

EUROPEAN SPACE AGENCY

All Aboard the Space Station

TOULOUSE, FRANCE—Until almost the last minute, Europe's involvement in the international space station had hung in the balance, threatened by conflicting priorities and ailing economies in the member nations of the European Space Agency (ESA) (*Science*, 13 October, p. 224). Last week, however, the suspense finally ended when a 3-day meeting of government ministers in this southern French city managed to cobble together a set of compromises that will allow Europe to hop aboard the space station, joining the United States, Canada, Japan, and Russia.

In a surprising accord, nine of ESA's 14 member countries agreed to contribute a total of \$3.5 billion to the station between now and 2004. Even Italy, whose budget crisis had posed the most recent threat to Europe's space station ambitions, will be aboard, thanks to a series of unorthodox financial measures including a proposed commercial bank loan. The Toulouse meeting also saw a series of compromises on other disputes threatening ESA's unity. But amid the wheeling and dealing, there was one clear loser: ESA's thriving program of scientific space missions.

For most participants, that didn't dampen the exultation. "If we had not succeeded, ESA would have disappeared the following morning," French technology minister François Fillon told a gathering of journalists during the meeting. "I think we all won," agreed Jürgen Rüttgers, Germany's minister for education, science, research, and technology. All but ESA Science Director Roger Bonnet, that is, who is facing the loss of up to 15% of his program's budget over the next 5 years. Reportedly angry at the outcome, Bonnet refused to speak to journalists after the meeting.

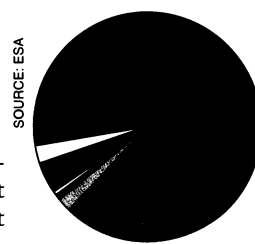
Much of the groundwork for the agreement in Toulouse was laid in a series of meetings between Rüttgers and Fillon over the past few months. France, whose interest in the space station has always fallen far short of Germany's keen enthusiasm, agreed to boost its participation to 27.6%, a major increase over the roughly 10% it had been offering until quite recently. As a quid pro quo, Germany agreed to more than double its subsidy for a separate part of the ESA program, the new Ariane-5 rocket, whose construction is an economic boon to France.

It was not until the Toulouse meeting, however, that ESA ministers came up with a solution to the most immediate threat to their station plans: Italy's insolvency. Italy had thrown a monkey wrench into the works at the end of September when it announced that it lacked more than a third of the \$350

million ESA expected it to contribute to space station development through 2000. In a plan worked out in Toulouse, which must be approved by the Italian government, ESA would cover half of this shortfall by making economies in the space station program, while Italy would take out a bank loan to cover the other half. To sweeten the pot for Italy, France and Germany promised to cede it almost \$80 million in industrial contracts for the station.

In the scramble to gather enough funds for the space station, however, ESA ministers approved a German proposal to cap the science budget at its current level, about \$460 million per year, for the next 5 years—and this sum will only be adjusted for any inflation above 3% a year. As inflation in the ESA countries is currently running at least this high, the science program may well see its purchasing power decline by as much as 15%.

The news could have been worse: The ministers did reject a British demand for a 25% cut in the science budget over the next 5 years. And officials gave contradictory assessments of the likely effects of the budget freeze. ESA's director-general, Jean-Marie Luton, told journalists that a series of econ-



Total = \$3.53 billion
All for one. European contributions to the space station from 1996 to 2004.

- Germany 41.0%
- France 27.6%
- Italy 17.0% + □ 1.9% from ESA economies
- Belgium 3.0%
- Switzerland 2.5%
- Spain 2.0%
- Denmark 1.17%
- Netherlands 0.94%
- Norway 0.46%
- 2.43% to be determined by later negotiations

omy measures—notably a 12% cut in the agency's overall administrative costs over the next 3 years—means that "if all goes well there will be no delays in scientific missions." Yet Ian Corbett, science director of the U.K. Particle Physics and Astronomy Research Council, told *Science* it would be "accurate" to regard the ministerial decision on the science budget as an actual cut in funds, which could put a squeeze on planned missions. On the other hand, said Corbett, "we believe that Mr. Bonnet will be able to deliver the program he's promised."

