Biomedicine

Resignation tied to misconduct probe

Five months into his tenure as president of Rockefeller University in New York City, Nobel laureate David Baltimore announced his resignation from that post effective Dec. 31. Baltimore, formerly the director of the Whitehead Institute for Biomedical Research in Cambridge, Mass., cited the long-running controversy over a scientific paper he coauthored, which appeared in the April 25, 1986 CELL. The paper subsequently became the focus of investigations by a House subcommittee and the National Institutes of Health (NIH).

"The reason I have decided to take this step is that the CELL paper controversy created a climate of unhappiness among some in the University that could not be dispelled," he said in his Dec. 2 resignation letter. "When I accepted the position of President of this institution, I did not anticipate that this matter would become such an extended personal travail for everyone involved."

Though never charged with any wrongdoing himself, Baltimore drew some sharp criticism for his conduct during the investigations. Last May, he expressed regret for his aggressive defense of Thereza Imanishi-Kari, a coauthor on the 1986 CELL paper, which described a surprising immune reaction in mice (SN: 5/11/91, p.294). An NIH draft report spurred Baltimore's change of heart. It concluded that certain key data underpinning the paper appeared fraudulent. The questionable data appear in the laboratory notebooks of Imanishi-Kari, an immunologist who conducted many of the experiments detailed in the CELL paper when she worked at MIT.

Alzheimer drug will get wider testing

The maker of the experimental Alzheimer drug tacrine (THA) won the Food and Drug Administration's okay last week to distribute the still unapproved medication more widely under the FDA's special "expanded-use" program for promising but unproven therapies.

FDA Commissioner David A. Kessler announced on the CBS show "This Morning" that Warner-Lambert Co. may provide THA in a range of escalating dosages to up to 3,000 Alzheimer's patients not enrolled in a controlled clinical trial of the drug. But Kessler cautioned that "it's very important to underline that it's only suggestive that the drug works." He added that while previous trials indicated that THA can slow memory loss among some Alzheimer patients, they also demonstrated the drug's potential for damaging patients' livers.

An FDA advisory committee declined to recommend approval of THA last March, citing the insufficiency of safety and efficacy data (SN: 3/23/91, p.180).

Stomach bug linked to gastric cancer

A fourth epidemiologic study linking a specific bacterial infection to cancer of the stomach "puts forth beyond a reasonable doubt" the emerging theory that the bug is somehow associated with the often-fatal cancer, says a British researcher.

But it remains unclear whether *Helicobacter pylori* actually causes gastric cancer, cautions David Forman of the Imperial Cancer Research Fund in Oxford, England. In an editorial accompanying the latest research report — which appears in the Dec. 4 JOURNAL OF THE NATIONAL CANCER INSTITUTE — Forman writes that proof of a causal tie must await the outcome of future studies testing whether antibiotic treatment can reduce gastric cancer risk.

In the new study, Nicholas J. Talley of the Mayo Clinic in Rochester, Minn., and his colleagues found that patients with gastric cancer were more likely to have antibodies to *H. pylori* than were healthy volunteers or patients with several other types of cancer.

Materials Science

Elizabeth Pennisi reports from Boston at a meeting of the Materials Research Society

Electricity makes porous silicon glow

Several research groups report that they have induced silicon — long considered an "optically dead" material — to emit light when zapped with electrical current. These demonstrations of electroluminescence follow announcements that British and French researchers had used laser light to make porous silicon wafers light up (SN: 8/31/91, p.135). These unexpected light-emitting properties mean that engineers might successfully use silicon to make optoelectronic devices essential to faster computers, says physicist Frederick Koch of the Technical University of Munich in Germany.

Researchers make silicon porous by putting it in acid. W. Lang and his colleagues at the Institute for Solid State Technology, also in Munich, observe orange light when they apply voltage to a contact atop porous silicon, Lang says. Nobuyoshi Koshida of Tokyo University of Agriculture and Technology also reports seeing orange electroluminescence in his group's silicon.

Scientists at IBM's Thomas J. Watson Research Center in Yorktown Heights, N.Y., and at Spire Corp. in Bedford, Mass., report building prototype devices for studying the potential applications of porous silicon electroluminescence. A voltage makes these devices give off visible light.

Although many researchers have ideas about how silicon's luminescence occurs, there is no general agreement about what causes silicon to glow.

Mighty material breaks boulders

Japanese scientists have developed a device that uses thin rods of a titanium-nickel alloy to break up room-size rocks and concrete structures. The alloy is a shape-memory material: It changes its shape in response to changes in temperature or pressure, but then "remembers" its original form when heated, explains Minoru Nishida, a metallurgist at Kumamoto University in Japan. Recognizing that the alloy recovers its shape with a force greater than what rocks can withstand, Nishida's team has built two rock-cracking devices.

The devices use three to nine alloy rods, each about 15 millimeters across and 29 millimeters long. The rods weigh about 35 grams each. The researchers first compress the rods to shorten them, and then mount them between and perpendicular to adjustable plates, Nishida says. For one type of breaker, the researchers insert the device into a small borehole drilled into the boulder. Then they heat the rods. As the rods "remember" their original shape and lengthen, they push the plates against the hole walls, and the increased pressure cracks the rock.

These devices have proved useful in breaking up large boulders at a golf course and concrete bases for power lines on private property, Nishida says. They work quietly and without much mess and so can be used in building renovations or underwater, he adds. Tokin Corp. in Sendai, Japan, now makes the devices.

Gallium arsenide: Not really super

Scientists who announced last spring that they had made gallium arsenide conduct electricity with no resistance at 10 kelvins (SN: 6/15/91, p.372) now say that a contaminant causes this superconductivity. Eicke R. Weber at the Lawrence Berkeley Laboratory in Berkeley, Calif., reports that indium had diffused from the template upon which he and his co-workers made the gallium arsenide sample. The indium settled into the lattice of the semiconductor, altering its electrical properties. He and his colleagues are still unsure of the mechanism of this superconductivity, but Weber says they can now consistently make layered thin films with indium and gallium arsenide that show this property. He hopes one day to put this material to use in electronic components.