edited by CONSTANCE HOLDEN

NIH Misbehaving

There's a missing office at the National Institutes of Health (NIH), and a lot of impatient people, ranging from Congressmen to mental-health advocacy groups, are getting tired of looking for it. They want NIH to obey Congress and establish an office for behavioral research.

Congress, which for years has been prodding the NIH to get more involved in behavior, last year finally ordered it to set up an Office of Behavioral and Social Science Research within the director's office to offer guidance and coordination on research. But 10 months later, the office has failed to materialize. It's also missed a February deadline for its first report to Congress.

And Congress and the behavioral research community are getting tired of waiting. Alan Kraut of the American Psychological Society, testifying at an NIH appropriations hearing in February, said that despite the fact that behavior is at the root of most premature deaths, from heart disease to auto accidents, "our foremost scientific institution systematically neglects" research in the area. On 10 February, Henry Waxman (D–CA), chairman of the House health subcommittee, wrote a harsh letter to NIH director Harold Varmus complaining about the delay, which he linked to a "decade-long pattern of resistance" to Congressional directives.

NIH staffers say the office isn't really lost, merely mired in public health bureaucracy. Louis Sibal of the Office of Intramural Research says a proposal defining the new office was sent over to the Public Health Service (the supervising agency for NIH) two months ago. "We're poised to act," he says, but can't do anything—such as hire a director—until the proposal gets an okay. Nonetheless, he claims, "we're shooting to have somebody in place before the end of the fiscal year."

That new director will have some difficult decisions to make—starting with a definition of "social and behavioral research." Psychologist Ronald Abels of the National Institute of Aging, vice chair of NIH's behavioral research coordinating committee, predicts some "interesting tension" with regard to the role of neuroscience, since it's difficult to know at what point cellular and molecular-level research becomes behavioral science. And at the other end of the spectrum, Congress wants the office to get into social problems such as homelessness. Little wonder the office seems hard to pin down.

Environment Research: Setting a Course

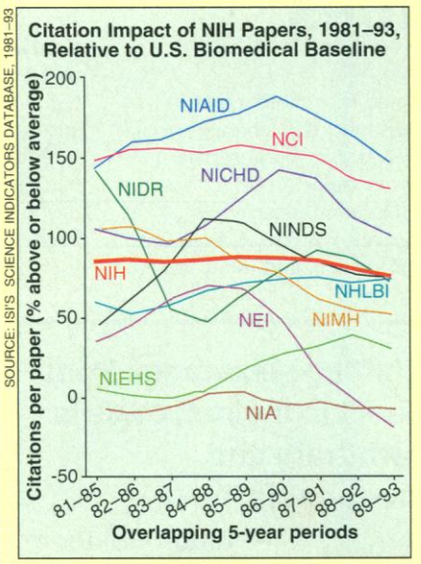
We live in an age of grand plans, or people decrying the lack of them. So it is these days with environment research. The federal government spends $6 billion annually on environmental science, but concerned scientists have charged that the money is spent with little rhyme or reason. Now the White House Office of Science and Technology Policy (OSTP) wants to change that.

Last month OSTP invited some 200 scientists to the National Academy of Sciences to advise its Committee on Environment and Natural Resources Research (CENR) on research areas that federal agencies should focus on beginning in 1996. "I think this meeting is part of a larger trend to hold agencies more accountable to each other," says Kenneth Olden, director of the National Institute of Environmental Health Sciences.

A few broad themes emerged, including the need to better measure the human impact on ecological systems, improving methods of assessing environmental threats, incorporating social scientists and economists into research efforts, and including noncancer endpoints on a more routine basis in toxicity studies.

Experts on green technologies also zeroed in on one program, the Environmental Protection Agency's Environmental Technology Initiative—a $1.8-billion, 8-year effort to bring U.S. environmental technologies to market. They said the agency should be making greater efforts to communicate its plans to industry.

Some scientists emerged from the meeting optimistic that the government wants to get more organized and seek more input from the scientific community. Says Stanford conservation biologist Harold Mooney: "We'll look back many years from now at this as a turning point in how we do business."



