that the policy sparks unwarranted fear of bats. The "infinitesimally small risk" of rabies from bats, says bat researcher Thomas Kunz of Boston University, has been blown "out of proportion."

After years of grumbling about the effects of CDC's stance, participants in the annual North American Symposium on Bat Research—which after 30 years of meetings has recently been organized into an official scientific society—are releasing a statement next week to address what they see as bad science and bad press on the issue. The researchers "find no credible support" for what they call "the undetected bite hypothesis" and argue that "it should not drive public policy."

Baffling bats. A rabies viral strain linked to eastern pipistrelle bats has killed humans, but these bats are rarely seen near people.

Federal health officials, however, are unapologetic for what they see as a cautious stance concerning a frightening if rare disease. Of the 27 rabies deaths in the United States in the 1990s, 20 were traced to viral strains associated with bats, the rest to canine strains. Current federal immunization guidelines, established by an advisory committee to CDC, say that rabies vaccination "is appropriate even in the absence of a demonstrable bite, scratch, or mucous membrane exposure in situations in which there is reasonable probability that such contact occurred (e.g., a sleeping person awakens to find a bat in the room ...)." "I think our message is pretty reasonable," says Charles Rupprecht, chief of the CDC's rabies section.

Bat researchers say that this advice is based on a faulty premise. CDC maintains that only one of the recent deaths "had a definite history of a bat bite," implying that the others may have been the result of undetected or unreported bites. But bat researchers insist that a nip from a bat wouldn't go unnoticed. It's "not a bad bite, but it gets your attention," says biologist Thomas A. Griffiths of Illinois Wesleyan University in Bloomington.

Bat researchers agree that there's good evidence of a bat on the scene in all but a few of the cases of bat-associated rabies. They argue, however, that some victims may have been bitten but died before reporting a bite, or were bitten long ago and forgot the encounter, as apparently happened in some canine rabies deaths. In the few cases with no evidence of bats at all, a cat might have killed a rabid bat, then transmitted the virus to a person, says Denny Constantine, a retired rabies researcher with the state of California and CDC. Supporting that idea is the fact that these deaths were caused by a virus linked to two species rarely seen around people.

The federal guidelines have sparked overreaction, observers say, such that many people get rabies shots—costing an average of $2000 a series—after simply being in the same room with a loose bat. "What has happened in many places is people have gone beyond [the CDC guidelines]," says Stephen Frantz, a disease-vector specialist with the New York State Department of Health. In 1998, for example, to comply with state and federal guidelines, 52 boys at a summer camp in New York were vaccinated against rabies after a bat flew through their cabins.

The bat researchers' statement warns that such overreaction can have "negative consequences for bats," many of which are endangered or in rapid decline, notes Merlin D. Tuttle of Bat Conservation International in Austin, Texas. Whenever a species is made out to be a public health threat, says Kunz, it counters conservation efforts. Declared Tuttle at a bat research symposium last October in Madison, Wisconsin: "This has set back conservation efforts by about 2 decades."

—CHRISTINE MLOT

Christine Mlot is a science writer in Madison, Wisconsin.

2001 BUDGET

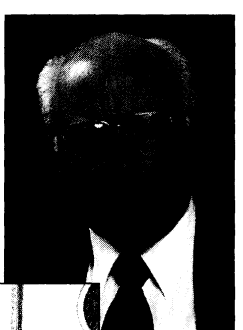
Austerity Push Begins A Bumpy Ride for R&D

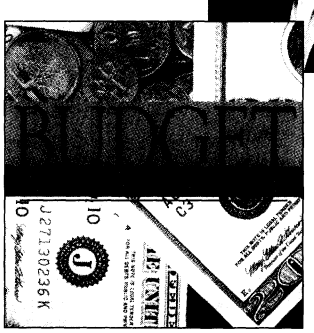
A booming economy, an enthusiastic president, and a supportive Congress should provide science and technology with safe passage through the turbulent annual budget cycle. That's the conventional wisdom. And while many budget watchers predict that science will eventually prevail, a bitter partisan battle now under way over government restraint in an era of surpluses is giving R&D advocates a collective case of the jitters. "It's going to be ugly," bemoans one congressional aide.

The weapon of choice among conservative Republicans in their battle against increased government spending is the budget resolution, a measure that sets overall funding limits within the one-third of the $1.8 trillion budget funded at Congress's discretion. Conservatives such as Senator Phil Gramm (R–TX) want to adhere as closely as possible to spending caps imposed when the government ran an operating deficit, while Democrats and the Administration argue for the need to increase spending on education and other domestic programs (*Science*, 11 February, p. 952).

