coalition of Social Democrats and Greens, won a majority in the 669-member Bundestag. But it failed by 54 votes to garner the two-thirds margin necessary to alter the constitution, thanks to opposition from the center-right Christian Democrats. "It is frightening that what could have been a major disaster to science and research … was only prevented by a single party," says Andreas Kreiter, a Bremen University neuroscientist whose brain research using macaques has been a high-profile target of animal rights activists.

Germany already has one of Europe's toughest laws requiring researchers to treat animals humanely by providing adequate caging and food while minimizing suffering. The amendment would have tacked onto the constitution a one-sentence guarantee of animal rights with no allowances for lab animals. If the amendment had been adopted, Kreiter asserts, activists would have brought "a huge number of court trials" to halt experiments involving animals. This, he says, "would have, in effect, stopped biomedical research in Germany."

The close vote energized animal rights leaders, who have vowed to make the Christian Democrats pay, politically, for their stance. Eisenhart von Loeper, who heads the animal rights group Bundesverband der Tierversuchsgegner, says the battle is heating up in Germany's 16 states, half of which already have added animal rights provisions to their own constitutions. (These have far less impact than would a national amendment.) Adds Wolfgang Apel, president of the Deutscher Tierschutzbund: "We are not giving up."

–ROBERT KOENIG

GERMANY

Panel Urges New Slots For Young Researchers

Four years after getting his Ph.D. from Cologne University, physicist Norbert Pietralla is on a fast track. In the rigid, tradition-bound German academic system, that also makes him a pioneer. Pietralla, a postdoc at Yale University's Wright Nuclear Structure Laboratory, is one of 100 young scientists chosen last year for a new fellowship program named after noted German mathematician Emmy Noether. When he returns to Germany after 2 years abroad, Pietralla will receive 3 years' funding for an independent research position—a step ahead of his contemporaries.

The Noether program is the most visible effort so far to loosen up the country's hidebound university research structure and speed young scientists' passage into independent academic research. But more sweeping changes may be on the way: Last week, a panel of German scientists and public officials recommended phasing out the notorious post-Ph.D. Habilitation requirement—a kind of extended postdoc that puts young researchers under the thumb of senior professors for 10 years or more—and replacing it with "junior professor" slots similar to assistant or associate professors at U.S. universities. And last month, the DFG, Germany's major granting body, added peer reviewers in part to speed up its review procedures.

German Research Minister Edelgard Bulmahn supports the "junior professor" concept as a way to "give more independence to bright young researchers." So do Pietralla and other Noether grantees. "The Habilitation slows everything down and immobilizes you," says Noether fellow Christine Thomas, an earth sciences postdoc at the U.K.'s Leeds University. But the proposals, which the German parliament may debate later this year, face some tough opposition. An influential organization of university professors objects to the idea, warning that such new posts would simply lead to a second tier of "cheap professors" who lack the rigorous training of the Habilitation degree.

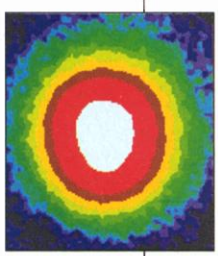
Young and restless. DFG's Winnacker says "we're moving as quickly as we can" on reforms.

Another weak link in the scientific chain, say critics, is the DFG's peer-review system, which sometimes stumbles over interdisciplinary projects and includes too few women and young scientists. Objections to the system came to a head last month when Mark Benecke, a 29-year-old forensic entomologist whose application for a Noether grant was rejected, wrote a scathing op-ed in Munich's main newspaper. His commentary led to a flood of comments on the newspaper's Web site, prompting a letter defending the DFG that has been signed by several hundred German scientists.

