RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Death From Lab Poisoning

In a tragic end to a story that began last summer, an internationally known research chemist at Dartmouth College in Hanover, New Hampshire, Karen Wetterhahn, 48, died 7 June of poisoning from a few drops of a potent neurotoxin she spilled on her lab glove 10 months ago.

Wetterhahn studied the effects of heavy metals on living organisms. The accident occurred when she was attempting to measure the nuclear magnetic resonance spectrum of dimethyl mercury, which is used as a reference material for other toxic compounds. "She was taking what any of us would have considered prudent and reasonable precautions," says John Winn, head of the Dartmouth chemistry department. She used a hood to protect her from fumes and was wearing a face shield and latex gloves when she spilled the dimethyl mercury, a colorless, highly volatile organic compound 3.2 times as dense as water on her glove. It apparently was absorbed almost immediately.

Wetterhahn reportedly did not regard the incident as serious at the time. But last January she began experiencing difficulty with balance, speech, vision, and hearing. She was hospitalized, and on 28 January was diagnosed with mercury poisoning—with blood levels 80 times the threshold level for toxicity.

Three weeks later she went into a coma. "I don't think any of us recognized" the mercury would turn out to be so penetrating, says Winn—or that it would be so "compatible" with latex. Subsequent tests showed that the mercury "penetrates disposable latex gloves in 15 seconds or less," Winn and two colleagues reported in a letter in the 11 May *Chemical & Engineering News*. They recommend that with highly toxic chemicals, two pairs of gloves—one of them laminated, the other heavy-duty—be worn.

Chemist Tom Clarkson of the University of Rochester in New York, where Wetterhahn's blood sample was analyzed, says methyl mercury used to be a popular crop fumigant. Its main use currently is to calibrate other compounds. Now, says Winn, "We're trying to urge the chemical community to establish a safer substitute for use as a standard."

Harvard Hopes for Good Chemistry

Harvard Medical School has announced a university-industry initiative, the Harvard Institute for Chemistry and Cell Biology, which—contrary to usual practice—will cut no special deals for its industry sponsors.

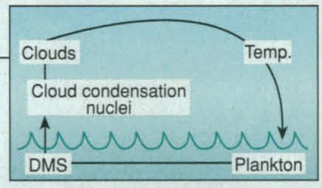
The institute will apply combinatorial chemistry techniques to biology, creating thousands of compounds and testing them for their effects on proteins encoded by the genes being characterized by the Human Genome Project. Industry-academic agreements almost always give industry proprietary privileges. But "for this kind of science, prenegotiated rights impose too many restrictions and conflicts," says Harvard cell biologist Marc Kirschner. That means no enforced publication delays, and no barrier to the use by anyone of new techniques developed at the institute.

Instead, industry sponsors—who will be asked to contribute a collective $6 million per year—will get to send their researchers to Harvard for sabbaticals. "We're creating new technology," says synthetic chemist Stuart Schreiber, co-director of the institute with cell biologist Tim Mitchison, who is moving to Harvard from the University of California, San Francisco. "Our hope is that sponsors will recognize the importance of participating in this learning process." Steve Holtzmann, vice president at the Cambridge, Massachusetts, biotech firm Millennium Pharmaceuticals and former director of the Edison Project—an Ohio business-university research initiative—agrees that access to cutting-edge research and top academic talent should help compensate industrial partners for not having the usual legal privileges.

E. G. SEEDER

City of science. At a first glance, it looks like a giant, rusty ocean liner on its way to the sea floor. But the spectacular building jutting out into Amsterdam's main waterway is a new science and technology center, newMetropolis. Opened on 3 June, it was designed by Italian architect Renzo Piano, famous for the Centre Pompidou in Paris. Director Joost Douma says the center will teach people scientific and technological skills, like formulating hypotheses and inventing experiments to test at its 220 work stations. The new museum "really is a sensational place," says a recent visitor, Bonnie VanDorn, director of the Association of Science-Technology Centers in Washington, D.C.

A visitor can play banker, using a computer to select investment strategies; don a lab coat and examine soil samples, or deploy small sandbags and water wheels to build dams and generate power in a river flowing through an aluminum tank. Some exhibits are designed to foster cooperation: In one, people have to work together to operate a mirror that can make small planes fly by casting light onto their solar panel–covered wings.



A connection broken? Gaia cycle.

Gaia Flunks Pacific Test

According to the Gaia hypothesis, first advanced in the 1970s by British scientist James Lovelock, life has had a hand in keeping Earth's climate from going to extremes. Gaians say that one of the most promising possible mechanisms may be a climate cycle involving ocean phytoplankton that, like a thermostat, helps set Earth's temperature. But in the 15 April issue of *Geophysical Research Letters*, oceanographers Timothy Bates and Patricia Quinn of the National Oceanic and Atmospheric Administration's Pacific Marine Environmental Laboratory in Seattle suggest this thermostat may not exist.

The theory is based on the fact that ocean phytoplankton produces a chemical, dimethyl sulfide (DMS), that enters the atmosphere and forms tiny particles that accumulate water vapor to form cloud particles. Atmospheric chemist Robert Charlson of the University of Washington, Seattle, and others have proposed that this was part of a feedback cycle: Those cloud particles might cool the ocean by shading it, thus dampening phytoplankton growth and the production of DMS. Less DMS would, in turn, help to clear the skies.

But Bates and Quinn have blown a hole in the scenario. They compiled a 15-year record of DMS in tropical Pacific waters, predicting that if the feedback loop were operating, the DMS in the ocean would rise and fall. But in fact, they were surprised to find little variation despite wide, El Niño–induced swings in temperature and cloud cover.

Charlson's not ready to give up yet. Just because there's no evidence for feedback in that part of the system "doesn't mean a feedback doesn't exist," he says.