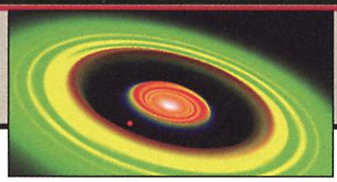
PAGE 2313
Cauldron of planet formation?



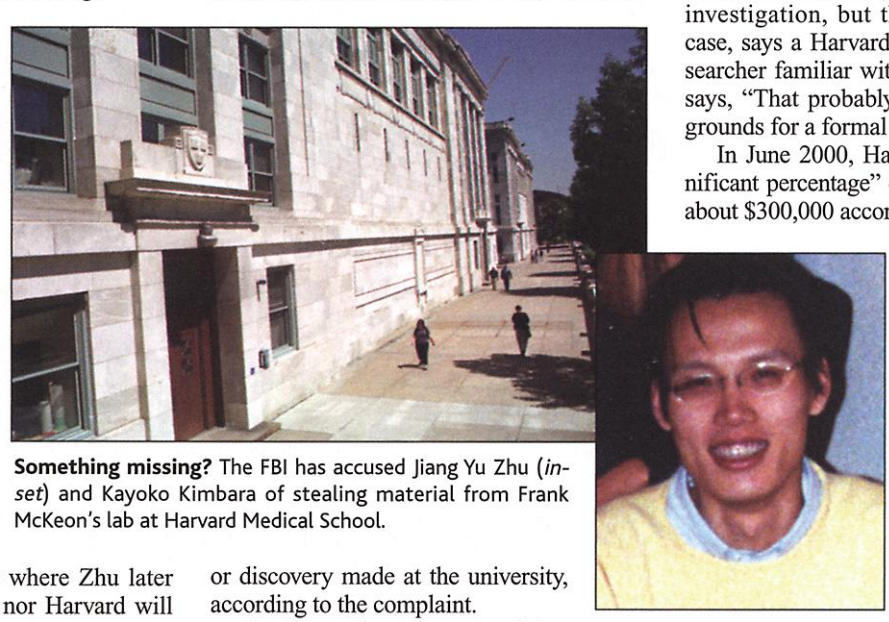
2314
Gene transfer from canola

INTELLECTUAL PROPERTY

Arrest of Ex-Harvard Postdocs Raises Questions of Ownership

BOSTON—Two former Harvard University researchers face up to 25 years in prison and a $750,000 fine for allegedly conspiring to steal Harvard-owned trade secrets and for shipping university property across state lines. The defendants—a Chinese citizen named Jiang Yu Zhu and his Japanese-born wife, Kayoko Kimbara—were arrested last week and are in jail in California pending extradition to Massachusetts. But some researchers have expressed sympathy for the defendants and worry that the government is overreacting.

The case, laid out in a stark FBI complaint filed on 17 June, marks the latest attempt by U.S. law enforcement agencies to crack down on intellectual property theft in university labs (*Science*, 18 May 2001, p. 1274). The complaint describes late-night experiments carried out without the knowledge of the couple's boss, Harvard Medical School cell biologist Frank McKeon, as well as shipments of material with great potential commercial value to a Japanese company and a Texas lab where Zhu later worked. Neither McKeon nor Harvard will comment on the particulars of the case.



Something missing? The FBI has accused Jiang Yu Zhu (*inset*) and Kayoko Kimbara of stealing material from Frank McKeon's lab at Harvard Medical School.

But the FBI's complaint shows a lack of understanding of how science works, say some scientists. Postdocs frequently work late hours, they note, and many researchers take materials with them when they move to new jobs and seek help from companies. In addition, Harvard recommended Zhu for his next job, and university officials admit that they didn't conduct a formal investigation of events in the lab.

