to trace the precise origins of the cells, some of which may have been derived from embryos that were not frozen. If his current cell lines are not approved, he says, he will derive new ones, a process that could take months. John Gearhart of the Johns Hopkins University in Baltimore, who derived pluripotent stem cells from fetal tissue concurrently with Thomson, says he also will ask NIH to approve his cell lines. He says he received more than 150 requests for collaboration on the day the guidelines were released. Both researchers derived their cells with funding from Geron Corp., a biotech company in Menlo Park, California.

The University of Wisconsin has set up a nonprofit institute called WiCell to distribute Thomson's cell lines (*Science*, 11 February, p. 948). However, in its first 10 months of existence, the institute has made only a "half-dozen" agreements with researchers, according to Carl Gulbrandsen, president of WiCell. He says the institute has about 60 agreements pending, which can take months to navigate through the recipient researcher's institution. Although contamination problems also slowed the process down at the beginning, Gulbrandsen says WiCell has sufficient stock on hand to meet the anticipated demand over the next few months.

WiCell may soon have company. In July, the Juvenile Diabetes Foundation (JDF) announced a request for applications for stem cell research, specifically including derivations of human stem cell lines from embryos. JDF's chief scientific officer, Robert Goldstein, says the foundation will also fund researchers who want to use cells from WiCell or Gearhart, but there is a chance that one cell line will work better for certain experiments than others.

Roger Pedersen of the University of California, San Francisco, who has been working on human embryonic stem cells with funding from Geron, calls NIH "courageous" for opening the door to further research. He notes that human cells are quite different from the mouse cells that have shown tantalizing promise—becoming pancreaslike cells and even dopamine-producing brain cells. No one has reported keeping the cells alive without a "feeder" layer of supporting cells, he notes, nor can anyone grow a cell line from a single pluripotent stem cell. "There's a lot of work to be done," he says—and apparently plenty of people eager to get started.

–GRETCHEN VOGEL

CREDIT: L. BLIZARD

NATIONAL ACADEMY

New Report Triggers Changes in the NRC

Shape up or risk losing customers. A panel of eminent science and engineering administrators has delivered that stern advice to the National Research Council (NRC), the operating arm of the National Academy of Sciences (NAS), in a report on how the council does its business.

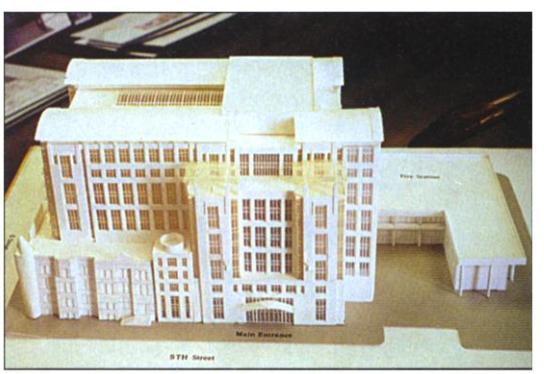
The review, led by Purnell Choppin, president emeritus of the Howard Hughes Medical Institute in Chevy Chase, Maryland, and Gerald Dinneen, a retired Honeywell manager, is the first hard look at the structure of the NRC in 2 decades (*Science*, 28 April, p. 587). It concludes that the council takes too long to produce many of its reports, is not responsive enough to its sponsors, lacks clear lines of authority, and its staff is too often frustrated and stressed. To fix these problems, the 15-member panel urges the academy "to reduce unnecessary layers of approval," delegate more authority, appoint a chief management officer, and create "a service-oriented culture." If NRC leaders don't act, the panel warns, "sponsors may look elsewhere for advice."

The academy's senior leaders don't quibble with the recommendations, which were blessed by the NRC's governing board at a meeting earlier this month in Woods Hole, Massachusetts. Indeed, "many of the recommendations are being followed through already," notes Mary Jane Osborn, a member of the panel and a biologist at the University of Connecticut Health Center in Farmington. "We want all of our reports to be done well, on time, and on budget," says NAS President Bruce Alberts.

