RANDOM SAMPLES

edited by CONSTANCE HOLDEN

NIH to Test AIDS Drug Nixed by WHO

A World Health Organization (WHO) study released at this month's AIDS conference in Berlin has found no evidence of efficacy for a controversial therapy that has been promoted by some African-American groups. But the National Institutes of Health (NIH), which last year agreed—under pressure from such groups—to launch clinical trials of the therapy, says it will nevertheless continue with its plans.

Low-dose oral alpha-interferon, marketed under several trade names, including Kemron, was first promoted in 1989, reportedly after a trial in Kenya, showed apparently promising results.

Since then, Kemron has become something of a rallying point for some African-American groups, including the Nation of Islam, which have complained that NIH has not adequately researched the drug. NIH last year rejected it on the basis of several clinical trials conducted elsewhere. Last October, however, after appeals from the Congressional Black Caucus, NIH asked the National Medical Association, an organization of black physicians, to help design a clinical trial.

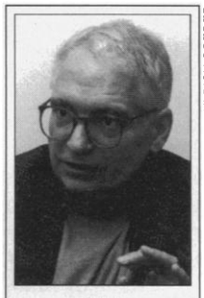
The WHO trial compared 560 HIV-infected people to a control group and found no therapeutic effects in any of six parameters. But George Counts, assistant director for minority affairs at the National Institute of Allergy and Infectious Diseases, says NIH feels there is room for another trial—perhaps using a different dosage or focusing more on symptoms and less on outcomes. The agency plans a short pilot study later this year involving 40 to100 participants in preparation for a larger study, expected to cost several million dollars.

Scientist Running for German Presidency

A prominent scientist from eastern Germany stands a good chance of becoming Germany's next president. Jens Reich, a specialist in DNA sequence analysis at the Max Delbrück Center for Molecular Medicine in east Berlin, last week became the first person to declare his candidacy to succeed president Richard von Weizsäcker, whose term expires next year.

Reich, one of the leaders of the New Forum party that helped topple the communist East German regime, is backed by a coalition of intellectuals from across the political spectrum, called the Frankfurt Initiative, who want to open up German politics to people outside the party system. Judging from the favorable reaction by the German media, Reich may have caught the public mood.

Reich knows that he can't rely on public support to mount a Ross Perot-style campaign: Germany's president is chosen not by popular vote but by a committee of several hundred politicians from the parliament and the 15 German states. Nevertheless, he's a clever choice.



ULRICH SOEDER

Reich

German Chancellor Helmut Kohl recently said he would like to see an eastern German become president—and there are few more highly regarded figures in the east than Reich. (Germany already has a former East German as science minister [*Science*, 14 May, p. 889]).

As a largely ceremonial head of state, Germany's president has little real power. But the post may have more influence in the future. Weizsäcker has attracted attention for his condemnation of the rising tide of hostility toward foreigners. Reich says that he would take a similar stand and argues that Germany's citizenship laws should be changed to include people of foreign descent born in the country, rather than merely those whose ancestors are German. His other main priority: Break down the barriers between east and west that are still all too apparent, 3 years after reunification.

UK Industrial R&D Dragging

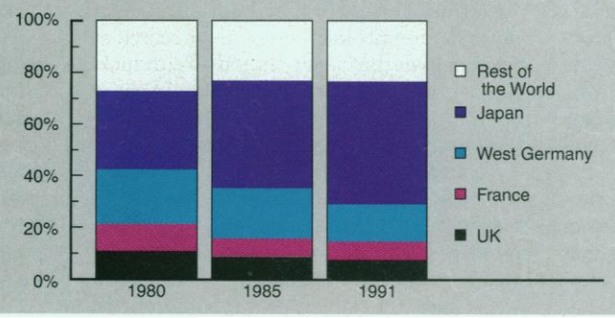
A British government survey of the country's industrial R&D has shown that, while funding increased last year at a faster rate than inflation, investment in research continues to lag behind that of foreign competitors.