Zhu graduated from the prestigious Beijing University and received his doctoral degree in biochemistry from Temple University in Philadelphia before going to work for McKeon in 1997. Kimbara received her doctoral degree from Tokyo University in 1998 and started working in McKeon's lab late that year with funding from the Japan Society for the Promotion of Science. According to the 12-page complaint, the researchers screened genes and proteins in search of new agents to help prevent organ transplant rejections. By early 1999, Kimbara had identified two promising genes, a find the FBI says "had significant commercial potential." Both had signed a document assigning Harvard all rights to any invention or discovery made at the university, according to the complaint.

At that point, the complaint notes, the two began working late and refused to have "meaningful discussions" with McKeon. In October 1999, Harvard filed a provisional patent on the two genes, listing Zhu and Kimbara as inventors in the initial application. McKeon later learned, although the complaint does not say when, that the research fellows were not sharing data about several additional promising genes they had discovered. But McKeon and colleagues apparently thought enough of Zhu's work to recommend him for a position at the University of Texas, San Antonio. "That hiring was based on recommendations by people at Harvard"—including McKeon, says David Sharp, deputy director of the biotechnology institute there.

After getting the job offer in December 1999, the complaint alleges, Zhu e-mailed an unnamed biochemical company in Japan saying that he hoped to commercialize his research and that he believed the Harvard patent would fail. Zhu sent the gene products to Japan, without McKeon's permission, so that the company could make antibodies against them. The complaint says that Zhu had also arranged secretly to ship more than 30 boxes of biologicals, books, and documents to Texas from Harvard in late December 1999. Harvard lab personnel later found that "many of the items left in the [Harvard] lab by Zhu and Kimbara had been mislabeled or otherwise corrupted," the complaint states. Allegations of serious scientific misconduct typically trigger a formal investigation, but there was none in this case, says a Harvard spokesperson. One researcher familiar with Harvard's procedures says, "That probably means they found no grounds for a formal investigation."

In June 2000, Harvard recovered a "significant percentage" of the materials—worth about $300,000 according to the complaint—and the researchers left Texas that summer and moved to California after their annual contracts were not renewed. But it wasn't until last week that the FBI, citing the risk of flight, arrested and jailed the researchers.

Zhu has spent the past 18 months as a postdoc at the University of California, San Diego, in Jean Wang's lab. She says that his work has been "excellent" and that he voluntarily disclosed the problems with Harvard before he was hired. "I offered Zhu a position because I believe in a second chance, especially for young people," says Wang, adding that she thought the matter had been settled. Kimbara is now a postdoc at the Scripps Research Institute in La Jolla, California.

Wang describes McKeon as "brilliant but superparanoid" about sharing his work with other labs. Other scientists familiar with McKeon's lab concur with that assessment and speculate that Zhu and Kimbara might

CREDIT: (TOP) JASON DECROW/AP

simply have been afraid to ask McKeon for permission to send materials to others. And many scientists say young researchers are not always aware of the intricate laws governing commercial applications of their work. "Intellectual property in the United States is a bit of the Wild West," says David Zapol, who co-chairs a Web site set up to help Hiroaki Serizawa, a researcher accused last year of helping a colleague steal lab secrets. To Zapol, the new case smacks of racial profiling of Asians.

Next week the government will seek to extradite the defendants to Massachusetts, the first step in preparing for a trial. The prospect of a courtroom battle disturbs Wang, who says, "I don't think we want the federal government to sniff around in our business." In the meantime, the case might prompt postdocs and their mentors to re-examine who owns their work.

–ANDREW LAWLER

PALEONTOLOGY

China Regains Fossils Seized in California

BEIJING—Fourteen tons of Chinese fossils are back in their native country after a failed attempt to smuggle them into the United States. The shipment, which includes a 225-million-year-old ichthyosaur and a large number of exquisite crinoids—a kind of echinoderm called a sea lily—dating from the same period, arrived here earlier this month after being seized a year ago in San Diego, California. Chinese officials described the incident for the first time on 11 June.

The reshipment, which Chinese officials say is the largest of its kind, is part of the country's ongoing campaign to protect its cultural and scientific relics against looters. "They are very precious fossils," says Li Jianjun, executive deputy curator of the Beijing Natural History Museum, where the fossils are now housed. "To our joy, we have found that 90% of the fossils" have not been tampered with.

