

## CORAL REEF MONITORING

# Smithsonian Field Station Gets the Boot

After 21 years of hosting studies of Caribbean coral reef ecology on the coast of Panama, the San Blas research station, a satellite facility of the Smithsonian Tropical Research Institute (STRI), will close on 1 July. The reason, Smithsonian officials admit, is that they failed to recognize and allay suspicions about the station's activities among local Kuna Indians, who voted last fall to end the institution's \$3000-a-month lease.

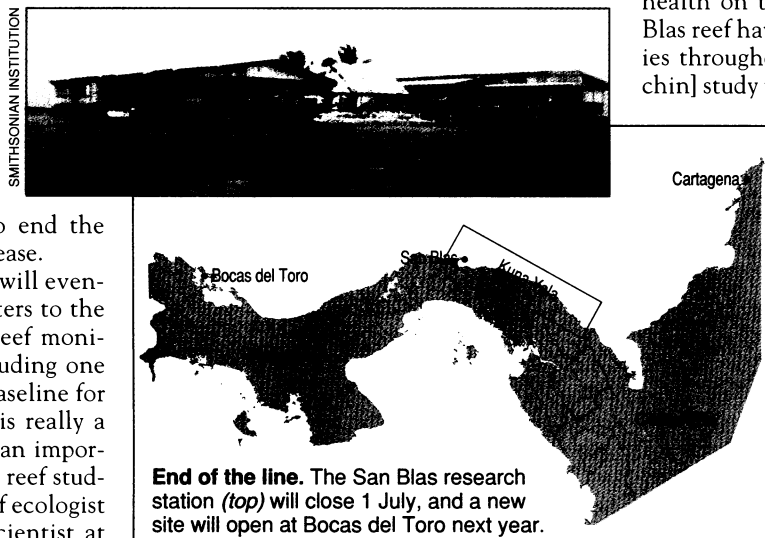
A new monitoring station will eventually open some 500 kilometers to the west, but several long-term reef monitoring projects will end, including one that uses San Blas data as a baseline for the entire Caribbean. "This is really a shame. San Blas has become an important reference for many other reef studies in the Caribbean," says reef ecologist Nancy Knowlton, a senior scientist at STRI and a professor at the Scripps Institution of Oceanography in La Jolla, California.

The closure took Smithsonian officials by surprise. "We probably didn't do enough preparatory work educating the Kuna people at large about what we do at San Blas," concedes Ira Rubinoff, director of STRI, whose main facility in Panama City and a half-dozen other research stations are not affected. "We had been assured by the Kuna *cacique*, or chiefs, that [renewal of the lease] was a done deal, so we didn't even go to the Kuna Congress in May 1997 at which the vote was taken."

That may have been the fatal mistake. The Kuna Yala, the 160-kilometer-long autonomous area owned by the Kuna along the Atlantic Coast of Panama near the Colombian border (see map), is run as a well-organized democracy. Although older Indians and those who live near the research station approved the Smithsonian as a good neighbor, younger Kuna and those from farther away were suspicious, says Adrian Cerezo, a Smithsonian anthropologist working at STRI when the Indians voted on the lease renewal: "There was talk of the station being a military operation, of the scientists harvesting coral to sell, and of evil things going on in the waters where the scientists were working." When the vote came, which is done by murmuring, the nay murmurs were judged louder than the yay murmurs.

STRI officials and the Kuna leadership were stunned. Rubinoff persuaded the Kuna to revisit the lease issue at another Con-

gress in November, and the station embarked on a widespread educational effort. But it was too late, says Rubinoff, who at-



**End of the line.** The San Blas research station (top) will close 1 July, and a new site will open at Bocas del Toro next year.

tended this second meeting. Once again, the nays murmured louder.

As a result, scientists will no longer be able to dive from San Blas to inspect corals and associated reef animals, in particular

sea urchins. Two decades of study by reef ecologist Harris Lessios, a senior researcher at STRI, has shown that the loss of urchins' algae-scrubbing power has serious consequences for coral, which are then smothered with algae. Monitoring studies of both urchins and other indicators of reef health on the relatively undisturbed San Blas reef have served as a baseline for studies throughout the Caribbean. "That [urchin] study will end, and that's an unfortunate loss," says Rubinoff.

