Briefings

edited by CONSTANCE HOLDEN

NSF Bombs in Ice Capade

On 30 December, scientists working for the National Science Foundation (NSF) enraged environmental groups by blowing up several containers of chemicals on the open ice near the U.S. McMurdo Station in Antarctica—without benefit of an environmental impact statement.

News of the explosion was relayed to the world by Greenpeace, a group that has been highly critical of NSF's environmental activities in Antarctica. "Just months after signing the Environmental Protocol for Antarctica, the U.S. is found skulking about, blowing up dangerous chemicals, and hoping no one would notice," said Dana K. Harmon in a statement from Greenpeace's base in Antarctica.

Greenpeace was not alone in its indignation. Environmental Protection Agency (EPA) insiders have told *Science* that EPA officials were also aghast at the apparent lack of concern NSF showed for following the new protocols.

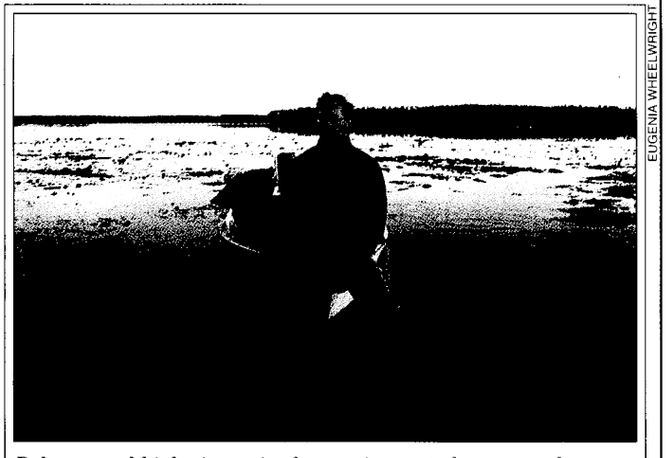
NSF officials in Washington claim they had few, if any options. The chemicals that were blown up were extremely explosive peroxide-forming compounds that, according to Lawrence Rudolf of the NSF general counsel's office, could not be safely transported out of McMurdo. Rudolf says NSF did perform an environmental assessment, concluding that safety concerns outweighed any potential environmental impact, which was thought in any case to be minimal. But he admits the assessment was never formally written up. Says Rudolf: "We need to do a better job in future to get a formal report prepared." With federal policy regarding environmental protection in Antarctica currently under review, it's likely that the EPA will try to see to it that they do.

FWS Ruffles Ornithologist's Feathers

Strict laws designed to curb imports of birds—mainly those brought in from Latin America for the pet trade—are proving increasingly onerous for U.S. ornithologists. Now, some say, a scientist can hardly carry a feather across a border without becoming ensnared in the unforgiving bureaucracy of the U.S. Fish and Wildlife Service (FWS).

A recent case in point concerns ornithologist Nathaniel Wheelwright of Bowdoin College in Brunswick, Maine. Last spring, he obtained an FWS permit to pick up samples of a few dead (and unendangered) birds in Canada and bring them back to Bowdoin for study. But after he declared them on his return, the FWS confiscated the birds and charged him with three violations of the Migratory Bird Treaty Act. Among his crimes: Because of an error on the permit, bird skins had not been listed. And although Wheelwright had been assured by FWS over the phone that he could report the skins on his return, he says, he was told that the oral assurance was not valid.

After protesting to the FWS and mustering colleagues to do likewise, Wheelwright was eventually told that the FWS would let him off for a $50 fine. But by then he had his principles to consider. He chose to stand trial—the case is now scheduled for March in federal district court. "The FWS law enforcement service has us hamstrung," he says. Wheelwright says he can't get those in authority to explain their stance. He wrote FWS acting director Richard Smith but was told that, "In view of the fact that you are contesting the issuance [of the] violation notice, it would be inappropriate for me to comment on this matter."



EUGENIA WHEELWRIGHT

Beleaguered biologist waits for specimens to be returned.

FWS ornithologist Richard Banks (who urged the enforcement people to take it easy on Wheelwright and other biologists) explained to *Science* that the Migratory Bird Treaty Act, which covers almost all the birds in North America, originally exempted science and education from its coverage. But as its provisions have become tighter, they have become tougher on scientists, too.