The ministers did agree to review the consequences of the science freeze at their next meeting in Brussels, scheduled for late 1997 or early 1998. But any modification would have to be approved by all 14 member countries. In the meantime, Bonnet's silence about the fate of his program may be speaking louder than words.

—Michael Balter

POLITICS

Clinton Defends R&D in Partisan Speech

Support for science used to be something that both Democrats and Republicans could agree on. Not anymore. Since last fall's congressional election, science has become a bitterly partisan issue, with each party accusing the other of backing the wrong sorts of programs in a search for sustained economic prosperity.

The latest evidence of that animosity was a speech last week by President Bill Clinton, on the occasion of the awarding of the National Medals of Science and Technology (*Science*, 6 October, p. 35). The president denounced

what he labeled "drastic cuts" by Republicans in the \$72 billion federal R&D budget, which is divided among several 1996 appropriations bills now languishing in Congress.

"The plan now being considered by the Congress will cut vital research and development by a third," said Clinton in his first speech as president devoted entirely to science. "We could have a balanced budget to show for it tomorrow, but a decade or a generation from now our nation will be much the poorer for doing that." Vice President Al Gore, who introduced the president, took a sharper tone, calling Republican cuts to science and technology "unwarranted, unwise, and unnecessary" and warning that the entire U.S. R&D enterprise is under attack.

That analysis did not sit well with Republican leaders, who did not attend the White House event. "The president is defending the way things have always been, and he has no designs to accommodate science programs to the changing world," said Representative Robert Walker (R-PA), chair of the House Science Committee. "We're looking 20 to 25 years in the future," Walker told



Tough talk. Clinton greets Ohio senators Mike DeWine and John Glenn after awarding medals.

Science. "He's looking backward."

Democrats in the House and Senate welcomed the speech, but some want Clinton to take an even stronger stand by saying that R&D is a high priority in deciding whether to veto a specific bill. Representative George Brown (D-CA), the ranking minority member of the House Science Committee, said that he and other minority lawmakers planned to meet this week with Clinton Chief of Staff Leon Panetta to make their case. But Brown was annoyed with the fact that they must first have an audience with Panetta before meeting with the president. "That in itself shows we don't have a hell of a high priority," Brown says.

The mere prospect of a presidential speech on science and technology set off a scramble among agencies and White House officials. Commerce Department officials, for example, sent their own version of the

talk to Clinton's speechwriters; they wanted the president to be more critical of cuts in specific programs, according to Administration sources. Meanwhile, staffers at the Office of Science and Technology Policy—who wrote the first draft of Clinton's message—favored a speech that emphasized broad themes without getting into nitty-gritty budget details. The result appeared to be a compromise between the two approaches, with Clinton mentioning Commerce's \$430 million Advanced Technology Program that is threatened by Republicans, while also speaking generally about the importance of science and technology.

At the same time, White House officials defended their boss against criticism that R&D programs are not important in making veto decisions. "Our commitment on this issue has been clear from day one: We are philosophically opposed to people cutting out

whole areas of research," says Greg Simon, Gore's domestic-policy adviser. He said that science and technology issues are discussed daily in meetings with senior White House officials and that the Administration has made a major effort to preserve the Commerce Department (*Science*, 22 September, p. 1664). "I don't know what else to do," he quipped, "[except] have a march on Washington." Senator John Glenn (D-OH) also defended the president, saying that he's convinced the White House will fight for R&D programs at the bargaining table.

With congressional supporters of R&D clamoring for attention, the president's aides emphasized that the fate of research programs is only part of a broader battle between the White House and Republicans. "The whole house is on fire," says Simon, "and [science and technology] is just one room."