"We are moving as quickly as we can … to promote independent research by talented young scientists," says DFG president Ernst-Ludwig Winnacker, who was a member of the Research Ministry panel that reported last week. Noting that Benecke's application had been voted down by four reviewers, Winnacker says "there are always unhappy researchers who think their grant applications should have been approved." But he concedes that interdisciplinary research pro-

ScienceScope

BeppoSAX Slimmed Gamma ray scientists are losing more observing time. Last month, NASA said it would destroy the 10-year-old Compton Gamma Ray Observatory (*Science*, 31 March, p. 2393). Now, the 4-year-old Italian-Dutch BeppoSAX satellite is trimming operations due to budget cuts.



The Italian Space Agency on 15 April began shutting down BeppoSAX's instruments on Saturday and Sunday nights, and staff will no longer work around the clock. As a result, astronomers won't be able to react quickly to some gamma ray bursts, the high-energy explosions that occur about once a day in the far reaches of the universe (above). On 16 April, for instance, BeppoSAX missed a chance to study the afterglow of one unusual burst, notes Luigi Piro of the Institute for Space Astrophysics in Rome. "It's a pity," adds John Heise of the Space Research Organization Netherlands in Utrecht.

Heise expects BeppoSAX to be shut down permanently in April 2001. But gamma ray bursts will still be monitored by a network of interplanetary satellites, and a new gamma ray observatory—NASA's High Energy Transient Explorer—is slated for launch within a few months.

Lame Duck Soars Neal Lane has avoided the political limelight during his 7 years as a senior science official in the Clinton Administration by hewing to the party line and speaking in generalities. But last week, at the annual R&D colloquium sponsored by the American Association for the Advancement of Science (which publishes *Science*), Lane threw out some uncharacteristically specific science policy goals. "In 10 years, the federal government should double [spending on civilian research] to 1% of GDP," he declared. Corporate America, he added, should double its investment in university-based research. And universities should promise to increase the number of minorities and women awarded science-related degrees by 10% a year.

What's behind the sudden spurt of specificity in the waning months of the Administration? Lane wanted to "sharpen the debate," says a White House source, especially with regard to minorities, where "collectively we've been sitting on our hands." Others discern an agenda outline for presidential contender Al Gore. All agree that it's a striking departure for the mild-mannered Lane. Says one Washington insider: "It's like he felt suddenly unchained and free to speak his mind."

CREDITS: (LEFT TO RIGHT) H. GALVSCHKA/KOLN; BEPPOSAX

fy faster. The cyclostomes can't rebound under the weight of their more diverse competitor, but neither do they collapse, thanks to their lower rate of extinction, a handy attribute of uncertain origin. This match between model and fossil record, plus the obvious competition recorded in bryozoan overgrowths, is consistent with "competition as a significant influence on diversity histories" of bryozoans, the group concludes.

The study represents "the most persuasive analysis yet of an apparent competitive displacement" of one clade by another, says paleontologist Alan Cheetham of the Smithsonian Institution's National Museum of Natural History in Washington, D.C. However, "they don't claim they've proven what happened." Indeed, "the model is a description rather than an explanation," notes Bambach. Although competition looks like a promising explanation, he says, others are possible. Taylor agrees, offering the possibility that a new type of cheilostome larval stage, rather than overgrowth of the competition, may have given cheilostomes an edge.

To strengthen the case for competition in evolution, paleontologists agree, researchers must learn more about all the ways bryozoa compete today. In the meantime, although Sepkoski's "death was hard for a lot of us," says paleontologist Arnold Miller of the University of Cincinnati, "he left us some things to think about."

–RICHARD A. KERR

COLLABORATIVE RESEARCH

Plans for Mars Unite Cancer, Space Agencies

Cancer research and sending humans to Mars may seem light-years apart, but technological advances have put them on the same flight path. Last week NASA and the National Cancer Institute (NCI) announced that each intends to spend $10 million a year for the next 5 years in a coordinated effort to develop devices that could both speed detection of cancer on Earth and keep astronauts healthy during long sojourns from home.