Downward Drift For NIH Citations

The work from scientists at the National Institutes of Health doesn't pack quite the punch that it did a decade ago, according to the March issue of *Science Watch*. An analysis of 92,961 papers published by NIH intramural scientists between 1981 and 1993 shows that while their papers are still cited more frequently than the average for biomedical science, there are fewer citations per paper at almost every institute relative to that average. "For the first time, we have more than anecdotal evidence of a small but significant [relative] decline," says David Pendlebury, a research analyst at the Institute for Scientific Information, which publishes *Science Watch*. Pendlebury cautions that the graph (above) should not be used to compare institutes against each other, since some diseases get more attention than others. And he notes that if the citation analysis is done another way, comparing the impact of a given NIH paper only to that for other papers in the same field—rather than to the overall biomedical average—both the National Institute on Allergy and Infectious Diseases and the National Heart, Lung, and Blood Institute show clear upward trends.

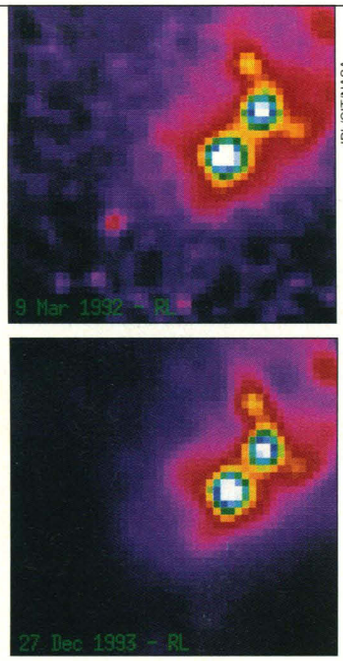
The ISI has also found that the proportion of NIH papers mentioned in the 300 most cited biomedical articles in the world has dropped from 19.53% in 1982 to 10.38% in 1993.

Supernova Clears Up Obscured Galaxies...

In the "blink" of a computer, astronomers have found a new supernova that, they suspect, explains why a so-called starburst galaxy shines so brightly: It contains hordes of massive stars on the verge of blowing up.

This latest supernova—a cosmic explosion that marks the death of a star—was spotted by Thomas Jarret a few weeks ago, when he was "blinking" or digitally comparing two infrared images of a galaxy 150 million light-years away in the Big Dipper. One image had a bright spot that vanished from an image taken 18 months later.

Jarret and his colleagues at NASA's Jet Propulsion Laboratory and Caltech's Infrared Processing and Analysis Center have been looking for supernovae in 50 starburst galaxies, galactic "train wrecks" caused by the merger of two galaxies. Their goal: to find out why they outshine normal galaxies. The question is a relatively new one, as the clouds of dust surrounding



JPL/CIT/NASA

Disappearing act. Supernova is at lower left in picture of the core region of galaxy NGC 3690 taken in March 1992. By December 1993 the supernova had faded from view.

such galaxies make them almost impossible to see optically. It has only been through space-based infrared observations that their veils have been penetrated and their enormous luminosity perceived.

Since then "there's been a big controversy over what produces the [electromagnetic] radiation from these galaxies," says Alexi Filippenko of the University of California, Berkeley. One theory held that the light comes from massive black holes sucking in matter at high speeds in the galaxies' cores. But some argued that the radiance could also be from a big crowd of massive stars, whose birth from interstellar gas would have been triggered by the galactic merger.

Lots of massive stars—which tend to be short-lived—should produce lots of supernovae. So Jarret's observation favors the second explanation, says survey leader David Van Buren of Caltech. And that's reinforced by an observation made by Filippenko's team last year when it optically spotted another blast from the same galaxy. Since astronomers ordinarily only see 20 or 30 supernovae a year, observing two in the same galaxy in such a short time suggests that hordes of massive stars are hidden behind the dust, says Van Buren, who concludes that it is those bodies, and not a black hole, that are lighting up the galaxy.

...Tripping Over One In the Backyard

New galaxies keep popping up at the very edge of the universe, but the most recent discovery has appeared right next door. Astronomers from Cambridge, U.K., announced last week at the European International Astronomy Meeting in Edinburgh that they have discovered a dwarf spheroid galaxy lurking just on the far side of our own Milky Way. The new galaxy, visible in the direction of the constellation of Sagittarius, had not been spotted before because it was obscured by the multitude of stars in the Milky Way. The researchers stumbled across it when they found, in data from telescopes in Australia, a large group of stars moving together at very high velocities.

