

along with the traditional disciplines of physics, chemistry, and biology. At the same time, undergraduate enrollments in departments that receive government funding as part of newly formed consortia will be cut by 30% to lighten the teaching load on faculty members who will be carrying out the research. Funding will also go to beef up provincial universities and to lessen the frantic competition for entry into SNU.

Scientists working in the targeted fields see the plan as a way out of an inefficient and stale departmental system. "There is no collaboration or communication," says Lim

that research funding will dry up. Their fears are stoked by the government's decision to increase from 270 to 2000 the number of students who are exempt from military service if they pursue Ph.D.s in strategic areas. But education ministry officials say that any discipline may compete for funding and that the money comes on top of existing funding.

Critics also say the program is skewed toward applied science, and they fear that emphasis will starve basic research. Chung laments that only 20% of the project's funding is actually flowing directly into research, with the bulk divided among undergraduate and graduate training, equipment and materials, and scientific exchanges. "Education is getting too much, and research is receiving too little," he says.

But ministry officials argue that fostering strong local research universities is in the national interest, that a larger network of high-quality institutions will improve Korean science, and that limited resources require them to set priorities. They also hope that training more graduate

students locally will save money and ease the brain drain caused by students who remain abroad. "The 21st century is going to be a knowledge-based society, and we want to move with the changes," says Kim.

—MICHAEL BAKER

Michael Baker writes from Seoul.

#### PATENT LAW

### Supreme Court Limits Scope of Appeals

The U.S. Supreme Court has limited a special federal court's power to second-guess decisions by government patent examiners. Last week's 6-3 ruling disappointed many biomedical and computer companies, who say it will make it harder to appeal patent rejections. But legal experts say it will be years before the impact is clear.

The case, *Lehman v. Zurko*, stems from the rejection of a patent application for cybersecurity software written by Mary Ellen Zurko, now with Iris Associates in Westford, Massachusetts, and her colleagues at the Digital Equipment Corp. (DEC). DEC—now Compaq Computer Co. of Houston, Texas—appealed the 1994 decision by the U.S. Patent and Trademark Office (PTO) to the Court of Appeals for the Federal Circuit, a panel that hears patent and other technical cases (*Science*, 27 November 1998, p. 1622).

Last May the court ruled that the denial

**Targeted research.** Brain Korea 21 initiative hopes to raise scientific productivity in several sectors.

Jeong Bin, a microbiology professor at SNU, who wants to see "real restructuring." He adds that "If [the government] doesn't do anything, the universities won't change on their own." The targeted money is intended to help Korea become a master in certain areas rather than remaining a jack of all trades, says Kim Sun Ho, assistant director of BK21 at the Ministry of Education, which is overseeing the program. "Universities have many subjects and faculties," he says, "but they lack specialization."

Success will require a break from tradition for Korean faculty, however. To qualify for a biotechnology grant, for example, 30 of SNU's 50 biology professors must join with 15 professors from another university to create a new biotechnology graduate research program. The remaining 20 SNU professors will be left to teach undergraduate courses to a smaller student body. Although Lim says that departmental barriers to such collaborations are high and that organizing such a cross-departmental group is somewhat "unpractical," he agrees that "the overall direction is right." The new rules also mandate that half of the graduate students admitted to a new program come from other universities and that universities develop a more independent system for evaluating professors.

Faculty members in fields not singled out for special attention—in particular, mathematics—are worried that students will shun their departments for other majors and

## ScienceScope

**Caught in the Crossfire** Two Indian telescopes under construction in the Himalayas are the first scientific casualties in the latest battle with Pakistan over the disputed Kashmir region.

A \$10 million, 2-meter optical and infrared telescope and another smaller instrument were scheduled to see first light in October at the world's highest site (4440 meters) for optical astronomy. But those plans are on hold due to fighting that erupted last month in the Kargil sector of the Himalayan state of Jammu and Kashmir. Intense shelling by Pakistani forces has blocked shipments of critical components to the remote observatory near Hanle—where the crisp, clear skies are great for astronomy.

