RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Controversial Head Hangs on at WHO

Researchers working on the health problems of developing countries are worried that they may become long-term casualties of the bruising political battle that preceded the reelection last week of Hiroshi Nakajima as director-general of the World Health Organization (WHO). Rumors are rife that Western aid agencies—which opposed the Japanese pharmacologist's bid for a second 5-year term—may now reduce their donations to WHO research programs.

Officials from the rich Western countries that provide the lion's share of WHO's budget have complained that the agency lacks leadership and have charged that Nakajima has surrounded himself with a cadre of loyal friends and failed to fill top WHO jobs with managers of proven competence. But their complaints failed to sway both WHO's executive board, which backed Nakajima in January, and now the agency's full governing assembly, which voted 93 to 58 to give him a second term. It was a pale endorsement, given that such votes have been essentially a rubber stamp in the past. But Nakajima was supported by Japan and by many developing countries—some of which, according to Western sources, were subjected to heavy Japanese diplomatic pressure.

Now, the fear is that donor agencies will withdraw funds from activities funded through voluntary donations rather than the mandatory WHO subscription. These include the widely praised $32 million-a-year Tropical Diseases Research program. If Nakajima doesn't rapidly instigate reforms at WHO, one Geneva-based health official told *Science*, "I believe...that there will be a significant falling off of extra budgetary resources over the next few years."

If that happens, says Richard Wilson of the Council on Health Research for Development, a new Geneva-based agency, it would be a serious blow for research: "These are the most effective programs within WHO."

EDWARD G. LINES JR./JOHN G. SHEDD AQUARIUM

Net beeper. Freed from entanglements.

Whale Alarm

A beluga whale looks on as Mark Ryan of Chicago's Shedd Aquarium prepares a device designed to warn whales away from fishing nets. Every year thousands of whales, dolphins, and porpoises get caught in nets meant for other species. A few years ago, marine biologist Jon Lien of Newfoundland's Memorial University developed an alarm system to attach to nets that would ward off the cetaceans by emitting sounds only they could hear. But it was so expensive that no one would buy it. Now, students at Northwestern University's Triple M program, a joint business and engineering program, have modified the system to make it cheaper. Successfully tested last month at the aquarium, it's available for $25, or $100 per net—about one-tenth the original cost. Students say they already have 5000 orders for the device, from Newfoundland and New Hampshire.

Using Plants as Prospectors

Searching for mineral deposits is not cheap: In Japan, it costs about 50,000 yen ($454) per meter for a test bore, and $9,000 or more for a deep probe. However, the Metal Mining Agency of Japan (MMAJ) is taking a new look at an old idea: harnessing plants to locate gold deposits.

An MMAJ group has been studying a wide variety of plants that grow around active gold and other mines to find those species that seem to have a taste for heavy metal. The theory is that even where gold and other rare minerals exist at great depths, small quantities make their way to the surface via groundwater. There they are ingested and stored by certain plants in their leaves. In fact, MMAJ collected about 30 species of plant from around several gold mines and analyzed their leaves by an atomic adsorption technique. Lo and behold, some types of small deciduous trees, such as bush gromwell, as well as some beech trees and spice bushes, have been found to be particularly prone to absorb gold, showing amounts ranging from 0.2 to 1.0 parts per billion.

In the future, then, if MMAJ official Takahisa Yamamoto is right, mining companies may be able to reduce the amount of expensive test drilling they do. Instead, after identifying prospective mining areas through aerial surveys, they'll be using plants to narrow down the hunt.

Researchers' Homes Vandalized

Animal rights activists broke car windshields and spray-painted phrases like "cat killer" on cars and garage doors of four government scientists and the president of Biocon, a private testing lab in the Washington, D.C. area, in late April. The occasion was "World Week for Laboratory Animals," which animal rights activists have made an annual event. The Associated Press reported that an anonymous caller from a group called the Animal Avengers explained: "We want the neighbors to know who they [the researchers] are."

The harassment may signal the tack animal liberationists will now take, says Frankie Trull, president of the Foundation for Biomedical Research, in the wake of the Stenholm bill. Passed into law last fall, the Animal Enterprise Protection Act, authored by Representative Charles Stenholm (D–TX), gives law enforcers much more leverage against terrorist-type acts by making lab break-ins a felony, but the law didn't kick in for petty acts such as last week's, says Trull. Activists may be making the point that they still "can cause a lot of damage" and intimidation without breaking the new law, she adds.

OTA Finally Gets New Director

Two days after suffering the embarrassment of having the leading outside contender for its top slot withdraw from consideration at the last minute, the congressional Office of Technology Assessment (OTA) bounced back with a safer bet: Its acting director, physician Roger Herdman. OTA's congressional board, chaired by Senator Edward Kennedy (D–MA), voted to give Herdman the job on a permanent basis last week after Maxine Savitz, an Allied-Signal Inc. electrochemist, turned OTA down (*Science*, 7 May, p. 743).

Before taking the acting director's job in January when John Gibbons left to become the White House science adviser, Herdman had directed OTA's Health and Life Sciences Division for 9 years. Before that, he was a vice president of Memorial Sloan-Kettering Cancer Center, and public health director of the state of New York. At OTA, however, Herdman was not well known outside of his own division, and his selection to head the agency came as a surprise to some congressional observers. One expressed disappointment that OTA's board had apparently rushed to make a selection after Savitz suddenly withdrew last week. Morale has been low at the agency in the months since Gibbons left, and the source was not optimistic that the appointment of a little-known insider would turn things around.

Sixth AIDS Case Traced To Florida Dentist

Florida dentist David J. Acer died of AIDS in 1990, but his grim legacy lives on. Another former patient of Acer's has tested positive for the AIDS virus, according to the Centers for Disease Control and Prevention in Atlanta—bringing the current tally to six.

