

Briefings

edited by CONSTANCE HOLDEN

Indian Geologist Suspended

Prominent Indian geologist Viswa Jit Gupta, publicly accused 2 years ago of basing his research on spurious fossils, has been suspended from his post as professor and director of the Institute of Paleontology at Panjab University in Chandigarh.

The suspension comes almost 4 years after his chief accuser, Australian paleontologist John Talent of Macquarie University, first suspected that fossils Gupta said he had obtained in the Himalayas were actually from other parts of the world. *Nature* reported in its 21 February issue

that investigations by the Geological Survey of India and the Society for Scientific Values have concluded that Gupta's Himalayan fossils were not from the Himalayas. The Indian National Science Academy and the *Journal of the Geological Society of India* have also been looking into the matter. The *Journal* has told its readers that all the papers by Gupta that it has published over the past two decades have been called into question, according to the 9 February *New Scientist*.

The scandal broke 2 years ago when Talent went public with his charges (*Science*, 21 April 1989, p. 277). Since then, reports the *New Scientist*, he has also accused Gupta of plagiarizing other scientists' fossil photographs and drawings. Gupta has responded by threatening to sue

Talent but has yet to do so. He has declined to answer inquiries from the press on the charges, and has reportedly refused to make his collections available for independent examination. The British magazines relate that the scandal has not only damaged the university's reputation but is having repercussions throughout Indian science.

Answer to Mad Cow Riddle?

British scientists may have identified the origin of mad cow disease. The current suspect behind bovine spongiform encephalopathy (BSE), they say, is a drop in the price of wax.

Scientists have long theorized that a change in the process for rendering sheep carcasses—

which were used to produce protein for animal feed—may have enabled the scrapie-causing organism in sheep to survive and infect cattle feed. At first they thought a shift from batch to continuous processing of carcasses was to blame: the latter uses lower temperatures and hence might permit survival of the scrapie agent.

Now, thanks to the largest study ever of Britain's rendering industry, epidemiologists at Britain's Central Veterinary Laboratory have another theory. It seems that before about 1980, renderers mixed carcasses with organic solvents to extract animal fat for tallow. But then tallow prices fell, prompting them to dispense with the solvents. Around then, BSE appeared. The link, says veterinary epidemiologist John Wilesmith, is much stronger than that between continuous processing and BSE. In Scotland, for example, where solvents continue to be used, BSE incidence is low.

The mystery behind BSE may have been solved, but that doesn't mean the scourge has ended. Last week, the first victim of BSE in France turned up in an animal imported from Britain. It is not yet known whether she had eaten the suspect feed.

Hopes for Relic Florida Ecosystem

A unique desert ecosystem in central Florida may become the first federally designated national refuge for endangered plants.

Ornithologist John Fitzpatrick says the Fish and Wildlife Service (FWS) is gearing up to propose such a refuge on Lake Wales Ridge, a 100-mile-long ridge that contains the remnants of a 2-million-year-old ecosystem containing "one of the most ancient plant communities in the United States." Fitzpatrick is director of the Archbold Biological Station, a private institute that occupies 4800 acres south of Lake Placid.

"Everybody is paying attention to Florida now as a big [endangered] wetland system," says Fitzpatrick. But most of the state's endangered species are in small desert-like ecosystems in the high dry central uplands, 100 miles from the sea, which originated when Florida was nothing but an archipelago of sand dunes 1 to 3 million years ago. Among these species are the state's only endemic bird, the Florida scrub jay; skinks, nearly legless lizards that swim through the sand; and 1000-year-old, 4-foot-high dwarf oaks.

Threatening all these is the dizzying pace of central Florida development and especially the encroaching citrus industry. Says Fitzpatrick, "Entire self-contained ecosystems are teetering at the edge of complete annihilation."

The Archbold station has been spearheading a campaign to protect 20,000 acres—all that remains of a system originally covering 200,000—by buying up lands, now largely in private owner-

Thomas Eisner



Central Florida. Infrared satellite photo shows Lake Wales Ridge as white sandy strip down the center, interspersed with sinkhole lakes. Lake Okeechobee is at lower right. **Lake Placid scrub mint.** Entomologist Thomas Eisner's "focal plant" for "chemical prospecting."

ship, to form a network of scrub preserves. It has asked the state to acquire one site for \$50 million and has been raising private funds for further purchases. If the FWS will buy up 8000 acres of the "best patches," says Fitzpatrick, "we can declare a bunch of species saved," as well as "knock off a dozen" candidates for the endangered list. Designation of the refuge could also lend a boost to "chemical prospecting"—the search for useful new substances from plants and insects. Its chief advocate, Cornell entomologist Thomas Eisner, who regularly does field research in the area, recently discovered a local species of scrub mint that has the properties of a powerful insect repellent.

Biomatrix Society

The union of biology with computers has been sanctified with the formation of "Biomatrix—A Society for Biological Computation and Informatics."

Based at the Santa Fe Institute in New Mexico, the society seeks the reordering of biological knowledge into more comprehensible and accessible forms by using new methods of database management, artificial intelligence, computational theory, and computer modeling.

Among the chief movers behind the new society are biophysicist Robert Morowitz of George Mason University, biologist Chris Overton of Unisys Corp., and computer scientists Peter Karp of SRI International and Larry Hunter of the Na-

tional Library of Medicine. Annual membership will be \$25, \$10 for students. Additional information can be obtained from Ginger Richardson, Santa Fe Institute, 1120 Canyon Road, Santa Fe, NM 87501.

