RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Encouraging Words For EPA

Over its 25-year history, the Environmental Protection Agency (EPA) has been told many times that much of its science is second-rate and that the clean-up agency needs to clean up its act. Now this may be happening: In a report released earlier this month, the National Research Council (NRC) praises the agency's efforts to improve its research program.

Over the past year, EPA administrator Carol Browner has initiated major changes, including reorganizing EPA's 12 main research labs to eliminate redundancies, strengthening peer review, doubling funds for extramural basic research to a proposed $85 million in 1996, and launching a highly popular graduate fellowship program (*Science*, 29 July 1994, p. 599).

The NRC panel, convened last fall and chaired by Miami University President Paul Risser, concurred with the "general scope and direction" of these changes. Still, it is pressing for even more. It says EPA's Office of Research and Development can do "much better" at disseminating research results and demonstrating their pertinence to agency actions. And it complains that EPA has not given its science adviser—now research chief Robert Huggett (see ScienceScope, p. 1895)—enough clout. Says panel member Raymond Loehr, a civil engineering professor at the University of Texas and longtime agency adviser, "There is still no clear signal from EPA that it values good science."

Huggett says the agency is working on tightening the links between research and policy. Staffers will be following up on each extramural grant to ensure that the research products—EPA reports—get to key agency officials. "The worst thing that could happen is to fund this work, have the reports come in, and stick it in a filing cabinet somewhere," Huggett says. Hard to believe, but that does occasionally happen.

LONG ISLAND UNIVERSITY

Just like an ancient Egyptian. Mummified hand, darkened by natron.

Thoroughly Modern Mummy

A man who donated his body to science last year has become the first person in 2000 years to be mummified like an ancient Egyptian. Reconstructing embalming practices from the time of the pharaohs, Egyptologist Bob Brier of the C. W. Post campus of Long Island University did everything from traveling to Egypt to gather materials to removing the brain of the deceased through the nose.

The point of the exercise was to better understand how ancient Egyptian embalmers produced their results. As a preservative, the researchers used natron—a saltlike compound of sodium carbonate and sodium bicarbonate—obtained from the dry lake shores of Wadi Natrun in Egypt, a primary source for Egyptian embalmers. Taking their cues from ancient texts, Brier and his colleagues used hand tools to build a replica of an ancient embalmer's board. Then they stuffed packets of natron into the corpse's chest and abdomen and piled more natron all around the body. Brier put the lungs, stomach, liver, intestines, and kidneys in ceramic pots and covered them with natron as well.

The body was then left in a temperature- and humidity-controlled room for 35 days. When uncovered, the extremities were almost black, and "we were struck by how similar they were to those of an ancient mummy," the researchers reported last month at the Second World Congress on Mummy Studies in Cartagena, Colombia. The body had a distinct odor but no signs of putrefaction. The scientists oiled the body, washed the inside with palm wine, and packed it with spices and wood shavings. It was then wrapped in linen and put back in its "tomb" for 5 months. After a final wrapping, the mummy was placed in a sealed metal chest.

Brier says we can now answer the question of whether it was aging or preservatives that made mummies look mummylike (the natron did it). His creation now rests at the University of Maryland Medical School where, he says, it "will be used as a control in a lot of scientific studies" of ancient mummies. The man's organs are also a boon to paleopathologists, says Brier: "We now know what liver tissue looks like after being in natron for 35 days."

Science Teachers Weigh In

National standards for high school science are inching closer to the trenches: The National Science Teachers Association (NSTA) has come out with a course framework for grades 9 through 12.

Last December, the National Academy of Sciences produced a draft of its long-awaited standards covering all 12 precollege grades. Now NSTA has turned 22 pages of NAS's content guidelines into 125 concept-packed pages on physics, chemistry, biology, and earth and space sciences.

NSTA Director Bill Aldridge agrees that the guide promotes a "high level of expectations" for student performance, but he insists that students can handle the material if rote learning is deemphasized in favor of "depth of understanding." Some observers, though, think the NSTA is biting off more than students can chew. Sylvia Ware, director of education for the American Chemical Society (ACS), says, "I think the level is still too high. ... The chemistry [for grades 10–12] looks more like an advanced placement course."

The ACS is developing its own "implementation document" for the chemistry standards. Meanwhile, the proof of NSTA's pudding will be in 15 high schools which will test the framework starting next fall. The document, "A high school framework for National Science Education Standards," is available from NSTA at 1-800-722-6782.

Jobs in the Bureaucracy

With the Clinton Administration and Congress vying to see who can shrink government faster, it may surprise you to learn that at least until recently Uncle Sam has been an oasis of employment opportunity for scientists. The number of scientists employed by the government increased by 13.2% between 1989 and 1993 (there was no growth for engineers), according to new figures from the National Science Foundation. However, most of that growth has come in such areas as data collection, administration, resource management, and technical assistance. For those involved in R&D, the increase was 2.3%, a growth rate somewhat slower than the 3.1% for the overall labor force but faster than the 1% for government white-collar workers.

FEDERAL SCIENTISTS & ENGINEERS AT TOP 10 AGENCY EMPLOYERS

Depts./ Agencies	1989	1993	(Research only)
Defense	94,194	92,163	(4895)
Agriculture	16,875	17,764	(3239)
Interior	11,846	13,450	(2457)
Space	11,920	12,424	(2324)
Health	8,121	9,614	(4195)
Commerce	7,768	8,766	(2298)
Environment	6,503	8,061	(440)
Transportation	4,580	5,462	(208)
Veterans Affairs	4,401	5,355	(676)
Energy	3,838	5,132	(150)