The House took the first step down the 2001 budget road last week, narrowly passing a plan that would set discretionary spending well below the president's request. The Senate is still struggling with its version, which must be reconciled with the House in a process that Republican leaders have vowed to complete next month.

The House figure of $596 billion for discretionary spending exceeds Gramm's demand for a freeze at this year's level of $586 billion, and it is $45 billion over the scheduled cap. But Clinton requested $625 billion. And not only did the House cut the total, it also wants to boost the defense budget—which takes up slightly more than half of all discretionary spending. That will make it even tougher to fund the vaunted 17% increase for the National Science Foundation (NSF) and boosts for other civilian R&D agencies. "I think everyone should prepare for a bumpy ride again," warns Representative Jim Walsh (R–NY), who chairs the panel that funds NSF, NASA, and the Environmental Protection Agency.





Priority. Rep. Ehlers pleads for boost in research spending.

Even NASA's modest 3% requested boost could be in trouble. Representative Alan Mollohan (D–WV), ranking minority member on the panel, says his subcommittee "will have a hard time preventing another round of cuts in NASA's budget" despite strong support for its mission. The panel's priorities will be to fund hefty increases in housing and veterans' medical care, says aide Frank Cushing, who adds, "we need [more] dollars." The combination of increased defense spending and the push for more education funding will make it doubly difficult to repeat the 15% boosts of the past 2 years for the politically popular National Institutes of Health (NIH). And election-year politics may result in another year of legislative gridlock for the NIH appropriations bill. "We're paralyzed," complains one aide.

CREDITS (TOP TO BOTTOM): MERLIN D. TUTTLE/BAT CONSERVATION INTERNATIONAL; SAM KITTNER

Alarmed at such talk, Representative Vern Ehlers (R–MI) last week began rallying support behind civilian science. "We are concerned that funding for science may take a back seat" to housing, veterans' health care, and education programs, he wrote in a 20 March draft of a letter to colleagues that is aimed at the House leadership. "We ask you, in the strongest words possible, to assign a high priority to basic scientific research." There is evidence that the leadership is listening. Ehlers and Representative Rush Holt (D–NJ), both physicists, successfully lobbied last week for civilian R&D spending to get a tiny sliver more—some $100 million—of the discretionary budget pie. Although appropriators are not bound by those numbers, "it shows there is political interest" in funding science, one House staffer says.

So despite the inevitable posturing and election-year rhetoric, many observers insist that R&D will ultimately prevail. Last year, for example, NASA's spending panel, after strong pressure from the White House, found a way to restore steep cuts in space science. "The outlook for federal R&D in 2001 is highly favorable," states a preview of the annual budget report published by the American Association for the Advancement of Science (which publishes *Science*). "It seems almost certain," the report predicts, that science and technology will achieve funding levels equal to or even surpassing those requested by Clinton. Even more certain, however, is that it will take a lot of political horse trading for that conventional wisdom to prevail. **–ANDREW LAWLER**

GAMMA RAY ASTRONOMY

Aging NASA Satellite Headed for Fiery End

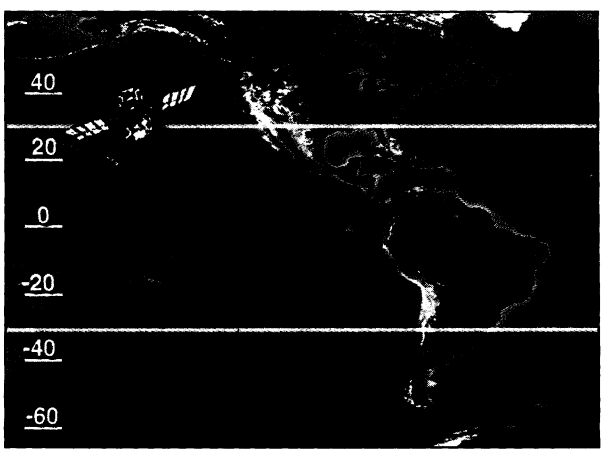
NASA has decided to euthanize an ailing but still functioning satellite rather than risk a slim chance that it could spin out of control and crash in a populated area. Last week NASA described plans for a late-spring maneuver that will cause the Compton Gamma Ray Observatory (CGRO) to enter the atmosphere and break apart across a swath of the Pacific Ocean.