It's not clear when peace might return. In the meantime, the Indian Institute of Astrophysics (IIA), which is building the telescopes, is preparing to reduce delays by airlifting equipment to the site. If all goes well, says IIA director Ramanath Cowsik, "there can be first light in early 2000."



**By Any Other Name** National Institutes of Health (NIH) director Harold Varmus is already taking plenty of flak from editors for a proposal to launch a government-backed online publishing venture (see p. 1887). Now comes another blow: Varmus's name for his brainchild, "E-Biomed," is already taken.

Last week, Mary Ann Liebert Inc., a medical publisher in Larchmont, New York, issued a press release saying that in April it applied for an International Standard Serial Number (ISSN) from the Library of Congress for a journal called *e-biomed*, which it plans to launch next year. The company has also tied up "www.e-biomed.com" and ".net" for Web sites.

That in itself doesn't mean NIH is prohibited from using E-Biomed, as an ISSN does not lock up exclusive rights to a title, according to the Library of Congress. It may not matter anyway: One editor who recently met with Varmus told *Science* that the NIH chief seems to be leaning toward broadening the journal to other life sciences, such as plant biology—so a different name might make sense.

**Contributors:** David Malakoff, Robert Koenig, Pallava Bagla, Jocelyn Kaiser

was "clearly in error." The PTO challenged the judges' right to question its expertise, while industry groups and patent attorneys warned that if the PTO prevailed, the appeals system would be turned "on its head." In a 10 June decision\* written by Justice Stephen Breyer, however, the high court sided with the PTO. It found that the appeals court was not following a 1946 law that requires judges to defer to government expertise unless an agency acts in an "arbitrary and capricious" manner.

Some attorneys say the ruling will make it harder for companies to win a review from the PTO if their patent application has been rejected. But others say the change will be hard to detect anytime soon, as fewer than 100 of the 100,000 annual denials end up in court. Says Ernest Gellhorn, the law professor at George Mason University in Fairfax, Virginia, who represented Zurko: "There is room for interpretation, and it will take time to build up the case law." —**DAVID MALAKOFF**

\* <http://supct.law.cornell.edu/supct/html/98-377.ZS.html>

## JAPAN

### Corporate Ties Still Off Limits for Academics

Efforts to form closer ties between industry and academe in Japan suffered a setback last week when government officials refused to bend a rule that prohibits university professors and other civil servants from holding positions with private companies. The Ministry of Education, Science, Sports, and Culture (Monbusho) had lobbied the National Personnel Agency for permission to allow an economics professor to serve as an outside director of Sony Corp. Observers see the agency's refusal as a setback to all academic researchers hoping to become involved in start-up companies or industrial collaborations derived from their work.

The National Civil Service Law bars civil servants, which includes faculty members at national universities, from holding positions at private companies. Its primary intent is to keep bureaucrats at arm's length from the companies they regulate. This spring Iwao Nakatani, a prominent economics professor at Hitotsubashi University in Tokyo, was nominated to be an outside director of Sony, and Monbusho hoped to use the case to convince the Personnel Agency to exempt university professors from the law. It argues that such a change is needed to allow the private sector to tap the universities' scientific and management expertise.

Indeed, the law has been interpreted in recent years to allow faculty members to serve as unpaid consultants to private companies. In lieu of a fee, a company typically makes a

contribution to the professor's research funds. But despite pressure from Monbusho, the Personnel Agency refused to allow Nakatani to straddle the worlds of academe and industry by taking a spot on Sony's board.

"It's a shock," says Katsuya Tamai, a professor of intellectual property law at the University of Tokyo, who is involved in setting up an organization to help university professors license their patents and sell their expertise. "It's hard to interest investors [in a start-up business] if the person who understands the technology best can't be directly involved."