—Andrew Lawler

NEUROSCIENCE

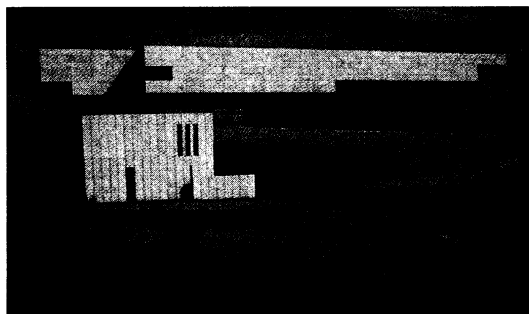
Center for the Mind Pleases the Senses

LA JOLLA, CALIFORNIA—Picture this: a scientific institute with 32 relatively young fellows, all of whom receive ample funds and have no need to apply for grants. No one has any teaching responsibilities. Theoreticians and experimentalists alike are welcome and nurtured. Lunch is served each day in a communal dining room, where the fellows can mix with an endless stream of distinguished visiting researchers. Now set all of this in a \$16 million architectural wonder discreetly built into a hillside on the Torrey Pines Mesa that is already home to the Scripps Research Institute, the University of California, San Diego, and the Salk Institute for Biological Studies. Sounds like a dream? Well, it was until 15 October, when the Neurosciences Institute (NSI) cut the ribbon on what it bills as its new "monastery for science."

The abbot is Gerald Edelman, who shifted into neuroscience after winning a Nobel Prize in 1972 for his work in immunology. Edelman's monastery has been a long time evolving. It began in 1981 as an offshoot of the Neurosciences Research Program at the Massachusetts Institute of Technology. Edelman, then at Rockefeller University in New York, was appointed head of the nascent NSI, a retreat where scientists could discuss a specific idea with a few colleagues for a few days. "It's been a way to get away from quotidian projects, like answering the phone," says biochemist W. Einar Gall, research director of NSI since it started. "It's a very nice opportunity to get together in a workshop setting," says Carla Shatz, a Howard Hughes Medical Institute investigator at the University of California, Berkeley.

"They provide a unique service."

To date, more than 900 scientists from 24 countries have passed through NSI, but the institute is now more than just a retreat for visiting scientists. Beginning in 1988, it began to hire a handful of full-time fellows. Four years later, with Rockefeller in some turmoil as then-President David Baltimore tried to overhaul its structure, Edelman left and took a job as chair of the department of neurobiology at the Scripps Research Institute, which became temporary home while NSI laid plans for a more grandiose center



Brainy design. NSI's eye-catching new buildings opened last week on a mesa outside La Jolla.

across the street. Since then, it has grown to 32 full-time researchers who are fully funded by the institute to pursue their individual projects for up to 4 years. Chosen for their scholarship, creativity, and problem-solving skills, the fellows have a range of interests that, NSI boasts, "represent practically every field of modern neuroscience."

NSI is largely funded by the Neurosciences Research Foundation, a nonprofit established in 1962 that is supported by corporations, other foundations, and private

donations. Although NSI is an independent institute, Scripps owns its facilities (NSI has a 35-year lease) and footed most of the construction bill. Sandoz Pharmaceuticals also chipped in \$5 million for construction costs and promised another \$5 million a year for operating expenses, in return for the rights to develop products stemming from NSI research.

Edelman's own work focuses on what he calls "neural Darwinism," the theory that populations of neurons develop individual networks through a Darwinian selection process. But Edelman—who emphasizes that his work is supported by the National Institutes of Health, not NSI—is quick to say that the institute doesn't exist to further his own scientific ideas. "There are guys here who actually believe in neural coding," Edelman says, referring to the theory that neurons are genetically coded to make specific connections, just as transistors are wired in a preset pattern. "I think that's insane. But they're good guys."

The model for the current incarnation of NSI is the Rockefeller Institute—before it became Rockefeller University and lost a culture that makes Edelman wax romantic: "There was a sense that you had a lot of time. The whole style was terribly impressive to me." The Rockefeller of yesteryear, he says, also mixed the old and young. "You could sit next to René Dubos or [Oswald] Avery at lunch. ... That exposure was tremendously influential." On top of these luxuries, Edelman says people weren't pigeonholed. "You were not characterized as a specialist," he says.

Whether the new NSI can create the type of environment Edelman remembers—and whether it can survive without federal funding—is anyone's guess. But at least this dream is going to get a reality test.

—Jon Cohen