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**