But he notes that other studies can be done, albeit less conveniently, from research boats sent out from STRI's home base. And the Smithsonian plans to set up a new station at a pristine 60,000-square-meter site at Bocas del Toro, at the opposite end of Panama near the Costa Rican border. The Smithsonian has made arrangements with the Panamanian government to buy the site—avoiding any further problems with landlords.

—Joseph Alper

*Joseph Alper is a free-lance writer in Louisville, Colorado.*

## INTELLECTUAL PROPERTY

# Japan Law Fosters Academic Patents

**TOKYO**—In the late 1980s, University of Tsukuba cryogenic engineer Ryozi Yoshizaki conducted joint research with a major Japanese company on forming crystals from compounds of bismuth, then a promising high-temperature superconductor. When the work was done, Yoshizaki incorporated the findings into a paper, and the company, which Yoshizaki declined to name, took the results and filed for a patent. Yoshizaki doesn't know if the patent contributed to the company's bottom line. But he's sure that no royalties ever flowed back to the university or his lab.

Yoshizaki's experience is typical: Researchers at Japan's national universities are largely on their own when it comes to patenting, and few spend the time and money pursuing a legal claim to an invention. As a result, potentially lucrative research results are often given away or pass into the public domain, where they are of little commercial value.

But that neglect may be about to change. Earlier this month the Japanese Diet passed legislation providing monetary support and other incentives for so-called technology licensing organizations (TLO) to work with

university researchers to patent and license their discoveries. Although a few TLOs already exist, the law is expected to validate the idea that private bodies—they would not be operated by universities—should play a bigger role in transferring technology from national universities and laboratories to industry. "It's an extremely good thing [for university researchers]," says Yoshizaki, who now heads the liaison office at the University of Tsukuba's Tsukuba Advanced Research Alliance. Takao Tsuruzono, an official with the Ministry of International Trade and Industry (MITI), which co-sponsored the law with the Ministry of Education, Science, Sports, and Culture (Monbusho), anticipates "a positive effect" on Japan's economy.

The new law is the latest effort to cut through the thicket of regulations and practices that stymie cooperation between academe and industry. The issue of patent rights is one particularly thorny branch. Because individual professors typically hold the right to an invention and any ensuing royalty from licenses, universities have little incentive to get involved in intellectual property issues.

## FOOD AND DRUG ADMINISTRATION

## Panel Issues Plea to Boost FDA Research

(For some work involving major public facilities, the government holds the rights.) And few professors are eager to claim their rights: Only 129 patent applications were filed in 1994 by faculty members at the country's 98 national universities, a minuscule 0.04% of the nation's total, despite the fact that 35% of the country's researchers work in academia. By contrast, U.S. academic researchers, who make up less than 15% of the total R&D workforce, were awarded 1871 patents in 1995, a 3% slice of the overall patent pie. As a result, says Tsuruzono, Japan has few examples of academic research spurring industrial advances.

To help bring academic research to market, the new law paves the way for TLOs that meet yet-to-be-defined criteria to handle patenting, marketing, and licensing on behalf of university researchers. In return, they will receive public subsidies and an exemption from all patent application fees, as well as the right to a share of any royalties. The law also directs existing industrial development programs to give preferential treatment to venture businesses and small and midsize companies trying to commercialize university discoveries.

Funding for the TLO program is a pittance—about \$500,000 in the current fiscal year. But Katsuya Tamai, an intellectual property law professor at the University of Tokyo, says the real benefit is that it signals a shift in attitude toward how to do technology transfer successfully. Tamai is working with a group of University of Tokyo professors setting up a TLO they hope will represent researchers at national universities throughout Japan.

Tamai's group is one of a dozen or so TLOs at different stages of development. Some plan to work with a single university, while others are focusing on a particular specialty. Each will set its own policies. In Tamai's group, for example, 50% of any royalties will go to the research lab that generated the patent, with the other half split between the liaison office and the university. The university's share is not required, he says, but the group wanted to foster "a sense of accountability to the taxpayers."

One challenge for the fledgling centers is finding staff who understand both market needs and high-technology developments. "It's our biggest worry," says a Monbusho official involved in university-industry cooperation. An even bigger obstacle, however, may be the attitudes of researchers. Yoshizaki says that even faculty members in the applied sciences tend to focus on papers, not patents. "What we need is a success story," says Yoshizaki. "If a successful venture business springs from university research results, for example, that would really provide an incentive for university researchers to pay attention to patents."