The proposals would affect not only the 1000 NRC staffers but also the nearly 6000 outside scientists and engineers who serve each year as volunteers on the council's committees, boards, and commissions. The most radical idea would revamp the council's internal structure by merging the 11 commissions that oversee the boards, which in turn oversee the production of reports, into six new divisions. The commissions, arranged largely by clusters of discipline, have been criticized as a bottleneck in the arduous and complex process of approving NRC studies.

The new divisions would have more authority and responsibility and share one administrative system. They would be organized around broad themes: education and social matters; physics, astronomy, engineering, and energy; food and health; biology, earth sciences, and environment; policy; and transportation. That grouping, panel members say, will allow greater synergy among disciplines. The scores of boards and committees would remain the backbone of the organization, with NRC managers striving over time to reduce their overall number.

The task force is blunt in its assessment of the council's effectiveness at satisfying its customers—typically federal agencies. "Poor project management and delays in the review process," it notes, too often result in late delivery of the reports, which are the NRC's bread and butter. The solution, says the panel, is "a more service-oriented approach" reinforced by incentives to meet budget and time goals. One option is more fast-track studies, although Alberts says that reports done in 6 to 8 months "are unlikely to become routine." The panel also suggests that the council consider holding roundtables as a substitute for the lengthy review process.



Model organization. Changes at the National Research Council will precede completion of a new National Academy of Sciences headquarters, set to open in 2002.

The governing board should look at the bigger picture and leave the details to others, according to the panel. In particular, the panel says Alberts should shift some duties to his fellow presidents, who lead the National Academy of Engineering and Institute of Medicine, and give responsibility for daily operations to a chief management officer, who will be current Executive Officer William Colglazier. "As president, I plan to rely on a more focused staff management structure, reporting through [Colglazier]," says Alberts.

The panel had more trouble with the issue of broadening the pool of volunteers. It

found that "there is too much reliance on a limited number of known individuals," and too few women and minorities are tapped early in their careers. Yet only eight of 128 people who responded to a question about expanding participation in NRC studies suggested adding minorities, women, or young researchers to council bodies. Despite some carping, volunteers seem pleased with how the NRC operates. A survey of nearly 1500 people found that 87% would serve again, and 92% were satisfied or very satisfied with the quality of the NRC work.

With regard to staff, Alberts says he will emphasize professional development and improving communication "so that help can be provided before things go wrong." The initial reaction to the proposals by staff seems positive. "People aren't jumping up and down," says one staffer who requested anonymity, "but we're optimistic." Colglazier says the plan will be finalized in November and implemented by the end of the year.

–ANDREW LAWLER

SCIENTIFIC PUBLISHING

Chemists Toy With the Preprint Future

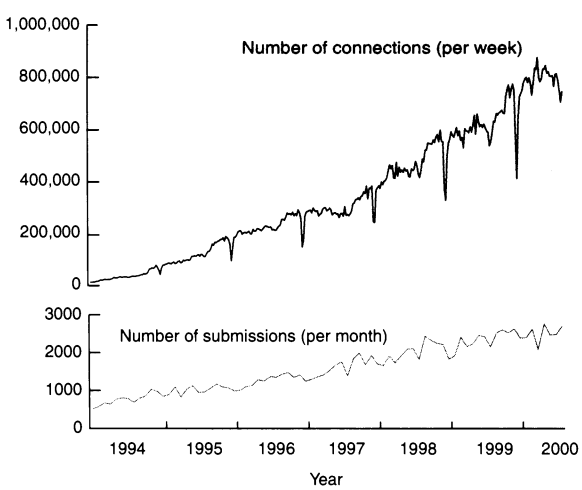
After watching their physics colleagues explore the digital landscape of electronic preprints over the past decade, chemists are sending out a survey party of their own. Last week, the giant publishing house Elsevier Science launched the first electronic archive for chemistry preprints through its ChemWeb subsidiary. The new site (http://preprint.chemweb.com) will be a common repository for reports on a wide range of chemistry topics and a forum for authors and readers to discuss the results. But ChemWeb could face an uphill battle in convincing authors to post their papers on the site, as many of the field's premier journals decline to accept papers that have already been posted on the Web.