To drum up enthusiasm for the idea, NASA Administrator Dan Goldin and NCI director Richard Klausner brought together two dozen molecular biologists, geneticists, pharmacologists, and chemists to discuss how nanotechnology and bioengineering can revolutionize health care on Earth and in space. "We're bringing medicine out of the hospital," says David Baltimore, president of the California Institute of Technology in Pasadena and chair of the NASA-NCI working group on biomolecular systems and technology. "It's a terrific opportunity." However, he warned that interagency efforts are "the most cumbersome activity on Earth."

Goldin and Klausner hatched the idea for a collaboration 3 years ago at a dinner party hosted by Bruce Alberts, president of the National Academy of Sciences, and shepherded it through their agencies. Last year, as part of a pilot program in unconventional innovations, NCI awarded five grants, worth $11 million, for technologies to detect and diagnose cancer that involved nanoscience, near-infrared optical techniques, and new polymers. One went to a scientist at NASA's Ames Research Center in Mountain View, California. Last June, a joint NASA-NCI meeting at Ames drew 150 investigators to examine advances in sensors to detect the signature of specific biomolecules.

Under the new agreement, the agencies will disburse grants separately but be free to supplement one another's projects. Klausner gains access to the space agency's expertise in building small and lightweight hardware, while Goldin bolsters the scientific credibility of NASA's human space flight program and strengthens ties to the burgeoning biological community. Astronauts bound for Mars may be in space for more than 4 years, bombarded by dangerous radiation and facing situations where even minor accidents—such as a rip in a space suit—could prove disastrous. Combating such threats may call for machines that can screen for genetic damage at a very early stage, robotic sensors injected into astronauts that continuously monitor their health, and a self-repairing space suit. Such innovations have revolutionary implications for improving health care on Earth, adds Klausner.

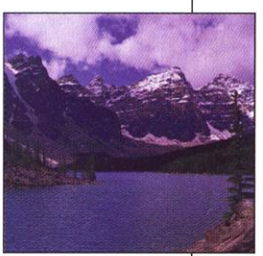
Of course, the health issue could be moot if humans don't take any long trips in space. "Why not learn to build robots to do business on Mars?" asked Stanford geneticist David Botstein at a 13 April public panel discussing the new collaboration. Even Baltimore noted

Tiny helpers. Nanoscale sensors would collect health data during long trips in space.

CREDITS: (TOP TO BOTTOM) R. ERGENBRIGHT/CORBIS; CISM

ScienceScope

Science in the Parks Canadian biologists are welcoming a new plan for making ecological science the foundation for managing the country's 39 national parks. But they have mixed feelings about another proposal to protect endangered species.



Two years ago, in the wake of public debate over proposed development in the parks, the Minister of Canadian Heritage appointed a scientific committee to examine park management. Last month, the panel recommended making "ecological integrity"—preserving intact assemblages of native organisms—managers' "first priority." The panel's report also calls for adding C$328 million to the Parks Canada budget over 5 years and hiring more staff to supplement the present team of 51 scientists. The ambitious proposal parallels a similar effort in U.S. national parks (*Science*, 7 April, p. 34) and has won support from politicians. "I think the political mood is there [to implement the plan]," says panel member Tom Nudds, an ecologist at the University of Guelph, Ontario.

But many biologists are less enthusiastic about a plan to protect threatened species. Introduced by the government last week, the Species at Risk Act would impose stiff penalties for killing protected plants and animals. Critics are unhappy that the bill leaves final listing decisions to the Cabinet rather than scientists and doesn't make protecting habitat mandatory. But after 7 years of debate, even some skeptics are hoping the bill will pass this year, warts and all, so Canada will finally have an endangered species law.

Metric Mandate Complaining that NASA's approach to projects is "faster, cheaper, worse," Representative Vern Ehlers (R–MI) says he is drafting legislation requiring government contractors, scientists, and engineers to use exclusively metric measures. That's in response to the 1999 failure of the Mars Climate Orbiter due to a mix-up between English and metric units (*Science*, 7 April, p. 32). "He wants to send a clear message ... that we won't tolerate mistakes like this again," says an aide.

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