Ornithologist Scott Lanyon of Chicago's Field Museum says it's not uncommon for the FWS to go after scientists—who after all are far more visible than smugglers—for petty violations of laws designed to control commercial activity. He says a couple of years back, the FWS threatened to confiscate some decades-old stuffed birds on loan to Chicago from a Brazilian museum. He thinks the enforcement people tend to be cop types who don't know anything about science. Says Lanyon: "Scientists end up being the ones most affected by laws intended to curb wildlife trade."

Viral Tall Tale?

Eugene Spafford is a computer scientist at Purdue University whose big memory isn't only in his machines. Last week, Spafford one-upped the Associated Press, which had tried the week before to one-up *US News and World Report* over the authenticity of the newsweekly's Case of the Secret Software.

The tale begins with the 20 January issue of *US News*, which reported that several deepthroats —aka "very senior defense officials"—had revealed that a key Iraq computer system had been cleverly disabled during the Gulf War by the U.S. National Security Agency (NSA). According to the magazine, NSA planted a devastating microchip into a French computer printer that was then smuggled into Iraq. Software written on the chip bypassed Iraqi electronic security measures and played havoc with the computer network for the country's air defense system, wiping out screens of information as they were called up.

One whale of a scoop except that the Associated Press subsequently reported that the story closely paralleled last year's April Fool's column in the computer trade journal *Infoworld*. Had a virus hopped from *Infoworld* into the *US News* word processing system? Enter Eugene Spafford, who can carry the suspicions yet further back in time. Spafford told *Science* that a 1984 sci-fi book, *SoftWars*, contained a plot device in which the Soviets buy U.S. computers through the French. Unknown to the Soviets, U.S. intelligence agents have placed "logic bombs" in the software that would crash the computers if used for military purposes.

Then again, could fiction have become fact? Despite the story's questionable origins, Spafford argues that the idea is not completely crazy. If the NSA had

access to both the printer and the software that runs it, he says, it conceivably could infiltrate the Iraqi computer system. Ridiculous, counters computer security expert Robert Courtney. "It seems like such a dumb thing to do," he says, adding that with that type of opportunity, why not crash the whole mainframe rather than fiddle with windows on a screen?

The NSA refuses to comment on the story—which may in itself be a stratagem. Even if it's apocryphal, the tale may keep potential enemies worrying.

Recession Proof

No matter how sick the global economy is, drug sales are staying healthy. Pharmaceutical sales of the top 15 drug firms increased between 6.4% and 29.4% from 1989 to 1990, according to Scrip's Pharmaceutical Company League Tables 1991. Sale-o-rama honors go to Merck & Co., which topped the charts for a second straight year with sales of $6.37 billion. The biggest gainer, Swiss giant Hoffmann-La Roche, posted a 29.4% increase. LaRoche's breadwinners included the antibacterial Rocephin (ceftriaxone) and Versed (midazolam), a sedative that, in a high-dose form, has been blamed by the health advocacy group Public Citizen for at least 20 deaths from 1985 to 1987. Eli Lilly also made hefty strides, boosting its sales 26.1% thanks in part to the antidepressant Prozac (fluoxetine). Prozac seems to have weathered charges that it can conjure suicidal thoughts in depressed people.

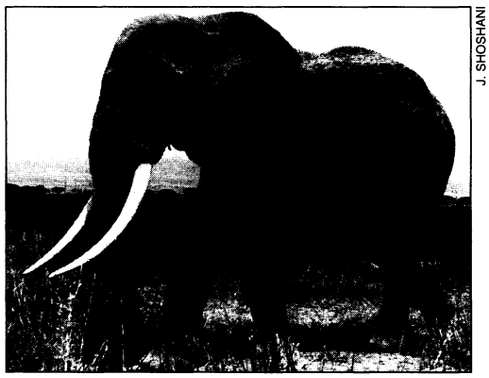
PHARMACEUTICAL FIRMS WITH THE MOST SALES, 1990

(1989 rankings in parentheses)

