RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Scientists Defend Russian Whistleblower

Last month, Russian chemist Vil Mirzayanov was jailed after he publicized a new chemical weapon purportedly under development at a government laboratory in Moscow. Now, his defenders are trying to draw Russian President Boris Yeltsin into the fray.

On 26 October, Mirzayanov was arrested on charges of "disclosing a state secret" after he revealed details about a secret project, called "Foliant," to develop a sophisticated new binary nerve gas. Mirzayanov first described the program, at the State Union Scientific Research Institute for Organic Chemistry and Technology, in an October 1991 article in *Currents*, a Moscow newspaper. Then last September, he coauthored an article with chemist Lev Fyodorov in the *Moscow News*, and he was featured in a series of *Baltimore Sun* articles on Russian chemical weapons research.

Now Russian and U.S. scientists are appealing to Yeltsin to clear Mirzayanov's name. In an open letter published in the 29 October *Currents*, Fyodorov urged Yeltsin to free Mirzayanov and to open the institute's research to public scrutiny. The Federation of American Scientists (FAS) appealed to Yeltsin as well. "Many of us believe that [scientists] have a moral right...to alert the world scientific community to the fact of new and more dangerous weapons being under development in secret projects," wrote FAS president Jeremy Stone.

As *Science* went to press, Yeltsin had not responded publicly. But the political pressure may be working. The *Baltimore Sun* reported last week that Mirzayanov has been released pending his (yet unscheduled) trial. And an official of the National Academy of Sciences says NAS president Frank Press may bring up the issue during discussions next week with the Russian Academy of Sciences.

Meanwhile, Stone wants to use the Mirzayanov incident as a launching pad to develop guidelines on how scientists should act in such a situation. Stone plans to lead a discussion of the issue at the FAS annual meeting on 5 December in Washington, D.C. He also invites scientists to send comments to the FAS at 307 Massachusetts Ave., N.E., Washington, D.C. 20002.

Stamp Honors Black Chemist

In 1946, *Reader's Digest* described black chemist Percy Lavon Julian, who suffered discrimination throughout his career, as "The Man Who Wouldn't Give Up." But as of 29 January, he will finally be licked: Julian will make his debut on a postage stamp for the Postal Service's Black Heritage Series. Others in the series are agricultural chemist George Washington Carver, physician Charles Drew, social reformer Sojourner Truth, sociologist W.E.B. DuBois, baseball great Jackie Robinson, and Martin Luther King, Jr.

Alabama-born Julian, who earned his Ph.D. in Vienna, won acclaim for the synthesis of physostigmine, a drug used to treat glaucoma, with collaborator Josef Pikl. Julian later became director of research for the Soya Products Division at the Glidden Company, where his research on soybean products led to the development of new steroid-based drugs. He died in 1975.

Depo-Provera Opposed by Nader Group

Last month, the Upjohn Co. gained a long-sought victory when the Food and Drug Administration (FDA) approved the use of Depo-Provera as an injectable contraceptive for women. But the government's decision has failed to still the drug's critics. Public Citizen Health Research Group, a Washington, D.C.–based advocacy group, likely will challenge the decision in court, according to its director Sidney M. Wolfe.

Depo-Provera, currently in use in more than 90 countries, has had a tough time winning acceptance in the United States. In the mid-1970s Congress overturned an FDA advisory committee's recommendation to approve it. Then, in 1984, an FDA special panel criticized many of the safety studies done on the drug and recommended against its approval. Upjohn returned to the regulatory waters because a recent World Health Organization (WHO) study concluded that Depo-Provera doesn't increase the risk of cancers of the liver or cervix—key issues in its rejection in the United States—and may even protect against cancer of the uterine lining (*Science*, 26 June, p. 1754).