But Shinichi Yamamoto, director of the University of Tsukuba's Research Center for University Studies, warns that any changes to the law need to be considered carefully. "At the moment, the duties of university professors are not clearly defined," he says. That ambiguity, he adds, makes it difficult to determine what level and what kind of outside activities would be consistent with their university responsibilities.

Nakatani's plans had already prompted the government to form a committee drawn from Monbusho, the Personnel Agency, and other government bodies to study the issue and report back this fall. But Monbusho officials now say that they are not optimistic about finding a quick solution.

Nakatani, who could not be reached for comment, is reportedly planning to resign his professorship to clear the way for election to the Sony board at a shareholders' meeting on 29 June. —**DENNIS NORMILE**

## SCIENCE POLICING

### Tulane Inquiry Clears Lead Researcher

An investigation into whether fraud played a role in an influential report on the health effects of hormonelike chemicals has drawn to a murky close. In a letter on page 1932, the chancellor of Tulane University Medical Center in New Orleans announces that endocrinologist John McLachlan "did not commit, participate in, or have any knowledge of any scientific misconduct" in preparing the paper, which was published in *Science* 3 years ago and later retracted (25 July 1997, p. 462). The conclusions about the researcher who conducted much of the work are not so clear-cut, however: Tulane found that Steven Arnold's data fail to support "the major conclusions" of the paper.

Questions about the paper, which claimed that mixtures of pesticides could have potent hormonal effects, have reverberated partly because of the prominence of its senior author, a former scientific director of the National Institutes of Health's National Institute of Environmental Health Sciences in North Carolina. "I'm just glad it's starting to clear up for John

McLachlan," says Earl Gray, a reproductive toxicologist at the Environmental Protection Agency's health effects lab in Research Triangle Park, North Carolina. Arnold, who resigned from Tulane in 1997, eventually found work at the Roswell Park Cancer Institute in Buffalo, New York. A co-worker said last week that Arnold had just finished his last day and was planning to begin business school in the fall. Arnold could not be reached; McLachlan, through an assistant, declined to comment.

In the paper at issue, the Tulane team used yeast cells with a human estrogen receptor to test the potential estrogenic effects of different compounds. They found that pairs of several pesticides were 1000 times more potent at triggering estrogenic activity than were individual chemicals on their own. The prospect that pesticides could mimic the female sex hormone raised alarm bells among toxicologists and environmentalists and helped convince Congress to include provisions in two 1996 laws requiring manufacturers to screen thousands of chemicals on the market for estrogenic activity. Within a few months after the *Science* article appeared, however, other labs reported that they could not replicate its results. In July 1997 the authors retracted the paper, and that August Tulane announced an inquiry into what happened.

Although it absolved McLachlan, a Tulane faculty committee "concluded that [Arnold] provided insufficient data to support the major conclusions of the *Science* paper" and that the "independent review of Arnold's data does not support the major conclusions," writes chancellor John C. LaRosa. This ambiguous denouement—neither exoneration nor a misconduct finding—is not surprising, says Chris Pascal, acting director of the federal Office of Research Integrity. A decade ago, universities were "always trying to find one or the other," he says, but now they "realize there's a lot that falls in a gray area."

Whether McLachlan's lab should have kept better tabs on its raw data is another question. "Most institutions don't enforce data retention or data recording," Pascal says. But Gray says he wouldn't expect a lab chief to check the underlying data "if you have a lot of trust in somebody in your lab." The study's sponsor, the W. Alton Jones Foundation in Charlottesville, Virginia, says it's ready to close the books on the affair.

As for the hypothesis that hormonelike chemicals are dramatically more potent in combination, "it's kind of fallen by the wayside since that paper was retracted," says Gray. But he and others are convinced it's important to test chemical mixtures, because in the real world mixtures abound and the results can be additive. Says John Sumpter, a reproductive toxicologist at Brunel University in the United Kingdom: "I don't think there's any disagreement on that." —**JOCELYN KAISER**