Briefings

edited by CONSTANCE HOLDEN

New Obstacle for Foreign Scientists?

Is Congress about to make it tougher for U.S. universities to get the foreign scientific talent they need? So says the Association of International Educators, a group still referred to by the acronym NAFSA from a prior name, National Association for Foreign Student Affairs. The association claims that new regulations, proposed by the Labor Department to implement last year's revised Immigration Act, could impede efforts to hire foreign scientists and other scholars.

The law contains a new requirement for a "labor condition application" that requires employers to state that they will pay all foreign employees in the United States on an H-1B visa "prevailing wages" (the average in the field) or "actual wages" (the average for similar workers at the institution), whichever is higher.

That, according to NAFSA's Lisa Jacobson Treacy, amounts to "federally mandated wage inflation." In a three-person department, for example, where one professor is getting a salary of $75,000 and the other two are getting $45,000, the entry of a foreign professor would force the minimum wage to be raised to $55,000.

A number of officials from large universities have expressed concern that the regulations will crimp their efforts to fill posts for which no qualified Americans are available. Catheryn Cotten, international adviser at the Duke University Medical Center, says the regulations would raise "significant and unintended roadblocks for U.S. colleges and universities engaging in scientific and technical research.... Without the H-1B we will not have access to the people worldwide who can perform [and teach] complex medical procedures." Amy Yenkin of NAFSA says, "Universities have come to rely heavily on H-1B [visa holders]," but no figures are available on the number of scientists who would be affected.

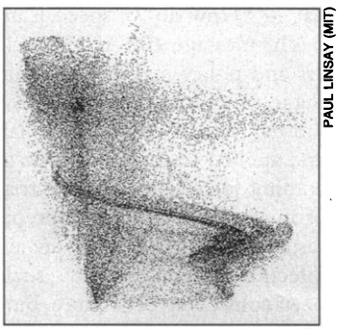
The new "interim final" regulations were published on 22 October. Higher education groups are working with members of Congress during the 60-day comment period to try to get them altered.

Science Gamesmanship

Say you possess a computer—anything from a PC right on up to a Cray—and say you're a fierce competitor who loves novel games. The Santa Fe Institute, a New Mexico think tank, is staging the contest for you—a "Time Series Prediction and Analysis Competition." Can you resist?

Time series problems involve analyzing the behavior of systems, ranging from the stock market to the weather to heartbeats (see *Science*, 1 March, p. 1011). A great variety of disciplines have been addressing such problems with new techniques, such as neural networks and differential topology, according to competition co-organizer Neil Gershenfeld, a Harvard physicist. But so far the results are largely "anecdotal." So in order to explore and test the reliability of these techniques, the institute has set up a contest in which entrants are supplied with data on particular problems and invited to see what they can make of them. Problems are in three areas: forecasting, inferring properties of the system, and model-building. "It's very much a meta-experiment," says Gershenfeld.

Gershenfeld, who is being assisted by Andreas Weigend of the Xerox Palo Alto labs, goes on to say that since the competition was launched in August, there have been 5 to 10 computer logins a day from South America, Europe (including Eastern Europe, which has recently been connected to international computer networks), and Asia,

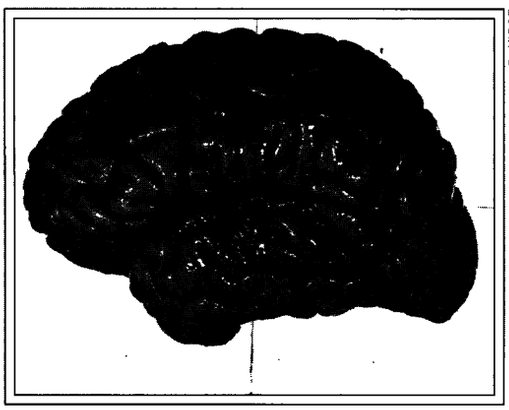


PAUL LINSAY (MIT)

Data plot. *A two-dimensional representation of signals from coupled diode oscillators, produced by time-delay embedding. The oscillators are a simple electrical circuit that behaves in complicated and apparently noisy ways.*

Oh, for a Normal Brain!