—Dennis Normile

Last October, after academic researchers learned that a retrovirus found in pigs could infect human cells, the U.S. Food and Drug Administration (FDA) ordered a temporary halt to clinical trials involving transplantation of pig tissues into patients. Experts were concerned that the pig virus might thrive in humans, become infectious, and threaten public health. Within weeks, however, the concern abated when an FDA staffer doing independent research—Carolyn Wilson—developed an assay for the pig virus. By January, FDA officials were confident enough of the assay's reliability that they began to lift the research moratorium, asking each company to maintain virus-free materials (*Science*, 30 January, p. 648).

The agency's measured response to the pig virus alarm, some scientists say, shows why it is important to fund independent research at FDA. Only if FDA staffers are directly involved in the science they regulate, the argument goes, will they understand the risks well enough to make good public health decisions. This is the theme of a strongly worded report delivered to FDA on 19 May by a panel of outside experts headed by Leslie Benet, a pharmaceutical scientist at the University of California, San Francisco.

Benet's 27-member group—which included representatives from government, academia, and industry—was asked to conduct a detailed review of science at one of the five centers that make up the FDA, the Center for Biologics Evaluation and Research (CBER). This is the first comprehensive, outside look at any aspect of FDA science "in memory," says acting FDA Commissioner Michael Friedman, who adds that he "pushed for this." He says the report will be followed by similar assessments of FDA's four other centers, all intended to help revitalize science at the agency. Friedman, meanwhile, has named a search committee under physician David Kipnis of Washington University in St. Louis to recruit a chief scientist to oversee research at the agency.

The Benet panel began playing its own role in this process with a bang: It rewrote its orders. The group decided, as its report says, to "go beyond its specific charge and address the committee's unanimous concern that inadequate funding ... for laboratory research within CBER would risk potential

damage not only to the health of the population of the United States but also the health of our economy." The panel was driven to this dire prognosis by a recent decision that is taking a heavy toll on FDA's research—especially at CBER, which spends more than any other FDA center on in-house science (*Science*, 13 February, p. 976).

Last year, the pharmaceutical industry, whose licensing fees help finance FDA's budget, asked for and got a directive from Congress that those fees would not be used to finance research. As a result, CBER's research budget has declined from \$18.4 million in 1994 to \$6.9 million in 1998. And CBER official Neil Goldman says it is planning to lose 154 half-time research positions in 3 years.

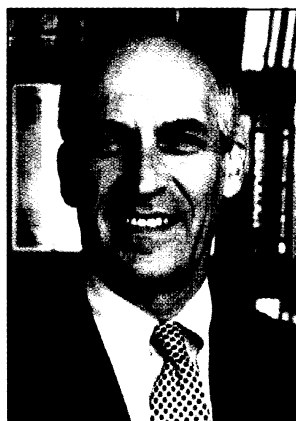
Benet says he didn't begin this review expecting to issue a broadside about the inadequacy of research funds, but he became convinced that it was critical to

do so after talking to staffers and "interacting with my colleagues." In impassioned phrases, the panel says it "is of utmost importance that the scientists in CBER have research capabilities at the cutting edge," including \$1 million worth of new analytical equipment. The report also offers some traditional review comments, urging better use of statistics, the establishment of a new measurement science group headed by a protein chemist, and consolidation of less productive divisions.

When Benet presented his panel's report last week to FDA's Science Advisory Board—which is chaired by Kipnis—most members seemed to agree with the recommendations for changes within CBER. But Kipnis said in a phone interview that the board did not agree with the Benet panel's argument that CBER had a greater need than other FDA centers for research support. At last week's meeting, science board member Pedro Cuatrecasas, retired president of the Parke-Davis pharmaceutical company, strongly objected to singling out CBER for special funding, as did FDA staffer James MacGregor, research chief at the Center for Drug Evaluation and Research.

Friedman says an equally strong case can be made for boosting intramural research in other parts of FDA, and he welcomes any "nonparochial" efforts to improve the quality of research. The Benet report must now be revised and endorsed by the full science board.

—Eliot Marshall



Going to bat for CBER. Panel chair Leslie Benet.