The Department of Trade and Industry's third annual R&D Scoreboard revealed that the 336 British publicly quoted companies with the biggest R&D budgets increased spending by 6% in 1992. That increase is a brave one during a year in which profits dropped by 11%. But it is less than the 8% rate in other countries. A survey of the top 200 R&D spenders around the world found that on average the companies devoted three times their percentage of sales to R&D as did British companies, which prefer payouts to shareholders. In contrast, the world's top 200 companies spend two and a half times as much on research as on dividends.

Britain's top R&D spender, the chemicals and pharmaceuticals company ICI, last year fell by 12 places in the international rankings, to number 47. In addition, only 11 British companies rank in the top 200, compared with 13 in 1991. (The U.S. and Japan dominate the list, with 75 and 59 companies respectively.) Britain's decline is reflected in an analysis of U.S. patents awarded to foreign inventors—its 10% share in 1980 had dropped to 6% by 1991 (see below).

Despite ICI's drop in the rankings, pharmaceutical companies dominate the British research scene, with four—ICI, Glaxo, SmithKline Beecham, and Wellcome—accounting for almost one-third of all industrial R&D spending. And there is one glimmer of hope: British drug companies increased their R&D spending by 16%, two points higher than the global average for the industry.

Patents Issued in U.S. to Other Nations



Aid to Soviet Mathematicians

It's been a long time since $25 could bring a sparkle to the eye of a U.S. scientist—but in the former Soviet Union, that's considerably more than the average working scientist makes in a month. So the American Mathematical Society (AMS) is hoping that its program of small grants to former Soviet mathematicians—$50 per month for Ph.D.s and $25 for graduate students—will be a significant force in helping them hang on to their tradition of excellence.

The AMS has been one of the first among U.S. organizations to help; others include the American Physical Society, the AAAS, and the American Chemical Society. Since last year it has amassed almost $650,000—$100,000 from individuals and the rest from the National Science Foundation and private foundations. More than 5000 scien-

tists from Russia and other parts of the former Soviet Union have applied for the 3-year grants: 327 have been awarded since last November, and the total may rise to 450 by the end of the year. The AMS also claims to have created one of the first systems of peer review in the former Soviet Union by using Russian mathematicians to select the winners.

The AMS is also out to help indoctrinate colleagues in the East on the mysteries of grantsmanship. Next month in Moscow it will conduct a workshop—perhaps the first of its kind—to help mathematicians applying for the larger grants being made available by the new International Science Foundation that was set up last year by Hungarian-born financier George Soros. A follow-up proposal preview session is scheduled for August.

Shake, Rattle, And Roll

Why do the large stones in a bin of gravel end up at the top, while the smaller ones concentrate at the bottom? The accepted wisdom was that each time a truckload of gravel—or a can of mixed nuts or any other container of granular material—vibrates and the contents jump around, the smaller particles drift down to fill the space that opens under the larger ones. Jostle by jostle, the big ones rise to the top.

But a trio of physicists at the University of Chicago, writing in the 14 June *Physical Review Letters*, say that may not be how it works after all. Looking at containers filled with glass beads, James Knight, Heinrich Jaeger, and Sidney Nagel instead saw a large-scale churning that swept beads of all sizes to the top of the container, then marooned the large beads at the top.

Nagel says he and his colleagues had long suspected that the computer simulations might have overlooked something. A pile of stones may look simple, but these macroscopic, many-body systems are dauntingly complex to a physicist. "We have so bloody much trouble getting these systems under control," he says.

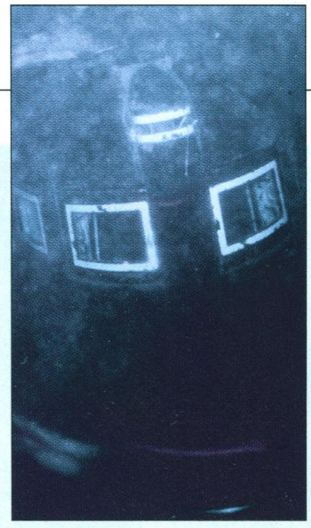
So Nagel and his colleagues decided to test the problem directly by filling a cylinder with tiny glass beads, including a layer of colored beads near the bottom that contained one or more larger beads. Then they vibrated the container—and watched the entire colored layer rise to the top. There the smaller beads fanned out toward the edges of the container—as in a blender—and began slipping downward in a narrow layer against the walls. But the larger beads, too bulky to fit into the downward flow, were trapped at the top.