As research on brain diseases and the biology of mental disorders has progressed, so have the needs of researchers for preserved samples of human brains—both from people with diseases such as Huntington's, schizophrenia, and Alzheimer's, and from normal subjects. Normal brains in particular are needed both for anatomical studies and as controls in research on the effects of drugs, diet, and stress, as well as disease, on the brain. But in recent years scientists have had difficulty obtaining normal brains, partly because of a sharp decline in autopsies. Take the brain drain encountered by researchers at the McLean Hospital Brain Bank in Belmont, Massachusetts. There the proportion of normal brains among donations dropped from 20% 5 years ago to 3% in early 1990. What's more, anonymous brains aren't much help to researchers—the more information they have on the psychological functioning of the donors, the more valuable the specimens are.



D. KIGAR

Rare commodity. *Left brain hemisphere of an intelligent 58-year-old woman with known medical and social history.*

Enter behavioral neuroscientist Sandra Witelson of McMaster University in Hamilton, Ontario. Witelson and colleagues, who study structure-function relationships in the human brain, began a collection of normal brains, accompanied by a wealth of pre- and post-mortem data, back in 1977. She now says she has about 70 brains—enough to make the collection available to other scientists.

Witelson gets her specimens by recruiting cancer patients with poor prognoses from local hospitals. She emphasizes that it's not easy to find patients who meet all the criteria: The team reviews about 2500 patient charts a year, but only 2% of these patients are approached, and only one in four agrees to participate. All the volunteers are under 70, ambulatory, and have no history of neurologic or psychiatric disorder. Subjects' oncologists have to ascertain that a request for their brains won't upset them or family members; families have to concur in the decision to ask patients; and patients have to be aware of the seriousness of their disease. So far, more than 120 subjects have agreed to participate. They are given detailed tests assessing cognitive abilities and personality, as well as tests of handedness and hemispheric asymmetry. Extensive medical, educational, social, work, and drug histories are also taken.

Witelson, who says hers is the only project of its kind in the world, describes the project in the fall issue of the *Schizophrenia Bulletin.*

as well as North America. The deadline for entries is 31 December. If you're intrigued, you can either log in directly through Internet, use electronic mail, or ask the Santa Fe Institute to mail you a disk with the data. To request information, electronic mail should be sent to tserver@sfi.santafe.edu.

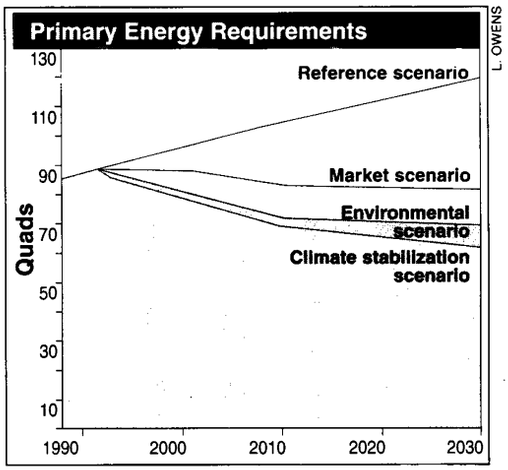
Winners will be identified "where appropriate," says Gershenfeld, but there will be no monetary prizes as the organizers don't want the contest to get bogged down in squabbles. The entrants will be invited to a workshop at the institute next spring to explore the results.

Looking 40 Years Ahead on Energy

Four nonprofit groups have banded together on a new analysis of alternative energy futures for the United States extending to the year 2030. Under current policies, says the report,* released last week by the Union of Concerned Scientists, the Natural Resources Defense Council, the Alliance to Save Energy, and the American Council for an Energy-Efficient Economy, national energy consumption will rise by 41%. The report proposes 3 alternative scenarios based on an energy modeling system designed by the Tellus Institute in Boston. Under the "climate stabilization scenario," (see chart), emissions of carbon dioxide would be cut by 70% and overall energy use would be half of what is now projected 40 years hence. The "market" and "environmental" scenarios posit more gradual adoption of energy-efficient and renewable energy technologies.