Almost all of the 110 pieces of fossils, which arrived in 93 boxes, are believed to have originated in Guizhou Province in southern China. They date from the early part of the late Triassic period, 227 million to 220 million years ago, when reefs in the region were drowned by anoxic, 500-meter-deep water—ideal conditions for preservation. "As crinoids go, they're pretty stunning," says paleontologist Chris Maples of Indiana University, Bloomington. Crinoids are relatively rare in Triassic rocks, and the meter-tall specimens of the enigmatic *Traumatocrinus* are important for evolutionary studies because the group survived the Permian mass extinction some 20 million years earlier, notes Dan Lehrmann, a geologist at the University of Wisconsin, Oshkosh. In addition to the 4- to 5-meter-long ichthyosaur and the crinoids, the cache includes 10 specimens of a marine reptile called *Keichousaurus* and some fish fossils.

Science was not able to piece together the circumstances that led U.S. officials to act. Officials from China's State Administration of Cultural Heritage say that the fossils were seized in June 2001 by the U.S. Customs Service as they arrived in San Diego and that customs officials contacted Chinese diplomats in New York to arrange for the return of the material. An agency spokesperson declined to provide any information about the case, however, saying that "it is the long-standing policy of the U.S. Customs Service to not discuss matters that may relate to investigation."

The fossils will be stored in a just-completed warehouse and exhibited once they are curated, says the museum's Li, who adds that the fossils will also be made available to outside collaborators for comparative studies. In the meantime, Chinese paleontologists welcome the windfall. "I am happy to see them back," says Wang Xiaofeng of the Yichang Institute of Geology and Mineral Resources in Hubei Province. Wang's team has studied fossils of crinoids, *Keichousaurus*, and other marine creatures at a site in the Guanli area of Guizhou.

–DING YIMIN AND ERIK STOKSTAD

Ding Yimin writes for *China Features* in Beijing.

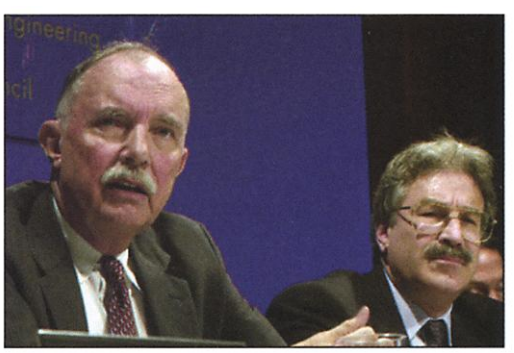
Back home. The U.S. government has returned to China these crinoids and 14 tons of other smuggled fossils.

CREDITS: (TOP TO BOTTOM) RICK KOZAK; *CHINA FEATURES*

COUNTERTERRORISM

Academies Weigh In on Homeland Defense

Get better organized, get more outside help, and get going—immediately. That's what the U.S. government must do to develop and deploy the technologies needed to fight terrorism, says a blue-ribbon scientific panel this week in a report likely to influence the shape of the Department of Homeland Security, proposed earlier this month by the White House (*Science*, 14 June, p. 1944). In particular, the panel says, the government needs a new institute to help it chart and coordinate counterterrorism research.



Terror talk. Lewis Branscomb (left) and Richard Klausner see science playing a major defense role.

That idea and other recommendations are getting guarded reviews in Congress. But the chair of the House Science Committee, before which the report was unveiled this week, welcomes the report. "This report helps ensure that R&D stays high on the homeland defense agenda," says Representative Sherry Boehlert (R–NY). Some biomedical researchers, meanwhile, are criticizing the White House's blueprint for the department, saying that it could complicate antibioterrorism efforts.

The report* is the first public product of a crash effort by the U.S. scientific community to respond to the 11 September terrorist attacks. On its own initiative—and using its

* *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* (National Academy Press, 2002).