March election—is being tipped as a possible premier in the new government or as a special envoy to Beijing. But some researchers have criticized Lee's endorsement of Chen for jeopardizing Academia Sinica's political neutrality. And, given Chen's strong stance on Taiwan's independence, some worry that China could react to a government led by the two men by curtailing research collaborations.

A native of Taiwan, Lee spent nearly 30 years at the University of Chicago and the University of California, Berkeley, before returning in 1994 to head the academy. He lobbied successfully for a dramatic jump in funding and convinced a dozen or so topflight scientists to return home to take up key positions in the academy's 24 institutes. He also introduced peer-review procedures and other reforms that have led to a sharp rise in publications in top international journals. He's made it "a dynamic and vibrant institution," says Kenneth Wu, a molecular biologist who headed the academy's Institute of Biomedical Sciences for 3 years before returning last year to the University of Texas Health Science Center in Houston.

At the same time, Lee took on a very public role. Described by the media as "Taiwan's conscience," he championed social welfare measures, spoke out against governmental corruption, led a drive for educational reform, and chaired a commission to assist the victims of last fall's earthquake.

Although the academy reports directly to Taiwan's president, Lee had always urged his colleagues to maintain political neutrality. But colleagues say Lee grew increasingly concerned about corruption and decided to throw his weight behind Chen when it became clear that the race was close. On 10 March Chen visited Lee in his Academia Sinica office, and on 13 March Lee announced that "Chen is the only candidate capable of really rooting out the endemic corruption in Taiwan's politics." The same day, Lee tendered his resignation, which was refused by outgoing President Lee Teng-hui. The Nobelist then announced he would be taking vacation leave until the end of the month.

Some scientists worry that Lee's political move will strain relations between Academia Sinica and the long-ruling Nationalist Party, which still controls the country's legislature. "The momentum of progress at Academia Sinica is now irrevocably interrupted, and its reputation badly damaged," says one Chinese-American scientist from a major U.S. research university who has close links with Taiwan. But others say that Lee's departure from Academia Sinica could be equally damaging by depriving it of a strong leader. "It won't be easy to find [a replacement for Lee] with his vision and his international status," says Lin Sheng-hsien, director of the Institute of Atomic and Molecular Sciences, part of a group that has urged Lee not to step down. Lee could not be reached for comment.

As for scientific relations with China, China's Communist Party made it clear throughout the campaign that it opposed Chen, who was considered the most pro-independent of the major candidates. Lee himself enjoys close ties with the mainland. He has received honorary degrees from several Chinese universities and is an honorary professor of the Chinese Academy of Sciences' Institute of Chemistry in Beijing. Li Jia-quan, a research fellow at the Institute for Taiwan Studies in Beijing, says that because of Lee's endorsement of Chen, "it would be impossible for the mainland to accept Lee as a negotiator for relations across the Taiwan Strait." He added, however, that he doesn't think that it will affect contacts between academy scientists and their mainland counterparts. **–DENNIS NORMILE**

With reporting from Beijing by Li Hui of *China Features*.

INFECTIOUS DISEASES

New York's Deadly Virus May Stage a Comeback

ATLANTIC CITY—Will it come back? That question has been haunting public health officials in New York City and state since a surprise outbreak of the West Nile virus sickened more than 60 people late last summer and killed seven. No more cases of this rare illness were detected after temperatures started dropping in October, rendering the climate inhospitable to the mosquito that transmits the disease, most likely a subspecies of *Culex pipiens*. But researchers didn't know whether the virus would survive the winter, either in mosquitoes or their eggs, or in birds, the virus's animal reservoir. Now they do. Two recent observations have shown that the virus is alive and kicking, researchers said at a meeting of the American Mosquito Control Association

Round two. A new generation of mosquitoes may spread the West Nile virus.

ScienceScope

Complex Structures The National Science Foundation (NSF) is creating a "virtual directorate" to manage its rapidly growing environmental research portfolio and biocomplexity initiative (*Science*, 10 December, p. 2068). The new structure will have all the trappings of one of NSF's six research divisions, including an outside advisory committee. Geosciences head and environmental czar Margaret Leinen explained the plan last week to NSF's overseers, the National Science Board. But in a unique setup, the committee will include one member from each of the existing directorate panels as well as major figures in the environmental community.