	Company (home base)	Pharmaceutical sales ($ billions)	% increase over 1989
1.	(1) Merck & Co. (U.S.)	6.37	17.8
2.	(2) Glaxo (UK)	6.06	16.3
3.	(3) Bristol-Meyers Squibb (U.S.)	5.26	18.4
4.	(5) Hoechst-Roussel (Germany)	4.99	18.8
5.	(4) Bayer (Germany)	4.96	16.9
6.	(7) Ciba-Geigy (Switzerland)	4.58	21.3
7.	(8) SmithKline Beecham (UK/U.S.)	4.24	15.6
8.	(9) Sandoz (Switzerland)	4.09	18.0
9.	(12) Eli Lilly & Co. (U.S.)	3.70	26.1
10.	(10) American Home Products (U.S.)	3.46	6.4
11.	(16) Hoffmann-La Roche (Switzerland)	3.46	29.4
12.	(17) Johnson & Johnson (U.S.)	3.30	24.5
13.	(15) Pfizer (U.S.)	3.23	20.4
14.	(13) Abbott Laboratories (U.S.)	3.16	13.5
15.	(14) Warner-Lambert (U.S.)	3.08	14.4

SOURCE: PHARMACEUTICAL MANUFACTURERS ASSOCIATION

Revival for Ivory Poaching?



J. SHOSHANI

Elephant in Kenya's Amboseli National Park.

Conservationists worldwide are worried that political pressure from six South African nations will cause African elephants once again to fall victim to the world ivory trade. Next March, the Convention on International Trade in Endangered Species (CITES) will consider proposals from southern Africa to loosen trade restrictions imposed in 1989 following a decade of heavy elephant poaching.

Norman Orenstein, ornithologist and lawyer with the International Wildlife Coalition in Toronto, says that during the '80s, when limited trade was permitted, the elephant population fell by about 50%. By the end of the decade, close to 80% of all legal trade was, in fact, in ivory from poached animals. But after the 1989 ban, the international ivory trade "in effect collapsed," says Orenstein.

Now, say conservationists, downgrading the elephants to Appendix II in CITES would effectively reopen that trade. South African countries are claiming that poaching can be controlled with the aid of a new method of isotope analysis, wherein certain types of carbon and nitrogen isotopes can reveal the nature of an elephant's diet and thus help indicate the geographical source of the ivory. Scientists who developed the technique, including N.J. van der Merwe of Harvard and the University of Cape Town, claim that it offers a potential means of determining whether a piece of ivory has been imported by poachers or gained legally, from elephants killed in culling operations in game parks. But even they say the method isn't ready for use. And science is no match for wiley poachers: "As long as there is such a thing as legal ivory, poachers can launder it," says Orenstein.

The conservationists warn that a lot of people are gearing up in anticipation of a change in the elephants' status. Five South African countries have created a cartel, the Southern African Center for Ivory Marketing. Poaching is up again, and "poachers and smugglers are already hoarding elephant tusks in anticipation," says Jeheskel Shoshani, an evolutionary biologist with the Elephant Interest Group in Bloomfield Hills, Michigan. The South African nations are now lobbying heavily in the United States, which supported the 1989 ban but has not yet taken an official position on the proposed change.

Science Role Model

Universities concerned about declining undergraduate enrollments in science might take note of a new program at the University of Arizona, where research biologists have put their grant money where their mouths are. As part of the university's Undergraduate Biology Research Program, more than 140 faculty members are using program funds to pay undergraduates to work in their labs. To get the funds, faculty participants must agree to pony up half the salaries ($5.40 an hour to start), cover the cost of supplies, and work closely with the students. The latter is the critical point because the idea is to involve the students in real research, not washing test tubes, at a crucial point in their college life—during the summer between their freshman and sophomore years. "Last summer we had 91 working full time," says Sam Ward, a molecular biologist. "The jobs are among the most attractive on campus," he adds. Faculty contributions are being supplemented with money from the National Science Foundation and the Howard Hughes Medical Institute, which is funding the program to the tune of $1.5 million for 5 years.

Although the program is officially only 3 years old, university officials are already reporting preliminary successes: students have been coauthors on more than two dozen journal articles and there has been a big increase in the number of participants who are deciding to make science a career. Says one satisfied student, Rebecca Page, a senior who has been working with *drosophila* genetics, "I had never taken a genetics course, and I think I got more out of working in a lab, even though it was narrowly focused, than I would have in a class."