This latest find, at 80,000 light-years away, is not only the closest known galaxy to our own, but it is also in the process of colliding with the Milky Way, whose gravitational pull is stretching its smaller neighbor into an elongated shape. The Milky Way is acting "like a galactic cannibal," incorporating other galaxies into its system, says Mike Irwin of the Royal Greenwich Observatory in Cambridge, part of the team that found the dwarf galaxy. This behavior has been going on for quite some time, adds Alar Toomre of the Massachusetts Institute of Technology. "Our galaxy is a rubbish heap of the remnants of all sorts of previous encounters."

Two Eves for Daisy?

Around 9000 years ago, before patent laws and intellectual property rights, someone revolutionized human culture by domesticating cattle. Or maybe it was two someones. New molecular evidence from researchers at Trinity College in Dublin suggests that credit for cattle domestication belongs to two isolated groups of people.

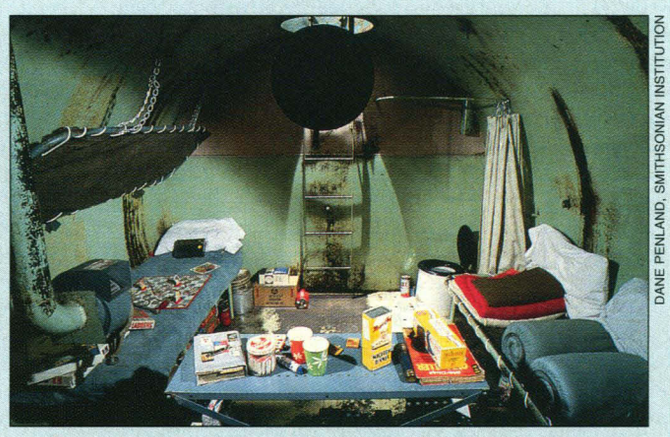
Conventional archaeological wisdom holds that people living in Anatolia, now the southern part of Turkey, domesticated cattle and spread the idea around the world. Recent finds, however, have pointed to another domestication event at around the same time but further east, in Pakistan. To sort things out, Daniel Bradley and Patrick Cunningham of Trinity College in Dublin decided to examine cattles' genetic brand: their mitochondrial DNA (mtDNA).

MtDNA acts as a lineage marker because it is only inherited from the mother, and as a molecular clock because it mutates at a nearly constant rate. What you see now is essentially what existed then, except for changes from random mutations. The Trinity researchers therefore compared the mtDNA of 13 breeds of modern cattle. They found that all European and African cattle breeds shared the same genetic lineage. But all Indian breeds—the eastern types—belonged to an entirely different lineage.

By calculating the numbers of mutations, the researchers estimate that these lineages diverged some 200,000 years ago. And since the two separate lines are still distinct, Bradley says the simplest interpretation is that there were two isolated domestication events.

This research, published in the 28 March *Proceedings of the National Academy of Sciences*, confirms paleontological work by Caroline Grigson, zooarchaeologist at the Royal College of Surgeons of England, which suggests a second domestication site in Pakistan. Grigson says this is important because it shows how people from different locations "used similar sorts of ideas and similar sorts of routes to achieve a settled agricultural lifestyle."

The Trinity group hopes to firm up the hypothesis by studying the mtDNA trapped in ancient cattle bone found in Persia, Europe, and Africa in order to track migration patterns of the cattle and their domesticators.



DANE PENLAND, SMITHSONIAN INSTITUTION

Science as society's mirror. This family bomb shelter was built in Fort Wayne, Indiana, during the 1950s. It was recently excavated, trucked to Washington, D.C., and equipped by the Smithsonian Institution for its new permanent exhibit, "Science in American Life." Curator Arthur Molella says the focus on the interaction between science and culture is unusual because "most science exhibits tend to be focused on internal issues of science and technology." This one starts tracking science and society in the 1870s, with the opening of the first university research labs, and highlights developments from penicillin to the defeat of the SSC. It also has a "hands-on" center equipped with gas and running water for visitors to perform experiments. The exhibit opens on 27 April.