Officials say the arrangement is meant to raise the profile of environmental research, which the science board wants boosted by $1 billion over 5 years, from its current $609 million, without changing NSF's basic organizational structure.

Head Hunting Eager to snap up a White House official who may be jobless when President Clinton leaves office in January, the Washington-based Federation of American Scientists (FAS) recently offered Henry Kelly—currently assistant director for technology at the Office of Science and Technology Policy—the top job at the organization, according to sources close to FAS.

FAS was founded in 1945 by Manhattan Project scientists concerned about the spread of nuclear weapons. The nonprofit now works to discourage nuclear proliferation, limit government secrecy, and influence science and space policy. Previous FAS president Jeremy Stone resigned last fall after a 30-year stint, in the wake of criticism surrounding his recent book's veiled claim that an American physicist was a spy for Russia.

Physicist Kelly, a former staffer at the Office of Technology Assessment, the Arms Control and Disarmament Agency, and the Department of Energy, declined to say if he'll take the job. But "he was the outstanding figure" at the end of FAS's search, says one source.

CREDITS: (TOP TO BOTTOM) CORBIS/PAT O'HARA; OXFORD SCIENTIFIC FILMS/ANIMALS ANIMALS

held here last week—and it may well spread and cause disease come summer.

A first clue came in early February, when a red-tailed hawk was found dead in Westchester County, a suburb north of New York City. Lab tests at the University of Connecticut in Storrs and the Connecticut Agricultural Experiment Station in New Haven confirmed that the bird died from the West Nile virus. Because there were no mosquitoes around at the time, researchers don't understand how and where the hawk became infected. It may have been bitten by a mosquito in the fall and only succumbed recently, or it may have eaten an infected animal. Another theory is that it picked up the virus farther south and then flew north, perhaps disoriented from the disease. That's a troubling scenario, because it would mean that the virus has already gained a foothold somewhere in the southern United States.

More troubling news came from researchers from the Centers for Disease Control and Prevention (CDC) and New York City and state, who have been monitoring mosquito populations in sewers, abandoned hangars, swimming pool utility rooms, and other likely winter shelters. They had a hard time finding any mosquitoes at all, said CDC's Roger Nasci. But the whitewashed interior walls of Fort Totten, a historic site in the New York borough of Queens, proved an excellent hunting ground. Early last week, researchers found live West Nile virus in one *Culex* sample taken there. "This means the virus has survived the winter in a viable form," says Nasci.

The results have experts worried. Some entomologists question the region's ability to wage an effective war against mosquitoes this spring and summer—the only way to stop transmission of the virus. With viral epidemics such as AIDS taking a huge toll, insect-borne diseases have been "pretty far back on the burner" in New York and some other states, says John Edman, director of the Center for Vector-Borne Disease Research at the University of California, Davis. He points out that New York state is still hiring personnel for new surveillance and control programs. As a result, it may be difficult to start an aggressive larvae-control campaign in early spring, as experts recommended during a workshop in January, says Edman. "I'm really worried," adds Yale medical entomologist Durland Fish. "I don't think they'll be able to mount an effective response."

But city and state officials dismiss those worries, citing detailed plans of how they will monitor and battle possible outbreaks. "We have been working very diligently," says a spokesperson for the state Department of Health in Albany. "We will be prepared."