The satellite is equipped with three gyroscopes, one of which failed late last year (*Science*, 21 January, p. 403). Although it needs only two to perform its scientific duties, a second failure—a possibility the Goddard Space Flight Center in Greenbelt, Maryland, puts at 10% in the next 3 years—would make the craft more difficult to control. "It was my decision [to put the craft down]," says Edward Weiler, NASA's associate administrator for space science, noting that his decision follows the original contingency plan. Although the craft is still productive, he says, NASA was faced with trying to calculate "how many papers are worth an increased risk to human life?"

Launched in 1991, the CGRO has already lasted almost twice its intended 5-year life-span. It mapped the sky's gamma rays, found the first gamma ray pulsars, and determined that gamma ray bursts originate beyond the Milky Way and are likely signs of the largest explosions since the big bang. Researchers have published more than 1000 papers based on CGRO data, including a paper last week linking some gamma ray sources to a new class of mysterious objects (see next story).

CGRO's scientific instruments will be turned off on 26 May. Five days later, a Goddard team will execute the first of four burns designed to shove the craft out of its orbit. The final two burns are planned for 3 June. Most of the 15,000-kilogram spacecraft will disintegrate and burn up when it hits the atmosphere, but 30 to 40 pieces will survive, ranging from bolt-sized to some possibly as heavy as 1000 kilograms. The detritus is expected to scatter in an area 25 kilometers wide and 1550 km long in the Pacific Ocean, about 4000 km southeast of Hawaii.

CGRO's demise will temporarily close a window onto gamma rays, which are blocked by the atmosphere. "Astronomers around the world will be quite disappointed," says CGRO project scientist Neil Gehrels. In 2003 NASA plans to launch a satellite, Swift, that will monitor gamma ray bursts, and in 2005 GLAST will focus on high-energy gamma ray phenomena. In the meantime, says Gehrels, "we have 62 days, 19 hours, and 42 minutes left" before the receivers are shut down. "We're going to make the best use of every one of those minutes." **–LAURA HELMUTH**



CREDIT: GSFC/NASA

Ker-plunk. Satellite debris should splash down on 3 June somewhere within a 1550-kilometer swath of the eastern Pacific Ocean.

GAMMA RAY ASTRONOMY

Sky Survey Finds Mysterious Strangers

Amid the diffuse bath of gamma rays coming from the galaxy, about 200 point sources—tiny gamma ray beacons—twinkle within the haze. For 2 decades, astronomers have been puzzling over what they are. Now astronomers at NASA's Goddard Space Flight Center in Greenbelt, Maryland, have doubled the mystery: They have discovered that these point sources come in two different varieties.

Neil Gehrels and his colleagues at Goddard analyzed the data from more than 4 years of observations with the EGRET telescope aboard the Compton Gamma Ray Observatory. Most of the sources lie along the galactic plane, but a few dozen lie in the middle latitudes, as much as 40 degrees above and below the galaxy's equator. In last week's issue of *Nature*, the team reported that the sources away from the galactic plane turned out to be surprisingly dim. "We didn't know what to make of the middle-latitude sources," says Gehrels. "The new population is much weaker than ones along the plane."

The mid-latitude sources appear to lie in the so-called Gould belt, a broad, expanding ring of stars, gas, and dust about 3000 light-years across. If so, they are our galactic neighbors. The Gould belt formed 30 million or 40 million years ago, probably when a series of stars exploded or some other powerful event disrupted the matter in our region of the galaxy. Clouds of gas, shocked outward, created a burst of new, massive stars. The bright sources in the galactic plane, in contrast, are likely to be tens of times farther away and thus, in absolute terms, vastly more powerful.

Isabelle Grenier, an astronomer at the University of Paris VII, finds the argument compelling. "What [Gehrels] has shown is that there is a clear difference between those out of the plane and those along the Milky Way," she says. "Now we're all convinced that there are two populations." Grenier also agrees that the weak sources are located in the Gould belt. "If you look at the distribution, you can really find that it follows the Gould belt," she says.

If Gehrels's team is correct, then the weak mid-latitude gamma ray sources and the intense equatorial sources may be entirely different types of objects. "The luminosity is so different between the two populations, there must be very different physical mechanisms," says Gehrels. Perhaps the mid-latitude sources are gamma ray pulsars, rapidly spinning geriatric stars that for some reason bathe us in gamma rays rather than the usual lower frequency radio waves. (If