Depo-Provera's critics insist that it has yet to be proven safe. The biologist who chaired the FDA's special panel, Judith Weisz of Pennsylvania State University's Milton S. Hershey Medical Center, points to the WHO study, which shows that Depo-Provera might increase the risk of breast cancer, and to other studies suggesting that the drug might induce osteoporosis in some women. Supporters of Weisz, however, failed to convince an FDA advisory committee of these concerns in June, when the committee unanimously recommended approval of the drug.

Weisz told *Science* that at the very least, Upjohn should start a registry of women who are prescribed Depo-Provera, similar to the one in place for silicone breast implants, that would enable researchers to chart the drug's long-term effects. Better yet, says Wolfe, "would be to convince [the FDA] that they made a mistake."

An Upjohn spokeswoman says that the company has no plans for a registry.

Aluminum Hypothesis Shot Down

You may be able to get out your aluminum saucepans again. A popular theory that aluminum may play a role in the development of Alzheimer's disease is severely undermined by a new study from a group at Oxford University that appears in the 5 November issue of *Nature*.

Several studies have suggested an association between aluminum and Alzheimer's, and some researchers have found aluminum in the neuritic plaques that characterize the disease. But neuropathologist J.P. Landsberg and colleagues now believe that these results may be an artifact resulting from the use of stains contaminated by airborne dust.

The researchers used a new technique, high-voltage nuclear spectroscopy, to examine both stained and unstained brain tissue obtained postmortem from Alzheimer's patients. Of the 105 plaques in stained tissue, from 5 subjects, less than 10% of the samples contained aluminum deposits. And small amounts of aluminum as well as silicon (the two are usually found together) were detected in control tissue as well.

The technology was also applied to unstained tissue on 80 Alzheimer's plaque cores that were "unambiguously" identified by other means. The result: alu-

minum was not observed in any of them. The researchers conclude that "we now believe that previous evidence that aluminium is involved in the aetiology of Alzheimer's disease should be reviewed to take into account the probable contamination of tissue by alumino-silicates present in most reagents."

Minorities in Medicine

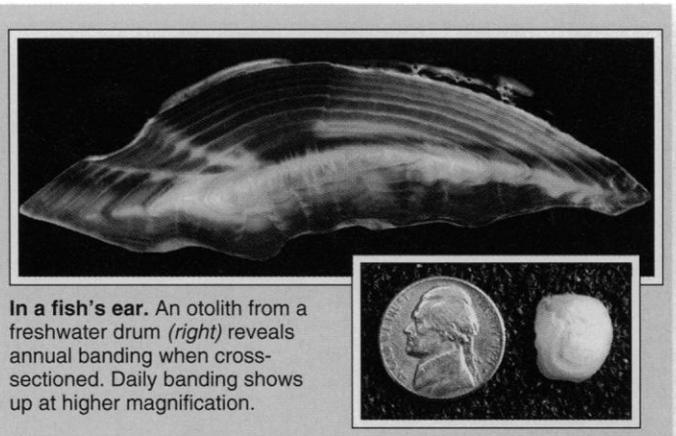
Some black researchers have voiced the concern that too large a fraction of biomedically inclined black students head for medical rather than research careers. But not many black males are going to medical school either, according to the latest figures from the Association of American Medical Colleges (AAMC).

The number of students from underrepresented minorities who entered medical school this fall crept to a record high—to 1827, or 11.2% of the total—says the AAMC. Minority women entrants, up by 20.4% over last year, led the way, but the number of black male entrants went up only slightly. Indeed, the number accepted into medical school has been static for some years (see chart).

The AAMC has been promoting a goal of 3000 entrants from underrepresented minorities into the nation's 126 medical schools by 2000. That would mean a 64% increase in 8 years. But over the past 8 years, the number has only gone up by 25%. As AAMC president Robert G. Petersdorf observes, "much work remains."

Minority Applicants Accepted to Medical School

	Males	Females
Black		
1986	524	534
1992	509	782
Chicano		
1986	192	101
1992	240	178
American Indian		
1986	36	24
1992	55	48



In a fish's ear. An otolith from a freshwater drum *(right)* reveals annual banding when cross-sectioned. Daily banding shows up at higher magnification.