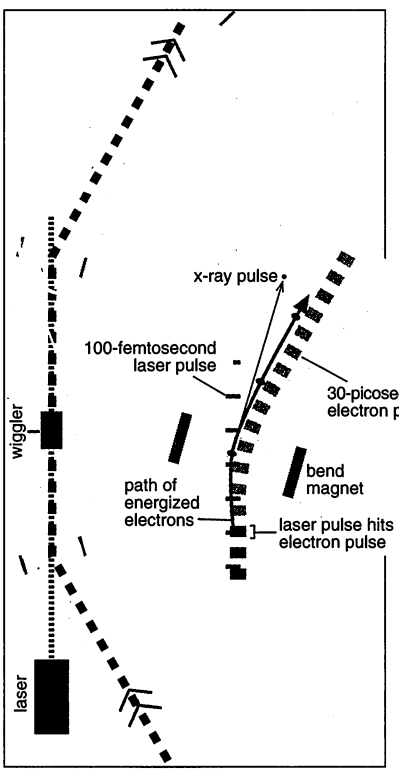
–MARTIN ENSERINK

SYNCHROTRON SCIENCE

X-ray Pulses Chopped To Femtoseconds

Nightclub operators aren't the only ones who like strobe lights. Chemists in recent years have increasingly turned to short pulses of x-rays to illuminate the dance of atoms in molecules as they undergo chemical reactions. Using nanosecond pulses of x-rays at synchrotrons, for example, researchers have made movies of proteins as they bind to molecular dance partners (*Science*, 27 June 1997, p. 1986). Now a team working at Lawrence Berkeley National Laboratory's Advanced Light Source (ALS) synchrotron in California has managed one better.

On page 2237, the team reports generating x-ray pulses lasting a mere 300 quadrillionths of a second, or femtoseconds. And the researchers are now building a fast-pulse beamline at the ALS, which is expected to shave those pulses down to 100 femtoseconds. The new pulses aren't bright enough at the moment to shed light on massive molecules such as proteins, but by giving freeze-frame views they may help unveil intimate details of key atoms in molecules in disordered solids and liquids as they undergo reactions. "It's an exciting experiment," says James Penner-Hahn, a chemist and fast-pulse x-ray expert at the University of Michigan, Ann Arbor, of the new work. By allowing researchers to see atomic close-ups of chemical reactions as they occur, "I think it would open up a whole new class of experiments," he says.



Flash! Electrons zapped by supershort laser pulses emit femtosecond x-rays as they round the bend.

X-rays aren't the only type of short-pulsed strobe out there. Chemists track chemical reactions with infrared laser pulses as short as a few femtoseconds. Laser pulses, however, tell researchers only about the chemical components of the compounds they are looking at. X-rays can illuminate the precise structure of atoms in a sample.

For that reason the Berkeley group—led by physicist Robert Schoenlein—has been working to generate ever shorter x-ray pulses. Four years ago, Schoenlein and his colleagues created the first 300-femtosecond x-ray pulses through a technique called relativistic Thomson scattering (*Science*, 11 October 1996, p. 236), which uses electrons careening through a linear accelerator to kick pulses of infrared photons up to higher x-ray energies. But the resulting x-ray pulses were too dim to be useful for most experiments.

This time around, the researchers turned to the ALS, which produces extremely bright bursts of x-ray photons. The catch is that those x-ray bursts last about 30 picoseconds each, over 1000 times too long to illuminate the fastest atomic movements. So the team had to come up with a way to chop out part of each long pulse while retaining enough photons to capture the action. They started by manipulating not the synchrotron's x-rays, but the electrons that produce them. Synchrotrons accelerate bunches of electrons to relativistic speeds in a stadium-sized "ring," actually a 12-sided polygon. Magnets at the vertices of the polygon force the electrons to bend and travel around the ring; the change of direction causes them to shed x-rays, which can be used in experiments.

The Berkeley researchers wanted to slice off a portion of each electron bunch and use those to generate short x-ray pulses. They did so with the help of a femtosecond optical laser and a magnetic device called a wiggler, a gantlet of alternating north and south magnetic poles that force electrons traveling between them to shimmy back and forth, releasing additional x-rays with every wiggle. The researchers rigged their laser to fire light pulses into electron bunches as they passed through a wiggler in the straight section of the polygon. Light rays—like other forms of electromagnetic radiation—travel like waves with peaks and troughs in their electric field as they move. And in strong laser pulses, all the photons travel in lockstep, with their peaks and troughs coinciding.

This coherent motion creates a strong electric field. Ordinarily, the field would not