

Bush Administration Weighs in on AIDS

With the presidential election not far off, the Bush Administration has come out with a timely essay on a subject that the White House has previously earned low marks in. Last week, the U.S. Department of State released "The Global AIDS Disaster: Implications for the 1990s," a 21-page report on the world's AIDS "hot spots." A State Department spokesman says that this is the department's first public report on AIDS.

Written primarily for foreign diplomats and officials (and by real-live scientists), the report discusses the economic and cultural threats posed by the AIDS pandemic. It defends the politically sensitive U.S. restrictions on HIV-infected visitors and immigrants, claiming that more than 40 countries engage in the practice to "counter the spread of the disease and reduce costs of caring for infected immigrants." But the report also acknowledges that critics say that "this unfairly targets HIV-positive individuals and unnecessarily highlights AIDS among diseases."

Lest anyone suspect that election year politics prompted the report, one of its co-authors, who spoke on condition of anonymity, says that the so-called white paper "was not politically motivated." And he adds: "The timing was not planned, either." One conspicuous omission seems to add weight to that assertion: The report never mentions President George Bush.

Societies Sound Alarm on Biodiversity

For the second time in the past 6 months, the National Academy of Sciences (NAS) and the Royal Society of London have gone on record to express their "great concern" over a current socioscientific issue. The first statement, in February, underscored the links between population growth and environmental degradation and called for global policies to stabilize population growth. Now, in a 23 July statement, the societies weigh in on the loss of biological

CHRONIC UNDERNUTRITION IN DEVELOPING REGIONS

Developing region	Period	Total population (millions)	Chronically undernourished %	Number (millions)
Africa	1969-71	288	35	101
	1979-81	384	33	128
	1988-90	505	33	168
Far East	1969-71	1,880	40	751
	1979-81	2,311	28	645
	1988-90	2,731	19	528
Latin America	1969-71	281	19	54
	1979-81	357	13	47
	1988-90	433	13	59
Near East	1969-71	160	22	35
	1979-81	210	12	24
	1988-90	269	12	31
All regions	1969-71	2,609	36	941
	1979-81	3,262	26	844
	1988-90	3,938	20	786

A Snapshot of World Hunger.

Even as the developed nations' news media begin to broadcast predictions that half the population of Somalia may starve to death in the next couple of months, the United Nations Food and Agriculture Organization (FAO) has issued a report, dated 26 July, that attempts to convey a measure of good news about world hunger: In the last decade, global food supplies seem to have grown faster than the population, especially in developing nations. According to data compiled by the FAO, the percentage of chronically undernourished people in developing countries has decreased roughly 6% in the last 10 years, and 16% in the last 20 years. The FAO defines "chronically undernourished people" as those who "on average during the course of a year did not consume enough food to maintain body weight and support light activity."

The largest strides in alleviating hunger took place in the Far East, which registered a 50% decrease in the percentage of chronically undernourished people in the past 20 years. Still, because of its huge population, China and the rest of the Far East are home to the majority of undernourished people—more than 528 million people, or 67% of the developing world. Meanwhile, in Africa, where chronic undernourishment has afflicted about a third of the population since the FAO's first survey around 1970, the report states that drought (reported in the news media to be building toward the worst this century) and civil unrest have undermined famine relief efforts. Says Joachim Von Braun, director of the food consumption and nutrition division of the International Food Policy Research Institute, "the international community has shown signs of fatigue in responding" to famine. Which makes it all the more important that the report's "good news" be put in its proper, grim context.

Source: "World Food Supplies and Prevalence of Chronic Undernutrition in Developing Regions as Assessed in 1992," a 1992 FAO report.

diversity. And that delights Walt Reid, policy analyst at a Washington, D.C.-based thinktank, the World Resources Institute: "It flags the fact that the scientific community sees the long-term cost of the loss of biodiversity as so significant," Reid says.

As they did with population growth, the societies discuss biodiversity in an economic context. Instead of bemoaning the rapid decline of species worldwide, they cut to the chase and focus on what they consider to be a fundamental mechanism for

managing biodiversity: linking conservation with economic development. They call for the international community to support the establishment of a network of national biological institutes in species-rich countries in the developing world, modeled on Costa Rica's INBio (*Science*, 22 May, p. 1142). INBio's goal is the preservation of biodiversity through its wise exploitation, such as prospecting in tropical forests for new drugs. The idea is that developing nations would invest some of the potential profits in conservation programs. Since this concept appears to be working, the two societies want to lend moral support both to INBio and to other such efforts. Adds Peter Raven, director of the Missouri Botanical Garden and home secretary of the NAS, they also wish to encourage international funding agencies to cough up some funds.

The suggestion of the two societies is timely: Already several countries are following the INBio model. Mexico established a national biodiversity institute in March; Taiwan did so on 1 July, and Chile, Indonesia, and Argentina are considering the option as well.

NASA Pinches Pennies to Get Perseus

In this age of billion-dollar spacecraft and \$30 billion space stations, NASA isn't known for its bargains. But now the agency is touting a \$2.75 million steal: Perseus, the first airplane designed specifically for atmospheric studies and the highest flying subsonic plane ever.

How has NASA come up with such an economic proposal? It has abandoned its "fail-safe" approach to design. Instead of encouraging the usual safety-ridden but expensive R&D routine, NASA has authorized Aurora Flight Sciences Corp. of Manassas, Virginia, to take a more freewheeling approach to this craft. Tomorrow's crew members needn't worry because this is to be an unmanned plane that flies into the stratosphere to better un-

derstand everything from the ozone hole to hurricanes. A team headed by John Langford, the designer of the high-tech, human-powered Daedalus aircraft, will design and build two Perseus aircraft for flight testing this winter or spring.