That mechanism for size separation hadn't shown up in computer simulations, says Nagel, probably because they didn't take into account the container walls—and the friction between the walls and the beads seemed to be crucial to setting up the flow. Nagel adds that the finding should prove useful to engineers trying to control "demixing" in concrete mix and other industrial materials.

"It all sounds perfectly reasonable," says Paul Meakin of the University of Oslo, who has done computer simulations. But he thinks there may be more than one way to sort rocks. Nagel agrees that in materials as complex as these, "you should never say something else can't happen—because it probably can."

Russians, U.S. Differ On Arctic Sub Threat

The cold war may be over, but Russian and U.S. scientists sometimes find themselves on opposite sides of the fence on measuring its environmental legacy. While the Russians have grown much more concerned about pollution from the nuclear reactors and weapons aboard Soviet submarines scuttled in the Arctic—even warning of catastrophe—some U.S. scientists see no significant threat to humans and warn that radioactive runoff from land-based operations is more serious.



UNDERSEA RESEARCH & P.P. SHIRSOV INST./WHOI

Sunken sub. Komsomolets conning tower.

Writing in a *New York Times* column, Igor Spassky, a former Soviet admiral who now heads the Komsomolets Foundation—a private group seeking funds to raise the Komsomolets nuclear sub that sank off Norway in 1989—conjured up a scenario in which the plutonium from sunken warheads could leak out by 1996, be taken up by plankton, be eaten by fish, and wind up on the dinner table. Some of Spassky's colleagues spoke of similar risks based on a worst-case scenario at a meeting earlier this month at the Woods Hole Oceanographic Institution, wowing the audience with videos of the corroding sub.

But the majority, led by Woods Hole radiochemist Hugh Livingston and other Westerners, deflated the Komsomolets scenario, issuing a statement of consensus at the end of the meeting. The Livingston group noted that there is "no evidence of any regional scale contamination in the Arctic," and that there is no "significant present or future threat to human health or the environment" around subs and weapons lost in the deep sea (below 1500 meters).

They emphasized that the "most serious" threat is posed by runoff from nuclear operations on land. For example, Livingston points to the ocean dumping of radionuclides by the British nuclear fuel reprocessing plant at Sellafield. It has already dumped more than 1 million curies of plutonium into shallow waters in the North Sea, according to British records, while the Komsomolets, in even the worst case, would release no more than 600 curies into the Arctic.

A Bang by Any Other Name...

A plot is afoot to kill a popular scientific buzz word—the Big Bang. Timothy Ferris, author of several books on astronomy, has decided that the phrase is inaccurate and disrespectful to the universe and has persuaded the editors of *Sky and Telescope* to hold a competition for a new term. "For scientists to have pinned a slangy, irreverent moniker on the birth of the universe does them no honor," he wrote in an editorial. Entries will be judged by a panel composed of Ferris, astronomer Carl Sagan, and television newscaster Hugh Downs.

It is not clear how many astronomers are climbing on the anti-Big Bangwagon. "It's a crazy idea," says astronomer Stan Woosley of the University of California, Santa Cruz. Cosmologist Michael Turner of the University of Chicago also thinks the proposal "seems pretty dumb."

Ferris is right about one thing: "Big Bang" was coined some 40 years ago as a disparaging term by one of the theory's strongest foes, British astronomer Sir Fred Hoyle, to distinguish it from his "steady state" universe. "If I had any sense at all I would have patented it," he says. Hoyle adds that it doesn't much matter what they call the theory, because it's still wrong.

One early entry in the competition is from Bill Watterson, who draws the comic strip *Calvin and Hobbs*. Deciding last year that Big Bang was inadequate, Calvin proposed "the Horrendous Space Kablooie."