About 1100 of Acer's patients were tested for HIV after Kimberly Bergalis, a 23-year-old Florida woman who died last year, became the first to link her HIV infection to treatment by Acer. But some of Acer's patients initially refused to be tested, and the current case is one of those: The woman's status was uncovered when she submitted to the Army's HIV screening program for new recruits.

Strong circumstantial evidence links the six cases to Acer, since all of them were infected with the same strain of HIV and the dentist did not always follow basic sterilization procedures.

The Acer case is unique: There have been no other documented instances of HIV transmission from health care workers to patients. Press reports last year quoted a friend of the dentist who suspected Acer deliberately passed on the virus to impress on the public the importance of AIDS.

Dutch Astronomers Espy Supershells

For years astronomers have been intrigued by the "shells" of expanding gas that are found in the Milky Way and other galaxies. The shells encircle huge cavities in galaxies—areas where hydrogen has been blown out of a region—and are thought to be formed by clusters of exploding stars.

But this explanation has been cast in doubt for a pair of huge shells recently discovered by two Dutch astronomers, who believe they have happened upon the largest examples of the genre ever observed. Richard Rand and J.M. van der Hulst of the University of Groningen in the Netherlands came across the two "supershells" of hydrogen gas in the nearby galaxy NGC 4631 while scanning the galaxy with the radio telescope in Westerbork. They say the larger shell has a diameter of some 9800 light-years—about one-tenth the width of the Milky Way's entire disk. The other shell is a little more than half that size. But it is their energy, more than their sheer size, that raises astronomers' eyebrows. The larger shell, which appears to be expanding at a speed of 45 kilometers per second, has pushed out a mass of gas equivalent to 100 million suns.

Moving so much mass at this velocity requires phenomenal amounts of energy—which raises questions about how it is generated. For less energetic shells of expanding gas, closely knit "associations" of extremely luminous and massive stars known as OB stars can do the trick. Strong stellar winds and supernova explosions in such star groups can push interstellar gas out to form the shell-shaped structures. However, as Rand and van der Hulst calculate in a forthcoming paper in the *Astronomical Journal*, it would take 10,000 to 35,000 such stars to explain the supershells in NGC 4631—and that's at least 10 times as many as are in the biggest OB association known.

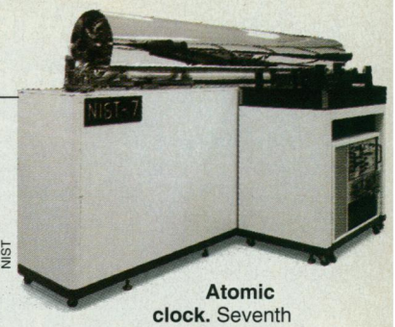
There's another possible origin for the supershells: They may have been created when their host galaxy collided with small companion galaxies or massive gas clouds in the recent past. But it is difficult to imagine how such collisions could form the near-complete rings reported by Rand and van der Hulst: Computer simulations of collision scenarios lead to hemispherical shells, rather than to the nearly full circles observed in the supershells. For now, Rand and van der Hulst have dumped a big new set of questions into the laps of shell theorists.

Refining the Tick-Tocks Of an Atomic Clock

The timekeepers over at the National Institute of Standards and Technology (NIST) just couldn't get used to the idea that their premier timepiece would be off by 10 seconds 3 million years from now. Now they can rest easy. NIST has just replaced its 18-year old atomic clock, NBS-6, with a new model. NIST-7 isn't perfect either, but it's closer; it is expected to be off by just a second in A.D. 3,001,993.

That makes NIST-7, now the reference timepiece for U.S. scientists and space missions, one of the world's most accurate clocks, says metrologist Robert Drullinger, who helped design the clock at NIST's facility in Boulder, Colorado. The improved ticker is welcomed by physicists doing fundamental studies on atomic and nuclear behavior, as well as NASA scientists whose ability to control craft in deep space improves along with the accuracy of clocks.

An architect's dream project. The Howard Hughes Medical Institute last week dedicated its plush new headquarters in Chevy Chase, Maryland, right around the corner from the National Institutes of Health. Hailed by critics as "a masterly architectural achievement," the $55 million complex includes conference facilities and housing for visiting scientists.



NIST

Atomic clock. Seventh generation clock won't be off for 3 million years.

How did the timepiece get so good? All atomic clocks depend on electrons of cesium atoms, which are made to oscillate rapidly between two states in a vacuum chamber. But for the clocks to exploit these blindingly fast pendulums, they have to have a means to prep the atoms so that they start out oscillating in register. Otherwise, they would appear as a blur to the detectors counting the oscillations.

In NBS-6, magnetic fields could select atoms in one of the two states, but the signal was blurred because the atoms could be traveling at any angle into the vacuum chamber. NIST-7 reduces this source of error by switching from magnetic fields to diode lasers, which pump atoms traveling in a particular direction into one of the states, Drullinger says. He adds that NIST-8 is already in the works. That will reduce another source of error, and increase the clock's accuracy more, by cooling the atoms to nearly absolute zero.

EMF Not Guilty in Kidney Tumor Case

Jurors have absolved a utility company of responsibility in the nation's first personal injury suit involving electromagnetic field (EMF) radiation (*Science*, 23 April, p. 479). Following a month-long trial in a state court in San Diego, jurors took 4 hours to decide that San Diego Gas & Electric Co. was not negligent for failing to warn the family of 5-year-old Mallory Zuidema about potential health hazards around high-voltage power lines. The child has Wilms tumor, an extremely rare kidney cancer that the family attributed to EMF radiation but that defense witnesses claimed is genetic in origin.