Specifically, Aurora will save roughly \$40 million by holding the number of engineers on this project to a smallish group and by scrapping wind-tunnel testing, says NASA project scientist Philip Russell of Ames Research Center in Mountain View, California. Left to its own devices, NASA couldn't do that, he says. "The standard NASA approach is that...there can be no practical possibility of failure." If only it were so.

Shedding Light on an Ultraviolet Threat

Biologist James Regan of the Florida Institute of Technology has invented a new twist on the message-in-a-bottle ploy: DNA in a quartz tube. Regan has developed what he calls "DNA solar dosimeters" to measure ultraviolet-B light, the rays that interact with living tissue and potentially cause cancer. UV-B rays are falling to Earth in ever greater profusion as the ozone layer degrades, so Regan is offering humanity an extremely inexpensive warning device.

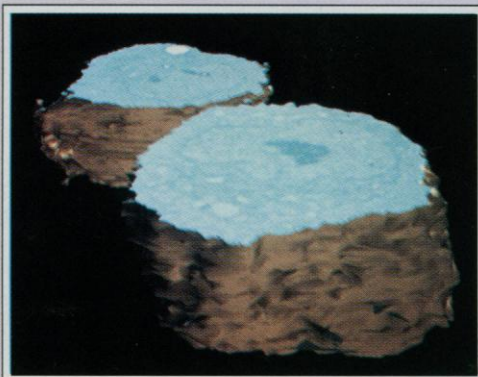
As UV-B passes into a quartz tube about the size of a pen, the rays strike a strand of DNA taken from human skin cells. The UV-B induces pairs of pyrimidine bases in the DNA to fuse together. Scientists can easily count the number of dimers formed and obtain an accurate measure of how much UV-B has struck the device.

Regan already has used his biosensors to measure how much UV-B might be reaching ocean fauna. His preliminary data, published

NATIONAL CENTRE DE LA RECHERCHE SCIENTIFIQUE

A New Dimension in AIDS Research

This 3-D representation of an HIV-infected T lymphocyte was produced by a computer imaging system that combines electron micrographs of more than 250 ultrathin slices of a single cell. Other groups have attempted 3-D cell imaging, but Christophe Bron of the Swiss National Center for Retroviruses claims that the system his Zurich team has developed, along with Michel Jourlin of the Industrial Chemistry and Physics Institute of Lyon, produces images that are more accurate than any produced previously. The secret? The computer program



corrects for deformations in the cells that inevitably take place when the epoxy-resin block holding them is cut into hundreds of 40-nanometer-thick slices. Unlike previous cell imaging systems, which have produced 3-D recon-

structions with simplified drawings traced from electron micrographs, Bron's system is able to work with digitized versions of the original electron micrographs. "That is a really original aspect," says Peter Mestres of the University of Saarland in Homburg, Germany, who would like to use the system in his own neurocytological research.

Indeed, the tool is already being used for more than just producing fancy images. The team's system is spewing out views of HIV-infected and uninfected cells. Their goal is to see how the virus affects cellular ultrastructure. And in the future, Bron hopes to make images of infected and uninfected cells that have been microinjected with antiviral peptides, in order to discover if the peptides have an antiviral effect that isn't simply due to toxicity toward the host cells.

in the July issue of *Photochemistry and Photobiology*, indicate that organisms near the ocean surface might be endangered: They are subjected to UV-B doses 20 to 30 times greater than those seen in previous measurements. But at depths greater than 5 meters below the surface, dimer formation drops by more than 95%, indicating that UV-B poses little risk to most marine life.

Next on Regan's agenda is to convince scientists at the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and other agencies that his instrument is a

good investment of taxpayers' money. At less than a \$1 a pop, Regan's DNA tubes may prove a practical alternative to current UV-B samplers—bulky spectroradiometers that cost between \$35,000 and \$250,000.

The Birth of NASA's Meatball

Count on *Science* readers to set the record straight. Some weeks ago, we reported that new NASA chief Daniel Goldin had scrapped the worm and resurrected the meatball (*Science*, 26 June, p. 1765). These are insider names for NASA logos—the classical one in which Earth was the "meatball" above which hovered a red

"V," and the sleek-looking, upstart "worm," which tunneled its way in and took the meatball's place in 1975. We reported that Goldin scrapped the worm because old-timers at NASA disliked it, opting for the meatball because it was a sentimental favorite. But some younger staffers, including a spokesman contacted by *Science*, seemed ignorant of precisely what the V stood for, guessing it might be an abstract symbol for progress in aerospace.

Not so, wrote in some of the old-timers who were around when the meatball was created. In a letter to *Science*, Jerry South, chief scientist at the applied aerodynamics division of NASA's Langley Research Center in Hampton, Virginia, and J.G. Simmonds, chairman of the applied physics department at the University of Virginia, Charlottesville, recall that the V existed in real life. They report that it was a model of an advanced aircraft wing, based on theoretical research in the 1950s and built for a test in NASA's Langley's wind tunnel. The V was meant to optimize the ratio of lift-to-drag at supersonic speeds, they write, using a "cambered, twisted wing surface with a very 'swoopy' look."

And Langley's V wasn't the only one. Simmonds recalls that engineers at the NASA Ames Research Center at Moffett Field in California, built a test wing of the same general design. And solar wind physicist Murray Dryer, formerly a staffer at NASA Lewis, writes that he made a red V when he was at Lewis. Dryer says that a model wing he built was actually used for the floating red V in the meatball. NASA's chief at that time, T. Keith Glennan, asked the Lewis graphics department to design an image that would represent both the agency's aerospace and outer space missions, Dryer recalls. He says the graphics folks borrowed his model for "a day or two," made a cardboard mock-up, added a globe, a satellite, some stars, and presto: The meatball was born.



UV trap. DNA biosensor nabs UV light.