Planetary Malignancy

The rapid growth of the world's population has from time to time been compared to various disease processes. But physician and anthropologist Warren M. Hern of the University of Colorado at Boulder has gone beyond casual analogies to offer a detailed "diagnosis." The proliferation of human communities and the accompanying environmental destruction, he says, is "a malignant ecopathological process" that—"failing a radical reconsideration of many of our most cherished assumptions"—is "ultimately ecocidal."

In the fall 1990 issue of *Population and Environment*, Hern argues that population growth shares the four main features ascribed to cancer:

Rapid, uncontrolled growth. Although humans have the ability to regulate their numbers, growth continues now largely unchecked.

Invasion and destruction of adjacent normal tissues. Like tumors, humans aggressively invade adjacent space and replace the ecosystems with their own.

De-differentiation. "A striking feature of human communities is that they are becoming indistinguishable in appearance." That means they are losing specialized adaptations that



Warren M. Hern.

keep them confined to, and others out of, local ecosystems.

Metastasis. With human communities, it's called colonization and urbanization.

Hern writes that "the observations of the scientific community over the last 20 years have provided massive support for this hypothesis and little, if anything, to refute it."

But while some scientists, such as biologist E. O. Wilson, responded favorably to Hern's proposition when he solicited their opinions, others were less than supportive. Astronomer Carl ("nuclear winter") Sagan rejected the analogy because although humans can do surface damage, "the Earth cannot be harmed by the human species." Oceanographer Roger Revelle made the puzzling observation that "biological hypotheses and 'laws' that apply to other animals cannot be used to describe human beings." And zoologist Clifford Grobstein said he prefers to see humans as "spreading life like Johnny Appleseed" by colonizing extraterrestrial sites.

Says Hern: "I don't think many people are ready to hear what I have to say."

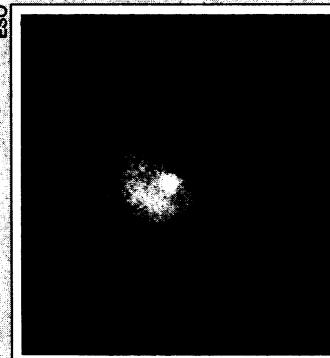
Stanford: New Focus on Teaching

Stanford University president Donald Kennedy has been talking lately about the need to upgrade teaching at universities. His concern: the increasing faculty preoccupation with research.

Now he's announced \$7 million worth of new programs, including financial incentives, to improve undergraduate teaching and "increase the resonance between teaching and research."

Kennedy has proposed changes in promotion and hiring policies to place emphasis on the quality rather than quantity of an individual's publications. "Scholarship" would be expanded to include textbooks and instructional materials. Kennedy further calls for regular evaluations of tenured professors' teaching and peer review to

A good comet is hard to keep down. Comet Halley had a surprise for astronomers last month, staging the most distant cometary tantrum ever observed. Thought to be frozen in deep space far beyond Saturn's orbit, Halley startled observers at the European Southern Observatory in Chile with an outburst of dust and gas. The result: a 300,000-kilometer wispy coma. A year ago the comet had receded



so far from the sun's warmth that its surface temperature dropped toward -200°C. Lacking enough heat to vaporize its nucleus, Halley lost its familiar coma, laying bare its icy nucleus. But then something went to work on this piece of dust and frozen gas. Planetary scientist Fraser Fanale of the University of Hawaii says carbon monoxide—highly volatile and abundant in comets—most likely drove dust off the nucleus. The gas may have been stirred up by solar heat stored deep below Halley's surface. But what triggered the spectacular display remains a mystery.

complement student evaluations of teaching effectiveness.

Financial incentives for undergraduate teaching will be mainly supplied from the new Bing Fund for Teaching, a \$5-million endowment from Stanford trustee Peter Bing. Programs will include base salary increases, and awards, stipends, and fellowships for superior teaching. Half of a \$600,000 donation of computers from Apple Computer will be used to improve teaching in undergraduate science and engineering programs. Kennedy, in a review of promotion records, found that much less attention was given to teaching in the natural and social sciences than in the arts and humanities.

Super Linkage

In a step towards a new generation of supercomputer networks, scientists have for the first time linked a conventional—or vector—supercomputer to a massively parallel computer. The link allows the two very different types of machines to combine their capabilities on a wide class of problems, doing many calculations at least five times as fast as one computer.

Built by scientists at the Pittsburgh Supercomputer Center,

the linkage transmits data at up to 250 megabits per second between a CRAY Y-MP (the vector supercomputer), and a Connection Machine (the parallel one). Scientists can divide a program between the two machines, allowing them to toss a problem back and forth as each performs the jobs it does best. The CRAY, for instance, is faster at sequential computations—such as calculating forces between chemically bonded atoms—reports center codirector Michael Levine. But the Connection Machine is faster at chores that can be divided into many simultaneous parts—such as computing electrical forces between nonbonded atoms.

The first researcher to use the link was Carnegie-Mellon chemical engineer Gregory McRae, who says he has solved difficult problems involving resource allocation in chemical process plants up to 40 times faster than he could on a supercomputer alone. "This has got to be the future of computing," he says enthusiastically.

Other potential uses include air pollution modeling, analyzing DNA sequences, and doing problems in molecular dynamics. Now that the link has been completed, Levine believes researchers will lose no time in discovering further applications.