TOP PHOTO: PATTERSON *ET AL.* INSET: BOB KALMBACH/U. OF MICHIGAN

Getting an Earful of Climate

Fish ears rarely make the news, but their contents have some fascinating tales to tell. Most fishes' ears contain stones called otoliths—lumps of calcium carbonate that can be as big as marbles and are thought to play a role in hearing and balance. Now a group of researchers from the University of Michigan has found that otoliths can serve another function—they offer clues to seasonal temperatures thousands or even millions of years ago.

What geologists William Patterson and K. C Lohmann and paleontologist Gerald Smith have discovered is a new twist on an old strategy. For several decades, geochemists have tracked ancient climates by analyzing oxygen isotopes in tiny fossils from seafloor sediments. Because the rate at which living things extract each isotope from water varies with temperature, the ratio yields clues to the temperatures of ancient oceans—and thus the prevailing climate.

Ocean sediments only reveal changes on very large time scales, and they couldn't help Patterson and Smith, who wanted to look at climate changes in the North American interior. But the scientists guessed that otoliths from freshwater fishes might give them a record of seasonal temperature extremes on land. Every day, a fish adds a whisper-thin layer of carbonate to the otoliths in its ears. By slicing open ancient otoliths—found in fossil deposits and among artifacts from Indian tribes, who collected them—counting these daily growth rings, and analyzing the oxygen isotopes at closely spaced intervals, the researchers thought they might trace shifts in water temperature over periods as short as a week.

After analyzing otoliths from modern fish to see how the isotopes vary with water temperature and composition, Patterson and Smith were ready to put their fish ear "geothermometer" to work. They've already found isotope fluctuations in 3.5-million-year-old otoliths from Florida and Idaho, says Patterson—the signature of seasonal temperature swings in long-vanished lakes—and they are now putting actual numbers on those extremes.

Patterson and Smith, who reported their findings last month at the meetings of the Geological Society of America in Cincinnati and the Society of Vertebrate Paleontology in Toronto, plan next to analyze a succession of otoliths a century or two apart to map the seasons in the Great Lakes region over the last few thousand years. But Patterson thinks that will far from exhaust the technique's potential. Fossil beds have yielded otoliths up to 150 million years old, which, he says, might offer a glimpse of a typical year for a dinosaur.

Coyote Research Facility Trashed

On 24 October, vandals burned down a field office at a Department of Agriculture research facility in Utah, liberated a handful of coyotes, and set off a small incendiary device in the office of USDA investigator Fred Knowlton at nearby Utah State University (USU). They thus became the first to violate a law passed last August that makes it a federal crime to vandalize research animal facilities.

The break-in occurred at the Millville Predator Research Facility run by the Animal and Plant Health Inspection Service. Local authorities estimate that damage to the field office may approach $500,000. Knowlton, a wildlife biologist who heads a project to find ways of alleviating coyote predations on livestock, says the damage to his office was minor.

Uncharacteristically, no one has claimed credit for the Utah performance, although a design spray-painted at the USU office suggests involvement by an animal rights group in the Pacific Northwest, says Barbara Rich of the National Association for Biomedical Research. Rich says the Millville episode is the first lab break-in since last February, when the Animal Liberation Front wrecked offices and burned files to protest a mink nutrition research project at Michigan State University.

So far, says Rich, only four cases involving lab break-ins have actually been prosecuted. But Knowlton says that five investigative agencies—local, state, and federal—are homing in on the Utah case. Among the penalties provided for by the new Animal Enterprise Protection Act is a 1-year jail term for anyone causing more than $10,000 worth of damage.

Correction

"Dodging the Needle in Health Care" (2 October, p. 34) stated that 2% of HIV-contaminated needle-sticks are expected to lead to infection with the virus. The correct figure is between 0.25 and 0.4%.