ChemWeb's new preprint service is modeled closely on the physics preprint archive started in 1991 by Paul Ginsparg at Los Alamos National Laboratory in New Mexico, which today serves as a storehouse for some 146,000 articles. Although readers of the new chemistry preprints will be able to rank the papers, there will be no formal peer review, says ChemWeb's preprint manager James Weeks. The service is free to both authors and readers. (They need only register with ChemWeb, which is also free.) ChemWeb, says Weeks, hopes that its new service will generate enough Internet traffic to lure advertisers to fund the site.

For now, about all the site is attracting is heated debate. "A preprint server is highly controversial among chemists," said Daryle Busch, president of the American Chemical Society (ACS), speaking at the society's national meeting in Washington, D.C., last week. Busch, a chemist at the University of Kansas, Lawrence, says he and his colleagues are lured by the Web's speed, wide dissemination, and low cost of publishing new scientific results. But many researchers fear that the absence of peer review will reduce the quality of submissions and force readers to wade through electronic mounds of poor-quality results in search of tidbits of worthwhile science. Says Peter Stang, a chemist at the University of Utah, Salt Lake City, "It's a dilemma."

Apparently, it's one that a broad cross section of chemists are struggling with. According to Robert Bovenschulte, head of ACS publications, the association conducted a survey of some 8000 of its members last summer on the question of non–peer-reviewed electronic preprints. The results "are a very mixed bag," Bovenschulte says. "A lot of people were in favor of it. A lot of people were against it."

Nevertheless, the new preprint archive likely faces a tough future, because ACS journal editors themselves are lined up against it. ACS, the world's largest scientific membership organization, with 161,000 members, also publishes many of the premiere journals in the field including the flagship *Journal of the American Chemical Society*. But nearly all ACS journal editors consider posting results on the Web to constitute "prior publication," says Bovenschulte. (*Science* maintains the same policy.) As a result, Boven-

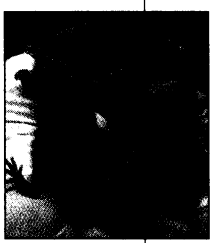


CREDITS: (LEFT TO RIGHT) ARXIV.ORG; L. KOSSOFF/AP

Physics envy. Elsevier is hoping its chemistry preprint archive will prove as popular as the Los Alamos physics archive, use of which by U.S.-based users is shown above.

ScienceScope

Animal Outrage A prominent biomedical research group wants to derail a possible agreement between the government and an animal rights group that it says would hamper research. The National Association for Biomedical Research (NABR) of Washington, D.C., this week said it will go to court to oppose a U.S. Department of Agriculture (USDA) bid to reach a settlement with groups pushing to have the agency regulate the use of laboratory mice, rats, and birds.



Mice, rats, and birds—which make up 95% of lab animals—are now exempt from the agency's Animal Welfare Act rules, which set caging and care practices. But in July the Alternatives Research & Development Foundation of Eden Prairie, Minnesota, won a key preliminary ruling in its suit to overturn the exemption (*Science*, 21 July, p. 377). On 25 August the two parties asked a federal judge for a 30-day time-out to reach a deal to phase in regulation of the animals.

NABR, however, "is absolutely opposed to these negotiations—it's an unacceptable way to make policy," says executive vice president Barbara Rich. The group, which represents more than 300 universities and hospitals, is worried that the new rules will burden researchers and that USDA doesn't have the budget to enforce them properly. USDA "is pandering to activists who oppose the use of lab animals," says Rich. "It's unbelievable."

Taking the Helm After nearly 6 weeks without a director-general, France's $2.2 billion basic research agency will apparently be led by a researcher with a taste for technology. Geneviève Berger, currently the research ministry's director of technology, was expected this week to be named to replace former CNRS chief Catherine Bréchignac, whose mandate expired in mid-July. A squabble between President Jacques Chirac and Prime Minister Lionel Jospin over whether Bréchignac should stay or go was apparently responsible for the delay (*Science*, 28 July, p. 523).

Berger, 45, has advanced degrees in physical sciences, human biology, and medicine. She is known for her work in applied medical research, especially new techniques for imaging. Such practical accomplishments made her attractive to the French government, which is pushing to make basic research serve the economy. Understanding science's impact on the bottom line is now "an essential qualification for being CNRS head," says one researcher.