The groups say that the economy as well as the environment would benefit from the measures they propose, which include revision of utility pricing, establishment of energy efficiency standards in new construction, tax credits for renewable energy supplies, and the use of biomass-derived transportion fuels.

The report comes on the eve of congressional debate over an Administration-supported bill introduced by Senators Bennett Johnston (D–LA) and Malcolm Wallop (R–WY). A bipartisan filibuster is planned in response to the bill's most controversial provision—opening Alaska's Arctic National Wildlife Refuge to oil and gas drilling.



Climate crystal ball. *Divining energy usage.*

*__America's Energy Choices__, available for $15, plus 20% for shipping, from the Union of Concerned Scientists, 26 Church St., Cambridge, MA 02238.

Chatting With ETs

It has taken two decades of lobbying for funding, planning, and engineering, but on Columbus Day 1992, NASA scientists with the agency's SETI (search for extraterrestrial intelligence) project expect finally to activate the network of microwave receiving dishes for the most ambitious such search ever conducted. But with the radiotelescopes revved and the electronic equipment tuned, NASA still has some nagging philosophical details to address: If astronomers actually do detect a signal from a civilization Out There, should that signal be answered? And what kind of reply is in order?

Last week NASA convened a 3-day conference to ponder these matters. Crafting a response, astronomers feel, is more complicated than simply beaming, "Hi, we got your message!" into the cosmos. To begin with, they want to have an international consensus on just what to do. Why has it taken so long? "The scientists and engineers have been so consumed with getting the technical studies done, we haven't really had the time," says John Billingham, chief of SETI at NASA's Ames Research Center at Moffett Field, California. A report of the NASA workshop will be released next year.

Scientists have good reason to be prepared: Earth could receive an answer to a SETI-transmitted reply within a mere millennium. Because SETI is confining its search to the Milky Way, explains Billingham, it's likely that an incoming signal will have been broadcast within the last 1000 years, which means the communicating civilization might still exist. There's a thought to reckon with.

"All the [Science] That's Fit to Print"

How do doctors and scientists get their news of medical breakthroughs? Most people probably assume that biomedical professionals learn of discoveries in their fields through professional channels—like journals and colloquia. Well, they're wrong, says sociologist David Phillips of the University of California at San Diego (UCSD). Biomedical researchers get most of their information on medical breakthroughs from reading the paper. In fact, according to a new study by Phillips and his colleagues, researchers use newspapers as a "filter" to help them decide which scientific articles are worth reading.

The UCSD team reached its conclusions after looking at the number of scientific citations for articles appearing in 1979 in the *New England Journal of Medicine (NEJM)* and comparing that with articles picked up by *The New York Times*. They found that when the *Times* published a story about an article published in *NEJM*, it received significantly more scientific citations—73%—for 10 years after publication than did the articles that appeared only in *NEJM*. The researchers ascertained that the newspaper wasn't just publicizing articles that would gain a lot of attention anyway. When the *Times* was on strike in 1978, it kept a record noting *NEJM* articles that it normally would have written up. Those articles, which never reached the newspaper's audience, were cited far less than those that did.

Phillips plans to pursue the topic by exploring whether press coverage prompts researchers to overemphasize some published findings, and whether the lay media distort the transmission of medical information to the biomedical community. Incidentally, the findings were published in the 17 October issue of *NEJM*. Which raises an interesting question—will most researchers learn of Phillips' study by reading *NEJM* or the daily paper?

Errata

Could it be the thinning of the ozone layer (see p. 645) that has indirectly caused our baffling *faux pas* in recent issues? In reporting the formation by the National Academy of Sciences of a Committee on Environmental Research to be headed by Cornell President Emeritus Dale Corson (11 October, p. 192), we inexplicably fused the distinguished careers of physicist Corson and former Dartmouth president John Kemeny. It was the latter who headed the President's Commission that investigated the accident at Three Mile Island, whereas Corson's distinctions include heading the NAS's "Corson Panel" on scientific communications and national security and founding the Government-University-Industry Research Roundtable. Three weeks earlier (in "Mycomummy," 20 September, p. 1353), we misspelled *Coccidioides*, a fungus whose petrified spores were found in the ancient skeleton of a Sinaguan indian.