic fusion to fossil fuel research and energy renewables. The arguments suggest that the compromises reached for the 1996 budget may not be easily repeated in the few months left before fiscal 1997 begins in October.

IRWIN GOODWIN

Nuclear Club Agrees on Test Ban But China Holds to Big Bang Theory

After half a century and more than 2000 mega-blasts in the atmosphere, in the oceans and mostly underground, the five avowed nuclear powers have declared their intention to sign a nuclear test ban treaty. Endorsement of such a treaty, once the dream of the world's ban-the-bomb movements, came once again from leaders of the G-7 richest industrialized nations and Russia, who met in Moscow's Kremlin on 20 April. Among the leaders were President Bill Clinton, who spoke forcefully against the proliferation of nuclear weapons and against further testing, and President Boris Yeltsin, who appealed for Russia's membership in the G-7.

The US, Britain and Russia have not set off nuclear tests for nearly three years. France has insisted that the test series conducted last year at its Pacific atolls, amid a fallout of protests from near and far, is its last. Only China continues to test, though it says

it will stop once a treaty is in force.

Despite its stated position, China is the sole holdout in negotiations for a total ban. Last March, at a meeting of the Conference on Disarmament in Geneva, China's representative called for an exemption from the test ban to allow for low-yield "peaceful" nuclear experiments. "The door to peaceful nuclear explosions should not be closed," he said, but he did not elaborate.

Chinese diplomats in Washington have filled in a few details. It seems that China sees beneficial uses for nuclear explosives in digging deep craters for storing water or oil, in excavating canals or other waterways and even in warding off asteroids, meteorites or comets on a collision course with Earth. Both the US and Russia have detonated nuclear explosions for civilian purposes, such as gouging rocky gorges for gas storage and creating artificial lakes for reservoirs, but stopped such ventures because of public pressure

over the risks to public health and safety and the environment.

China may be less fussy about such concerns. And it makes sense, its diplomats contend, to have a way to deflect or destroy a large asteroid heading for Earth. After all, every 300 000 years or so, give or take a few score millennia, a large asteroid or meteorite slams into the planet. The next time such a threat looms, China wants to be ready.

A half-dozen years ago, Edward Teller proposed such a scheme. It was thought to be dotty at the time. But in 1991 NASA sponsored some workshops on the hazards posed by near-Earth objects and ways to identify and track them. The discussions led to the "Spaceguard Survey" report the following year. David Morrison, an astronomer at NASA's Ames Research Center in California, advocates a comprehensive search for Earth-crossing asteroids and comets, as suggested in the Spaceguard report. At a United Nations conference on the subject, Morrison said that a coordinated international network of telescopes to carry out the survey would be a prudent

investment, considering that a major impact might kill millions of people.

Even so, the idea is highly controversial. Carl Sagan of Cornell University and Steven J. Ostro of Caltech's Jet Propulsion Laboratory have argued that though there are thought to be about 1000 Earth-crossing asteroids, each with a diameter of about 1.5 km, only about 50 have been identified so far. A collision of one of these with Earth is likely to release an energy equivalent to 10^5 megatons of dynamite, disrupting the ecosphere, devastating agriculture and killing or maiming a significant portion of the world's human and animal population. If the Spaceguard system is implemented, they wrote in *Nature*, in 25 years about 95% of the potentially threatening asteroids could be tracked. "We can predict with about 99.9% certainty that no object will be found on a trajectory posing any danger during at least the next century," they stated.

In the improbable case of an asteroid threatening the Earth, the use of nuclear explosions to deflect the trajectory "is a double-edged sword," wrote

Sagan and Ostro. "Given 20th-century history and present global politics, it is hard to imagine guarantees against eventual misuse of an asteroid deflection system commensurate with the dangers such a system poses," they observed. Indeed, "deployment of any asteroid orbit-modification capability, in the real world and in light of well-established human frailty and fallibility, may introduce a new category of danger that dwarfs that posed by the objects themselves."

Nonetheless, China's men in Washington point to the fiery collision of Comet Shoemaker-Levy 9 into Jupiter in 1994. This, they note, accounts for their country's stubborn insistence on peaceful nuclear tests for the sake of national and world security. Among the flaws in such logic, according to State Department arms controllers, is that an end to all tests and close monitoring of all suspicious activities, would go a long way in persuading such nuclear wannabes as Iraq and North Korea to give up their plans.

IRWIN GOODWIN

UNESCO's Mayor, Subject of Criticism by News Media, Finds US Still Reluctant to Rejoin Embattled Agency

When Madeleine K. Albright, US ambassador to the United Nations, met with news reporters at breakfast in Paris on 30 April, she expected to be asked about peacekeeping in Bosnia, the Middle East and other world hot spots. Instead the first question was about prospects of the US rejoining UNESCO. The Reagan Administration walked out of the United Nations Educational, Scientific and Cultural Organization at the end of 1984 to protest the agency's reputation for corruption, cronyism and political chicanery. Britain and Singapore left UNESCO around the same time.

Obviously surprised by the question, Albright responded carefully and with some hesitation. The time for returning to UNESCO was not quite right, she said. "I can't say I'm very sanguine about it," she added. "I have to say that recently we have been concerned about some reports about irregularities in the way that some of UNESCO's business has been carried out." But even setting aside US uneasiness about financial muddles, Albright said, she thought it unlikely that the Clinton Administration could persuade a Congress intent on reducing government spending at home and abroad to allocate \$65 million as the country's annual dues to UNESCO.

The question to Albright may have been prompted by an exposé in *US News and World Report* about the high jinks and low practices of officials at UNESCO's Paris headquarters—particularly the agency's director-general, Federico Mayor. In its 8 April issue, the weekly magazine held Mayor accountable for "numerous instances of mismanagement and unusual expenditures." Mayor, an affable and accomplished biochemist and former science adviser to the Prime Minister of Spain, who was elevated to the top job at UNESCO when the previous director-general, Amadou-Mahtar M'Bow of Senegal, was unseated in 1987, was accused of misusing agency funds to live in grand style and pursue ventures that do little to advance the agency's mission. Mayor, the news magazine charged, insisted on living in an expensive apartment in the pricey 7th *arrondissement* in Paris, hiring friends at exorbitant fees to arrange fund-raising concerts by Stevie Wonder and Grace Bumbry, and creating a special "cultural events" office that arranged exhibits, concerts and cocktail parties with agency funds. Some of these accusations were published months or years earlier in French newspapers, and, say UNESCO watchers in France and the US State Department, don't

even come close to the scandals of the M'Bow era.

Responding to the attack on Mayor in *US News*, the director of UNESCO's Office of Public Information, Hélène Gosselin, attempted to correct some of the magazine's statements. Rather than use the lavish quarters M'Bow had set up for himself on the sixth and seventh floors of the agency's headquarters, UNESCO had rented an apartment for Mayor in 1988 at \$3800 per month in 1988 (rising to \$5000 today) near the headquarters, thereby releasing M'Bow's former space for executive and staff offices and reducing service costs. In Mayor's years, she noted, UNESCO financial accounts are reviewed every six months by the finance and administrative committee of the executive board and examined by Canada's auditor-general. Moreover, the accounts and management records have been "studied in depth" by the US Congress's General Accounting Office, which came up with "very positive results." Gosselin also argued that press accounts of skulduggery and venality by Mayor are just plain wrong.

The GAO, in fact, last reviewed UNESCO in March 1993 and found that under Mayor the agency had either carried out or made good progress toward implementing 8 of the 12 recom-